Clinical Practice Guidelines for the Management of Overweight and Obesity for Adults, Adolescents and Children in Australia

Draft Technical Report
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INTRODUCTION

This Technical Report provides detailed methodological processes and findings that inform the review and update of the Clinical Practice Guidelines for the Management of Overweight and Obesity for Adults, Adolescents and Children in Australia.

Since the last guidelines on this topic (1), there have been multiple changes to the guideline development process. In Australia, the National Health and Medical Research Council (NHMRC) have transitioned away from the levels of evidence and grades of recommendations for developers of guidelines (2) to a more robust and transparent reporting process. This has been defined through the procedures and requirements for meeting the NHMRC standards for clinical practice guidelines (3, 4) (Checklist presented in Appendix A), which includes the adoption of the international standard of GRADE (5) and the Evidence to Decision framework (5).

This review of the Guidelines aligns with the recommendations outlined in the National Obesity Strategy 2022-2032 (6), a 10-year framework for action to prevent, reduce, and treat overweight and obesity prevalence in Australia. The planned implementation strategies within the National Obesity Strategy adopts four principles: to create equity; tackle weight stigma and discrimination; address the wider determinants of health and sustainability; and empower personal responsibility. These same principles have been embedded through the Guideline development process.

With evolution in the context in which guideline development for the clinical management of overweight and obesity takes place, the evidence synthesis undertaken to inform this 2024 iteration of the Guidelines has key changes from that used previously. It has been reframed to consider the benefits and impacts of weight maintenance in addition to weight reduction, that is, weight management, as well as the variety of potential implications of obesity treatment, such as on health-related quality of life.

A systematic review that underpins the treatment recommendations, along with three supporting scoping reviews to inform the context and Evidence to Decision framework assessments for the Guidelines are described. The systematic review inclusion criteria, search strategies, data from included studies (Supplementary file 1), results (including meta-analyses), Risk of Bias assessments (Supplementary file 2), Certainty of Evidence tables, and Evidence to Decision framework templates (Supplementary file 3) are presented. The inclusion criteria, search strategies, and results of the scoping reviews are also provided (Appendix B).

Recommendations are population specific, providing guidance on which interventions work best for different populations and age groups, including Aboriginal and Torres Strait Islander people, people from culturally and linguistically diverse backgrounds (7) people living with a disability, people living with a mental health condition, and people living with an eating disorder.

Findings and feedback from the public consultation will also be presented, post review period in 2024 (Supplementary file 4).

This review was undertaken in consultation with relevant national and international experts, the NHMRC, and experts from the JBI Adelaide GRADE Centre. The final protocol for the interpretation of results was guided by the Guidelines Development Committee and the Deakin University

Management Committee, and the research was supported by research staff at Deakin University. Full details regarding the governance of this project are provided in the Administrative Report.

Funding of $2,105,842.67 (GST inclusive) was provided by the Australian Government Department of Health and Aged Care to support this review and update of the Guidelines.

GUIDELINE DEVELOPMENT METHODS

The development of the Clinical Practice Guidelines for the Management of Overweight and Obesity for Adults, Adolescents and Children in Australia involved:

- A systematic review on the approaches to, and effects of, weight management interventions on the degree and duration of weight loss and maintenance
- Certainty of evidence assessments using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach
- Three scoping reviews to inform the context and Evidence to Decision assessments for the Guidelines on:
  - the impact of weight status, weight loss, or weight maintenance on health outcomes in individuals living with overweight or obesity (scoping review 1),
  - the lived experience of individuals with overweight and obesity receiving weight management treatment (scoping review 2, and
  - clinical outcomes other than weight loss or maintenance that may result from receiving a nutrition, physical activity, sedentary behaviour, psychological, family-centred, sleep, pharmacological and/or bariatric surgery intervention for people who are living with overweight or obesity (scoping review 3)
- The development of recommendations using the GRADE Evidence-to-Decision framework
- An expert and public consultation process
- Revision (as necessary) following the expert and public consultation process

The methods used for the systematic review, certainty of evidence assessments, development of recommendations, and expert and public consultation are described in this section. The methods for the scoping reviews are presented in Appendix B.

As required, the Guideline protocol was listed with the NHMRC guidelines approval program on 21 September 2022.

Systematic Review

Registration and Reporting Framework

This systematic review was registered on PROSPERO, the international prospective register of systematic reviews, on 21 May 2023. The reference for the registration is:

> Anna Peeters, Jo Salmon, Judi Porter, Ralph Maddison, Steven Allender, Kylie Hesketh, Linda Sweet, Gary Sacks, Anna Chapman, Kristy Bolton, Shaun Mason, Vidanka Vasilevski, Lena Stephens, and Patrick Owen. *What are the approaches to and effects of weight management interventions on the degree and duration of weight loss or weight maintenance?* PROSPERO 2023 CRD42023404302 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42023404302

The PRISMA statement guided the reporting of this review (8, 9).

Selection Criteria

Selection criteria were developed for the condition under investigation, target populations, study designs, interventions and exposures, comparator(s)/control groups, and outcomes.

Condition Under Investigation

Weight loss and/or weight maintenance among people with a lived experience of overweight or obesity was assessed using one or more of the following measures: dual-energy X-ray absorptiometry (DXA), underwater weighing, body mass index (BMI) or BMI z-score/BMI-for-age centiles, waist circumference, weight for height growth charts, and body weight (metric or imperial measures). Weight loss was operationalised as a decrease in body weight of at least 5% from baseline (10). Weight maintenance was defined as body weight change of less than +/-3% (11).

Participants and Populations

Eligible studies included people living with overweight or obesity who were children aged 2y to <12y; adolescents aged 12 to <18y; young and middle-aged adults aged 18y to <65y; older adults aged 65y and over.

Studies were identified that purposively recruited or conducted analyses of defined population subgroups. For this review, the following working definitions were used:

- **Indigenous people** – participants who identified as being indigenous to a given country (e.g., in Australia, including Aboriginal and Torres Strait Islander people; in New Zealand, including Māori).
- **Culturally and linguistically diverse Australians** – for Australian studies only, these populations were considered to include people living in Australia who were born overseas or who speak a language other than English.

Other populations included in this review were: people with disability, people with an eating disorder (e.g., binge eating disorder, bulimia), and people with a mental health condition (as defined by the Diagnostic and Statistical Manual of Mental Disorders, e.g., anxiety disorders, depressive disorders, and schizophrenia spectrum and other psychotic disorders).

Papers focussed on pregnant, and post-partum (including lactating) women were included as a subgroup population of interest for this review. However, as the Australian Pregnancy Care Guidelines (26) are being actively updated, the identified studies were not analysed in the meta-analyses, and therefore a specific EtD was not developed for this population subgroup.

Studies were excluded if they focussed only on people with lived experience of overweight or obesity due to a specific genetic condition (e.g., Prader Willi Syndrome, Type 1 diabetes). Studies in animals were also excluded.

Study Designs

Randomised controlled trials with follow-up periods of ≥12 months from baseline were eligible for inclusion.

Interventions and Exposures

Studies including any of the following obesity treatment and weight management intervention methods alone or in combination were included: behavioural management interventions (i.e. nutrition, physical activity, sedentary behaviour, psychological interventions, family-centred interventions, and sleep), pharmacological interventions, and bariatric surgery interventions.

Psychological interventions included those where the participant was referred to a psychologist or psychiatrist for therapy; and/or if the participant received cognitive behavioural therapy and/or motivational interviewing. For the purpose of this review, a behaviour change intervention was not considered to be a psychological, intervention e.g. if a participant received nutrition behaviour change advice, this was considered to be a nutrition intervention.

To be eligible for inclusion in this evidence synthesis, pharmacological interventions could be used for weight management on- and off-label in studies where weight management was a primary outcome of interest only. Randomised controlled trials testing drugs and dosages at the time the systematic literature search was conducted were eligible to be included if approved by Australia's Therapeutic Goods Administration (TGA) for weight management ('on-label'), or approved for use in other conditions, e.g. type 2 diabetes, but prescribed 'off-label' for weight management. Further, the review also included pharmacological treatments approved for use 'off-label' for weight management, but not available in Australia at the time of the systematic literature search, e.g. tirzepatide (12). At the time of public consultation tirzepatide has been approved by the TGA for on-label weight management. Finally, pharmacological interventions not currently approved by the TGA, but approved overseas for weight management, were also eligible.

Settings

Interventions were eligible regardless of setting, including primary, secondary, tertiary, or allied health care facilities (e.g., General Practitioner medical clinics, hospitals, allied health professional practice); childcare facilities, educational facilities (pre-school, primary and secondary schools, and tertiary colleges and universities); workplaces; and community centres/groups, etc.

Comparator(s)/control groups

Studies were eligible if they included comparator or control groups who received no treatment, a different treatment dose, a placebo intervention, or usual care.

Outcomes

The primary outcome of interest was change in adiposity (weight maintenance and/or degree of weight loss) between baseline and 12 months, and between baseline and final follow-up (>12 months), where available.

Secondary outcomes were:

- Mortality
- Morbidity from any of the following conditions (incidence/resolution of disease)
    - Cardiovascular disease
    - Type 2 diabetes mellitus
    - Non-Alcoholic Fatty Liver Disease (NAFLD)
    - Musculoskeletal conditions (falls, osteoporosis, sarcopenia)
    - Respiratory conditions (asthma, sleep apnoea)
    - Cancer (new diagnoses)
    - Mental health (suicide number/rate; depression, anxiety)
    - Reproductive health (birth rate/pregnancy loss)
- Blood pressure indicators
- Blood glucose level (fasting blood glucose, insulin resistance)
- Blood lipid profiles (total cholesterol, HDL cholesterol, LDL cholesterol, triglycerides)

Databases and Search Strategies

Searches were undertaken in the following electronic databases: Ovid MEDLINE, APA PsycINFO via EBSCOhost, CINAHL Complete, Cochrane Library. The first search was run on 9 January 2023. Additional updates were run on 1 April and 18 September 2023, with the final search update on 31 January 2024.

Search strategies were developed in conjunction with an expert health librarian (Deakin University). Additional terms for pharmacological treatments were sourced from Shi and Wang (2022) (13). Where a MeSH heading used in the Ovid MEDLINE search could not be substituted with an equivalent term in another database, the heading was dropped from the search in that given database. The search strategies are presented in Table 1 (Ovid MEDLINE), Table 2 (APA PsycINFO via EBSCOHost), Table 3 (CINAHL Complete via EBSCOHost), and Table 4 (Cochrane Library).

No restrictions, including language restrictions, were applied. Where papers were obtained in languages other than English, if papers were digitised, they were translated using Google Translate; where not digitised, papers were translated using Google Lens. The date restriction of studies from 2010 was selected as this was the end date when searches were run to inform the previous Guidelines.

Table 1: Search strategies for Ovid MEDLINE

Search number	Search terms
1	exp obesity/
2	(obes* or overweight* or over weight*).ab,ti.
3	Body Mass Index/
4	Weight Loss/
5	exp Obesity Management/
6	(obesity adj4 management).ab,ti.
7	Body Weight Maintenance/
8	(weight management or weight control or weight maintenance).ab,ti.
9	Pediatric Obesity/
10	((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese)).ab,ti.
11	1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 or 10

12	randomized controlled trial.pt.
13	Random Allocation/
14	Double-Blind Method/
15	(double-blind OR double blind).ab,ti.
16	Single-Blind Method/
17	(single-blind OR single blind).ab,ti.
18	controlled clinical trial.pt.
19	(controlled clinical trial*).ab,ti.
20	Placebos/
21	comparative study.pt.
22	(comparative study OR comparative studies).ab,ti.
23	12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22
24	Orlistat/
25	(alli OR orlipastat OR orlistat OR "ro 18 0647" OR "ro 180647" OR ro180647 OR tetrahydrolipstatin OR Xenical).ab,ti.
26	("apd 356" OR apd356 OR belviq OR lorcaserin OR lorqess).ab,ti.
27	((phentermine AND topiramate) OR phentermine topiramate OR "phentermine topiramate" OR phenterminetopiramate OR qnexa OR qsiva OR Qsymia OR topiramatephentermine OR "phentermine-topiramate" OR "duromine" OR "metermine").ab,ti.
28	(bupropion naltrexone OR (amfebutamone AND naltrexone) OR (bupropion AND naltrexone) OR Contrave OR "bupropion-naltrexone").ab,ti.
29	"Glucagon-Like Peptide 1"/
30	Liraglutide/
31	(liraglutide OR "nn 2211" OR nn2211 OR "nnc 90 1170" OR "nnc90 1170" OR Saxenda OR victoza).ab,ti.
32	(tirzepatide OR mounjaro OR Zepbound OR LY3298176).ab,ti.
33	(albiglutide OR Tanzeum OR dulaglutide OR Trulicity OR exenatide OR Byetta OR "Extended-release exenatide" OR Bydureon OR lixisenatide OR Adlyxin OR semaglutide OR Wegovy OR Ozempic OR Rybelsus).ab,ti.
34	"Sodium-Glucose Transporter 2 Inhibitors"/
35	(ertugliflozin OR Steglatro OR canagliflozin OR Invokana OR empagliflozin OR Jardiance OR dapagliflozin OR Farxiga OR ipragliflozin OR luseogliflozin OR "remogliflozin etabonate" OR (remogliflozin AND etabonate) OR "sergliflozin etabonatem" OR (sergliflozin AND etabonatem) OR tofogliflozin).ab,ti.
36	Metformin/
37	(metformin OR Glumetza OR "Glucophage XR" OR Fortamet OR Glucophage OR Riomet OR "metformin ER" OR "metformin IR").ab,ti.
38	(phentermine OR Adipex-P OR Lomaira OR Suprenza OR phendimetrazine OR Bontril OR Melfiat OR benzphetamine OR Didrex OR Regimex OR diethylpropion OR Tenuate OR "Tenuate Dospan").ab,ti.
39	(pramlintide OR symlin OR "AC 0137" OR "pramlintide acetate").ab,ti.
40	Diet/
41	(diet therapy OR diet therapies).ab,ti.
42	Bariatric Surgery/
43	Gastric Bypass/
44	Gastroplasty/
45	(gastric bypass OR gastroplasty).ab,ti.
46	(endoscopic therapy or endoscopic therapies).ab,ti.

47	(family-centred interventions or family-centered interventions or family-based intervention).ab,ti.
48	sleep.ab,ti.
49	Exercise/
50	Sports/
51	(physical activity or physical activities or movement or play or sedentary or sitting).ab,ti.
52	Behavior Therapy/
53	Cognitive Behavioral Therapy/
54	24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44 OR 45 OR 46 OR 47 OR 48 OR 49 OR 50 OR 51 OR 52 OR 53
55	11 AND 23 AND 54
56	Date limit: January 2010 – January 2024 (final update)

Table 2: Search strategies for APA PsycINFO (EBSCOHost)

Search number	Search terms
1	DE "Obesity"
2	TI (obes* OR overweight* OR "over weight*") OR AB (obes* OR overweight* OR "over weight*")
3	DE "Body Mass Index"
4	DE "Weight Loss"
5	TI (obesity n5 management) OR AB (obesity n5 management)
6	TI ("weight management" OR "weight control" OR "weight maintenance") OR AB ("weight management" OR "weight control" OR "weight maintenance")
7	TI ((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese)) OR AB ((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese))
8	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
9	DE "Randomized Controlled Trials"
10	DE "Random Sampling"
11	DE "Experiment Controls"
12	TI ("double-blind" OR "double blind") OR AB ("double-blind" OR "double blind")
13	TI ("single-blind" OR "single blind") OR AB ("single-blind" OR "single blind") ("single-blind" OR "single blind")
14	TI ("controlled clinical trial*") OR AB ("controlled clinical trial*")
15	DE "Placebo"
16	TI ("comparative study" OR "comparative studies") OR AB ("comparative study" OR "comparative studies")
17	S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16
18	TI (alli OR orlipastat OR orlistat OR "ro 18 0647" OR "ro 180647" OR ro180647 OR tetrahydrolipstatin OR Xenical) OR AB (alli OR orlipastat OR orlistat OR "ro 18 0647" OR "ro 180647" OR ro180647 OR tetrahydrolipstatin OR Xenical)
19	TI ("apd 356" OR apd356 OR belviq OR lorcaserin OR lorqess) OR AB ("apd 356" OR apd356 OR belviq OR lorcaserin OR lorqess)
20	TI ((phentermine AND topiramate) OR phentermine/topiramate OR "phentermine topiramate" OR phenterminetopiramate OR qnexa OR qsiva OR Qsymia OR topiramatephentermine OR "phentermine-topiramate" OR "duromine" OR "metermine") OR AB ((phentermine AND topiramate) OR phentermine/topiramate OR "phentermine topiramate" OR phenterminetopiramate OR qnexa OR qsiva OR Qsymia

	OR topiramatephentermine OR "phentermine-topiramate" OR "duromine" OR "metermine")
21	TI (bupropion/naltrexone OR (amfebutamone AND naltrexone) OR (bupropion AND naltrexone) OR Contrave OR "bupropion-naltrexone") OR AB (bupropion/naltrexone OR (amfebutamone AND naltrexone) OR (bupropion AND naltrexone) OR Contrave OR "bupropion-naltrexone")
22	TI ("Glucagon-Like Peptide 1") OR AB ("Glucagon-Like Peptide 1")
23	TI (liraglutide OR "nn 2211" OR nn2211 OR "nnc 90 1170" OR "nnc90 1170" OR Saxenda OR victoza) OR AB (liraglutide OR "nn 2211" OR nn2211 OR "nnc 90 1170" OR "nnc90 1170" OR Saxenda OR victoza)
24	TI (tirzepatide OR mounjaro OR Zepbound OR LY3298176) OR AB (tirzepatide OR mounjaro OR Zepbound OR LY3298176)
25	TI (albiglutide OR Tanzeum OR dulaglutide OR Trulicity OR exenatide OR Byetta OR "Extended-release exenatide" OR Bydureon OR lixisenatide OR Adlyxin OR semaglutide OR Wegovy OR Ozempic OR Rybelsus) OR AB (albiglutide OR Tanzeum OR dulaglutide OR Trulicity OR exenatide OR Byetta OR "Extended-release exenatide" OR Bydureon OR lixisenatide OR Adlyxin OR semaglutide OR Wegovy OR Ozempic OR Rybelsus)
26	TI ("Sodium-Glucose Transporter 2 Inhibitors") OR AB ("Sodium-Glucose Transporter 2 Inhibitors")
27	TI (ertugliflozin OR Steglatro OR canagliflozin OR Invokana OR empagliflozin OR Jardiance OR dapagliflozin OR Farxiga OR ipragliflozin OR luseogliflozin OR "remogliflozin etabonate" OR (remogliflozin AND etabonate) OR "sergliflozin etabonatem" OR (sergliflozin AND etabonatem) OR tofogliflozin) OR AB (ertugliflozin OR Steglatro OR canagliflozin OR Invokana OR empagliflozin OR Jardiance OR dapagliflozin OR Farxiga OR ipragliflozin OR luseogliflozin OR "remogliflozin etabonate" OR (remogliflozin AND etabonate) OR "sergliflozin etabonatem" OR (sergliflozin AND etabonatem) OR tofogliflozin)
28	TI (metformin OR Glumetza OR "Glucophage XR" OR Fortamet OR Glucophage OR Riomet OR "metformin ER" OR "metformin IR") OR AB (metformin OR Glumetza OR "Glucophage XR" OR Fortamet OR Glucophage OR Riomet OR "metformin ER" OR "metformin IR")
29	TI (phentermine OR Adipex-P OR Lomaira OR Suprenza OR phendimetrazine OR Bontril OR Melfiat OR benzphetamine OR Didrex OR Regimex OR diethylpropion OR Tenuate OR "Tenuate Dospan") OR AB (phentermine OR Adipex-P OR Lomaira OR Suprenza OR phendimetrazine OR Bontril OR Melfiat OR benzphetamine OR Didrex OR Regimex OR diethylpropion OR Tenuate OR "Tenuate Dospan")
30	TI (pramlintide OR symlin OR “AC 0137” OR “pramlintide acetate”) OR AB (pramlintide OR symlin OR “AC 0137” OR “pramlintide acetate”)
31	DE "Diets"
32	TI ("diet therapy" OR "diet therapies") OR AB ("diet therapy" OR "diet therapies")
33	DE "Bariatric Surgery"
34	TI ("gastric bypass" OR "gastroplasty") OR AB ("gastric bypass" OR "gastroplasty")
35	TI (endoscopic therapy OR endoscopic therapies) OR AB (endoscopic therapy OR endoscopic therapies)
36	TI ("family-centred interventions" OR "family-centered interventions" OR "family-based intervention") OR AB ("family-centred interventions" OR "family-centered interventions" OR "family-based intervention")
37	TI (sleep) OR AB (sleep)
38	DE "Exercise"
39	DE "Sports" OR DE "Adaptive Sports" OR DE "Baseball" OR DE "Basketball" OR DE "College Sports" OR DE "Cycling" OR DE "Extreme Sports" OR DE "Football" OR DE "High School Sports" OR DE "Judo" OR DE "Martial Arts" OR DE "Soccer" OR DE "Swimming" OR DE "Tennis" OR DE "Weightlifting"

40	TI ("physical activity" OR "physical activities" OR "movement" OR "play" OR "sedentary" OR "sitting") OR AB ("physical activity" OR "physical activities" OR "movement" OR "play" OR "sedentary" OR "sitting")
41	DE "Behavior Therapy"
42	DE "Cognitive Behavior Therapy"
43	S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42
44	S8 AND S17 AND S43
45	Date limit: January 2010 – January 2024 (final update)

Table 3: Search strategies for CINAHL Complete (EBSCOHost)

Search number	Search terms
1	(MH "Obesity+")
2	TI (obes* OR overweight* OR "over weight*") OR AB (obes* OR overweight* OR "over weight*")
3	(MH "Body Mass Index")
4	(MH "Weight Loss")
5	TI (obesity n5 management) OR AB (obesity n5 management)
6	(MH "Weight Control")
7	TI ("weight management" OR "weight control" OR "weight maintenance") OR AB ("weight management" OR "weight control" OR "weight maintenance")
8	(MH "Pediatric Obesity")
9	TI ((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese)) OR AB ((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese))
10	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9
11	PT "randomized controlled trial"
12	(MH "Random Assignment")
13	(MH "Double-Blind Studies")
14	TI ("double-blind" OR "double blind") OR AB ("double-blind" OR "double blind")
15	(MH "Single-Blind Studies")
16	TI ("single-blind" OR "single blind") OR AB ("single-blind" OR "single blind") ("single-blind" OR "single blind")
17	PT "clinical trial"
18	TI ("controlled clinical trial*") OR AB ("controlled clinical trial*")
19	(MH "Placebos")
20	(MH "Comparative Studies")
21	TI ("comparative study" OR "comparative studies") OR AB ("comparative study" OR "comparative studies")
22	S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21
23	(MH "Orlistat")
24	TI (alli OR orlipastat OR orlistat OR "ro 18 0647" OR "ro 180647" OR ro180647 OR tetrahydrolipstatin OR Xenical) OR AB (alli OR orlipastat OR orlistat OR "ro 18 0647" OR "ro 180647" OR ro180647 OR tetrahydrolipstatin OR Xenical)
25	TI ("apd 356" OR apd356 OR belviq OR lorcaserin OR lorqess) OR AB ("apd 356" OR apd356 OR belviq OR lorcaserin OR lorqess)
26	TI ((phentermine AND topiramate) OR phentermine/topiramate OR "phentermine topiramate" OR phenterminetopiramate OR qnexa OR qsiva OR Qsymia OR topiramatephentermine OR "phentermine-topiramate" OR "duromine" OR "metermine") OR AB ((phentermine AND topiramate) OR phentermine/topiramate OR "phentermine topiramate" OR phenterminetopiramate OR qnexa OR qsiva OR Qsymia OR topiramatephentermine OR "phentermine-topiramate" OR "duromine" OR "metermine")
27	TI (bupropion/naltrexone OR amfebutamone AND naltrexone) OR (bupropion AND naltrexone) OR Contrave OR "bupropion-naltrexone" OR AB (bupropion/naltrexone OR (amfebutamone AND naltrexone) OR (bupropion AND naltrexone) OR Contrave OR "bupropion-naltrexone")
28	(MH "Glucagon-Like Peptide 1")
29	(MH "Liraglutide")

30	TI (liraglutide OR "nn 2211" OR nn2211 OR "nnc 90 1170" OR "nnc90 1170" OR Saxenda OR victoza) OR AB (liraglutide OR "nn 2211" OR nn2211 OR "nnc 90 1170" OR "nnc90 1170" OR Saxenda OR victoza)
31	TI (tirzepatide OR mounjaro OR Zepbound OR LY3298176) OR AB (tirzepatide OR mounjaro OR Zepbound OR LY3298176)
32	TI (albiglutide OR Tanzeum OR dulaglutide OR Trulicity OR exenatide OR Byetta OR "Extended-release exenatide" OR Bydureon OR lixisenatide OR Adlyxin OR semaglutide OR Ozempic OR Wegovy OR Rybelsus) OR AB (albiglutide OR Tanzeum OR dulaglutide OR Trulicity OR exenatide OR Byetta OR "Extended-release exenatide" OR Bydureon OR lixisenatide OR Adlyxin OR semaglutide OR Ozempic OR Wegovy OR Rybelsus)
33	(MH "Sodium-Glucose Transporter 2 Inhibitors")
34	TI (ertugliflozin OR Steglatro OR canagliflozin OR Invokana OR empagliflozin OR Jardiance OR dapagliflozin OR Farxiga OR ipragliflozin OR luseogliflozin OR "remogliflozin etabonate" OR (remogliflozin AND etabonate) OR "sergliflozin etabonatem" OR (sergliflozin AND etabonatem) OR tofogliflozin) OR AB (ertugliflozin OR Steglatro OR canagliflozin OR Invokana OR empagliflozin OR Jardiance OR dapagliflozin OR Farxiga OR ipragliflozin OR luseogliflozin OR "remogliflozin etabonate" OR (remogliflozin AND etabonate) OR "sergliflozin etabonatem" OR (sergliflozin AND etabonatem) OR tofogliflozin)
35	(MH "Metformin")
36	TI (metformin OR Glumetza OR "Glucophage XR" OR Fortamet OR Glucophage OR Riomet OR "metformin ER" OR "metformin IR") OR AB (metformin OR Glumetza OR "Glucophage XR" OR Fortamet OR Glucophage OR Riomet OR "metformin ER" OR "metformin IR")
37	TI (phentermine OR Adipex-P OR Lomaira OR Suprenza OR phendimetrazine OR Bontril OR Melfiat OR benzphetamine OR Didrex OR Regimex OR diethylpropion OR Tenuate OR "Tenuate Dospan") OR AB (phentermine OR Adipex-P OR Lomaira OR Suprenza OR phendimetrazine OR Bontril OR Melfiat OR benzphetamine OR Didrex OR Regimex OR diethylpropion OR Tenuate OR "Tenuate Dospan")
38	TI (pramlintide OR symlin OR “AC 0137” OR “pramlintide acetate”) OR AB (pramlintide OR symlin OR “AC 0137” OR “pramlintide acetate”)
39	(MH "Diet")
40	(MH "Diet Therapy")
41	TI ("diet therapy" OR "diet therapies") OR AB ("diet therapy" OR "diet therapies")
42	(MH "Bariatric Surgery")
43	(MH "Gastric Bypass")
44	(MH "Gastroplasty")
45	TI ("gastric bypass" OR "gastroplasty") OR AB ("gastric bypass" OR "gastroplasty")
46	TI ("endoscopic therapy" OR "endoscopic therapies") OR AB ("endoscopic therapy" OR "endoscopic therapies")
47	TI ("family-centred interventions" OR "family-centered interventions" OR "family-based intervention") OR AB ("family-centred interventions" OR "family-centered interventions" OR "family-based intervention")
48	TI sleep OR AB sleep
49	(MH "Exercise")
50	(MH "Sports")
51	TI ("physical activity" OR "physical activities" OR "movement" OR "play" OR "sedentary" OR "sitting") OR AB ("physical activity" OR "physical activities" OR "movement" OR "play" OR "sedentary" OR "sitting")
52	(MH "Behavior Therapy")
53	(MH "Cognitive Therapy")

54	S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44 OR S45 OR S46 OR S47 OR S48 OR S49 OR S50 OR S51 OR S52 OR S53
55	S10 AND S22 AND S54
	Date limit: January 2010 – January 2024 (final update)

Table 4: Search strategies for Cochrane Library

Search number	Search terms
1	MeSH descriptor: [Obesity] explode all trees
2	(obes* OR overweight* OR "over weight*"):ti,ab
3	MeSH descriptor: [Body Mass Index] this term only
4	MeSH descriptor: [Weight Loss] this term only
5	MeSH descriptor: [Obesity Management] explode all trees
6	obesity near/5 management:ti,ab
7	MeSH descriptor: [Body Weight Maintenance] this term only
8	("weight management" OR "weight control" OR "weight maintenance"):ti,ab
9	MeSH descriptor: [Pediatric Obesity] this term only
10	((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese)):ti,ab
11	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10
12	MeSH descriptor: [Randomized Controlled Trial] this term only
13	MeSH descriptor: [Random Allocation] this term only
14	MeSH descriptor: [Double-Blind Method] this term only
15	("double-blind" OR "double blind"):ti,ab
16	MeSH descriptor: [Single-Blind Method] this term only
17	("single-blind" OR "single blind"):ti,ab
18	MeSH descriptor: [Controlled Clinical Trial] this term only
19	("controlled clinical trial*"):ti,ab
20	MeSH descriptor: [Placebos] this term only
21	MeSH descriptor: [Comparative Study] this term only
22	("comparative study" OR "comparative studies"):ti,ab
23	#12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22
24	MeSH descriptor: [Orlistat] this term only
25	(alli OR orlipastat OR orlistat OR "ro 18 0647" OR "ro 180647" OR ro180647 OR tetrahydrolipstatin OR Xenical):ti,ab
26	("apd 356" OR apd356 OR belviq OR lorcaserin OR lorqess):ti,ab
27	((phentermine AND topiramate) OR phentermine topiramate OR "phentermine topiramate" OR phenterminetopiramate OR qnexa OR qsiva OR Qsymia OR topiramatephentermine OR "phentermine-topiramate" OR "duromine" OR "metermine"):ti,ab
28	(bupropion naltrexone OR (amfebutamone AND naltrexone) OR (bupropion AND naltrexone) OR Contrave OR "bupropion-naltrexone"):ti,ab

29	MeSH descriptor: [Glucagon-Like Peptide 1] this term only
30	MeSH descriptor: [Liraglutide] this term only
31	(liraglutide OR "nn 2211" OR nn2211 OR "nnc 90 1170" OR "nnc90 1170" OR Saxenda OR victoza):ti,ab
32	(tirzepatide OR mounjaro OR Zepbound OR LY3298176):ti,ab
33	(albiglutide OR Tanzeum OR dulaglutide OR Trulicity OR exenatide OR Byetta OR "Extended-release exenatide" OR Bydureon OR lixisenatide OR Adlyxin OR semaglutide OR Ozempic OR Wegovy OR Rybelsus):ti,ab
34	MeSH descriptor: [Sodium-Glucose Transporter 2 Inhibitors] this term only
35	(ertugliflozin OR Steglatro OR canagliflozin OR Invokana OR empagliflozin OR Jardiance OR dapagliflozin OR Farxiga OR ipragliflozin OR luseogliflozin OR "remogliflozin etabonate" OR (remogliflozin AND etabonate) OR "sergliflozin etabonatem" OR (sergliflozin AND etabonatem) OR tofogliflozin):ti,ab
36	MeSH descriptor: [Metformin] this term only
37	(metformin OR Glumetza OR "Glucophage XR" OR Fortamet OR Glucophage OR Riomet OR "metformin ER" OR "metformin IR"):ti,ab
38	(phentermine OR Adipex-P OR Lomaira OR Suprenza OR phendimetrazine OR Bontril OR Melfiat OR benzphetamine OR Didrex OR Regimex OR diethylpropion OR Tenuate OR "Tenuate Dospan"):ti,ab
39	(pramlintide OR symlin OR “AC 0137” OR “pramlintide acetate”):ti,ab
40	MeSH descriptor: [Diet] this term only
41	MeSH descriptor: [Diet Therapy] this term only
42	("diet therapy" OR "diet therapies"):ti,ab
43	MeSH descriptor: [Bariatric Surgery] this term only
44	MeSH descriptor: [Gastric Bypass] this term only
45	MeSH descriptor: [Gastroplasty] this term only
46	("gastric bypass" OR "gastroplasty"):ti,ab
47	("endoscopic therapy" OR "endoscopic therapies"):ti,ab
48	("family-centred interventions" OR "family-centered interventions" OR "family-based intervention"):ti,ab
49	sleep:ti,ab
50	MeSH descriptor: [Exercise] this term only
51	MeSH descriptor: [Sports] this term only
52	("physical activity" OR "physical activities" OR "movement" OR "play" OR "sedentary" OR "sitting"):ti,ab
53	MeSH descriptor: [Behavior Therapy] this term only
54	MeSH descriptor: [Cognitive Behavioral Therapy] this term only
55	#24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54
56	#11 AND #23 AND #55
57	Date limit: All years

Screening

Records returned from the database searches were uploaded to Covidence systematic review software (Veritas Health Innovation, Melbourne, Australia) for title/abstract and full-text screening. Two reviewers (from a pool of reviewers) independently and in duplicate screened the records using the selection criteria. A third independent reviewer resolved conflicts by discussion.

Data extraction

The data extraction was managed using REDCap® software (EDC software, USA). Data were extracted independently by one reviewer for all included studies, and a second independent reviewer extracted data for 20% of included studies. Reviewers were blinded to each other's data extraction. Another independent reviewer considered data extractor queries and resolved conflicts within the duplicated extractions. Data extractors recorded 'not reported' where data were missing in each paper. The study authors were not contacted about unreported data or additional details.

The following data were extracted from the included studies: publication details, study design, participant characteristics, intervention details, outcomes, and harms and benefits.

Publication Details

Publication details extracted were authors, article title, publication year, study name, publication language, and study country(ies).

Study Design

Study design data extracted were RCT type, participant inclusion/exclusion criteria, number and description of intervention and control arms, trial length and study setting.

Participant Characteristics

Participant characteristics extracted were sample size of each treatment arm (at baseline and included in the paper's final analysis), analysis type (intention-to-treat or per-protocol), baseline participant age range and mean (standard deviation [SD]), number and proportion of females, response rate, sample pre-existing medical condition, intervention compliance rate, and, if culturally and linguistically diverse Australians, participants' country of birth, main language other than English spoken at home, and proficiency in spoken English.

The age categories of participants were determined using the reported mean age. When separate analyses were conducted for participants with different age ranges, age categories were determined for each of these age ranges. The age categories were:

- Children (2 to <12y)
- Adolescents (12 to <18y)
- Young and middle-aged adults (18 to <65y)
- Older adults (≥65y).

The following approach to age categorisation extended to situations where participants' ages may have ranged from 18y to 80y but the mean age was 45y. In these situations, studies were categorised as having young and middle-aged adult participants, rather than both young and middle-aged adult participants and older adult participants.

Where analyses were stratified by age-based subgroups, those analyses were extracted separately, and each discrete age category was labelled accordingly (e.g. if the overall sample had a mean age of 45y, but analyses were stratified by '18 to <65y'; and '65 to 80y', the populations were categorised as 'Young and middle-aged adults' and 'Older adults', respectively). Using a similar rationale, mean age was used to categorise studies in children or adolescents.

When applicable, study populations were categorised as follows:

- People with an eating disorder
- People with a mental health condition
- People with disability
- Culturally and linguistically diverse Australians
- Aboriginal and Torres Strait Islander people.

These categorisations were used when people from these populations were purposely recruited (i.e., they were identified in the inclusion criteria for studies). The categorisations were not used when people from these populations were incidentally recruited into heterogenous samples of people from other populations.

Where a study sample included a mix of participants (i.e., the general population, as well as sub-populations, such as people with disability), the classifications were only applied if analyses were reported separately for a sub-population (e.g., in the instance where participants included culturally and linguistically diverse Australians along with other Australian participants, but culturally and linguistically diverse Australians were analysed separately, then the 'culturally and linguistically diverse Australians' classification was applied to that group).

Interventions

Details of intervention and comparator/control arms were extracted as reported in each study. No *a priori* categories for the intervention or comparator/control arms were developed.

Outcomes

Where available, results from intention-to-treat analyses were extracted. Where intention-to-treat analyses were not reported, per-protocol analyses were extracted. Details extracted were intervention length, time points for which statistics were reported (baseline, follow-up at 12 months from baseline/ intervention end, and final follow-up), confounders/covariates (statistical models only), and measure of central tendency and spread.

Harms and benefits

The harms and benefits evidence synthesis presented in the Evidence-to-Decision frameworks came from findings from scoping review 3. The aim of scoping review 3 was to identify clinical outcomes, other than weight loss or weight maintenance, for people living with overweight or obesity that participated in behavioural, pharmacological, and surgical interventions. Findings were synthesised from systematic reviews and scoping reviews, and this information was used to inform the 'desirable effects' and 'undesirable effects' sections of the Evidence-to-Decision frameworks. The methods and findings of scoping review 3 are presented by population and intervention type in Appendix B.

Risk of bias assessment

The Cochrane Risk of Bias (RoB) Tool 2.0 (parallel design, cluster-randomised design, and cross-over design) was used to assess the trials. RoB 2.0 assesses the risk of bias associated with each result. The RoB was evaluated across the following domains:

- Bias arising from the randomisation process
- Bias arising from the timing of identification and recruitment of individual participants in relation to the timing of randomisation (cluster randomised trials only)
- Bias due to deviations from intended interventions
- Bias due to missing outcome data
- Bias in the measurement of the outcome
- Bias in the selection of the reported result.

Judgements about the overall risk of bias for each result extracted from included RCTs was based on the outcomes of RoB 2.0 assessment using the following criteria:

- Low: risk of bias rated as low across all key domains
- Some concerns: some concerns were raised about the risk of bias for at least one domain, but no domains at high risk of bias
- High: risk of bias rated as high for one or more domains.

Two reviewers (from a pool of reviewers) assessed RoB for 10% of the studies. Reviewers were blinded to each other's assessments. Another independent reviewer resolved any conflicts in the assessment. Single reviewers (from a pool of reviewers) assessed RoB for the remaining studies.

Data synthesis

Meta-analysis

Where data permitted, quantitative synthesis using meta-analysis was performed.

Prior to analyses:

- When unavailable, SD change from baseline data was imputed via established formulae and a conservative assumed pre-post correlation value of ρ=0.5;
- Reverse scaled data were multiplied by -1;
- When multiple groups were available within a study for the same intervention and/or control, groups were pooled using established formulae (14), and
- Where multiple outcomes were available within a study for the same outcome domain, a synthetic effect size was created for each study using the mean effect size and variance based on an assumed between-outcome correlation value of ρ=0.8 (15).
- Analyses were planned to avoid a unit-of-analysis error that may occur where a study included one control group but several intervention arms. Where this occurred, data were handled

following guidance from the Cochrane Handbook, Section 6.2.9 (16). Data from the control group were split into groups with a smaller sample size (e.g., the control group with n = 16 was split into two groups of n = 8). The same data (mean ±SD) from this control group were applied to each of the split groups to avoid arbitrary omission of relevant groups and double-counting of participants.

All analyses were conducted in Stata (v17, StataCorp, College Station, Texas, United States of America). An α of 0.05 for statistical significance was adopted for all analyses.

Pairwise random-effects restricted maximum likelihood meta-analysis estimated the standardised mean difference (Hedges' g) between intervention and control groups for each included domain of outcome using change from baseline data. Hedges' g is known to incorporate both the random variation within studies and variation between different studies (17). When two studies were available, fixed-effects analyses were conducted, while for meta-analyses involving three to five studies, random-effect analysis with the Hartung-Knapp-Sidik-Jonkman adjustment was employed, per recommendations (18, 19). Results from studies with one behavioural treatment approach were pooled, with intervention subgroups reported where identified. For example, nutrition intervention studies were pooled and reported with three subgroups based on the target daily energy intake level (dietary approaches with no specific daily energy intake goal, nutrition interventions with a daily energy intake goal, and nutrition interventions with a daily energy intake goal). For physical activity, interventions were pooled and reported as three modality-based subgroups where available: aerobic-based approaches, strengthening activities, and combined aerobic and strengthening activities interventions.

Adding complexity, many studies investigated more than one behavioural treatment approach at the same time in the intervention arm.

- Studies with intervention arms that included either two or three behavioural treatment modalities were pooled into separate intervention-specific analyses (e.g. nutrition and physical activity intervention versus comparator).
- Studies with four or more behavioural intervention modalities within one intervention arm were pooled together as 'multiple treatment modalities'.
- Due to the small number of studies, some behavioural treatment modalities were synthesised narratively.

A different approach to the synthesis of studies of pharmacological and/or surgery interventions was required. Pharmacological interventions were examined and grouped by drug class (noting that some pharmacological treatments were prescribed in combination with others from other drug classes). The drug classes identified from the included studies were an anorectic together with an anticonvulsant, a glucagon-like peptide-1 receptor agonist alone (GLP-1), a glucose-dependent insulinotropic polypeptide (GIP) receptor together with a glucagon-like peptide-1 (GLP-1) receptor agonist, a lipase inhibitor alone, and an opioid antagonist together with a norepinephrine-dopamine reuptake inhibitor.

Subgroup analyses within each drug class were also conducted for each pharmacological treatment and dosage type. For example, glucagon-like peptide-1 receptor agonist drug class, subgroup analyses were conducted separately for liraglutide for the dosage 3.0 mg per day; and for semaglutide dosage (subcutaneous) 2.4mg per week.

Surgical management studies were categorised as follows, with subgroup analyses by surgery type: bariatric surgery, adjuncts to surgical therapies, and endoscopic therapies for weight loss.

The I^2 statistic was used to assess statistical heterogeneity. When ten or more studies were available, publication bias was assessed via the Egger's test (statistical significance at $p<0.05$).

Where meta-analysis was not feasible or appropriate (e.g., where outcomes could not be combined, the published analysis could not be grouped for meta-analysis, the data did not support the calculation of standardised effect sizes, or where there was high heterogeneity in the data), findings were presented using other methods. An overall effect across multiple studies for each outcome and population group was described based on findings from studies of sufficient sample size and across remaining studies using vote counting (based on direction of effect).

Vote Counting

Where studies were unable to be included in the meta-analysis, the overall effect was described using vote counting based on the direction of effect. For each treatment modality, the number of studies included in the vote count was defined, as well as the number of treatment arms. Note that the number of treatment arms reported relates to the use of different intensities/durations of the same treatment approach.

The Cochrane Handbook (20) guided the approach taken to vote counting. An effect estimate from the intervention arm(s) was categorised as showing benefit (i.e., a positive effect = maintained/reduced adiposity outcomes) or harm (i.e., a negative effect = increased adiposity outcomes), or no effect (i.e. null effect = no change in adiposity) based on the observed direction of effect (not statistical significance at $p<0.05$).

For vote counting, only one outcome was considered for each study/treatment arm, with outcomes triaged in the following orders for children, adolescents, and adults:

- **Children and adolescents** – BMI z-score change, BMI change, weight change, waist circumference change, fat mass or percentage of body fat change, change in subcutaneous adipose tissue, change across a proportion of participants (greatest change counted where multiple proportions were reported).
- **Adults** – weight change, BMI change, waist circumference change, fat mass or percentage of body fat change, change in subcutaneous adipose tissue, change across a proportion of participants (greatest change counted where multiple proportions were reported).

A count of the number of effects showing benefit was then compared with the number showing harm or no effect (where the same change or lack of change occurred in both the intervention and comparator arms). There was no consideration of the statistical significance nor the size of the effect in this categorisation because underpowered studies that did not show statistically significant benefits but may produce clinically important effects would not be counted. Disregarding the results of underpowered studies may lead to incorrect counts and, therefore, incorrect certainty of evidence being derived. Vote counting results are presented directly in the GRADE Summary of Findings tables included after each Evidence-to-Decision framework.

As advised in the Cochrane Handbook, it is acknowledged that this approach provides no information on the magnitude of effects, nor does it account for differences in relative study size.

Analysis of sub-populations

Analyses by sub-population were conducted, namely Aboriginal and Torres Strait Islander people, people from a culturally and linguistically diverse background, people with an eating disorder, people with a mental health condition, and people with disability.

Synthesis with pre-2010 studies

Due to changes in the focus of the systematic review, and the approach to analysis and application of GRADE and Evidence-to-Decision framework since the last Guidelines evidence synthesis, data published pre-2010 were unable to be integrated with the current 2010-2023 evidence.

Certainty of the evidence

Operationalising the advice of the GRADE handbook (21), a series of principles was developed for the GRADE approach across the body of evidence. Each of the GRADE criteria for assessing the certainty of evidence was considered to determine certainty in the overall evidence using the online system GRADE pro GDT.

With multiple comparator arms (untreated/any comparator) and timepoints (baseline to 12 months, baseline to final end-point) of interest for each population and subgroup, the certainty of evidence was considered for each combination (untreated/any comparator; baseline to 12 months/baseline to final end-point) per intervention and population. A decision tree for the meta-analyses was established *a priori* so that findings were considered based on their relevance to the review's purpose. As such, where multiple meta-analyses for a population/intervention were conducted, these were triaged in the following order for the GRADE process:

1. Intervention versus untreated comparator at 12 months
2. Intervention versus any comparator at 12 months
3. Intervention versus untreated comparator at study endpoint
4. Intervention versus any comparator at the study endpoint.

Data from one meta-analysis only was considered for the application of GRADE. Other meta-analyses are reported in Appendix C, but were not considered further for GRADE nor in the Evidence-to-Decision framework stages of Guideline development. For example, where data were available for two categories above, such as 'intervention versus untreated comparator at 12 months' and 'intervention versus any comparator at 12 months', only data from the first meta-analysis were used. The data from further meta-analyses were reviewed to identify major discrepancies between meta-analysis findings. No such discrepancies were identified.

Starting at an assumed 'high' level of certainty in the body of evidence, the body of evidence was assessed against five factors that could potentially reduce the certainty of evidence (risk of bias, directness of evidence, consistency and precision of results, and risk of publication bias). For each of these factors, an assessment was made about whether there were no concerns (certainty was not downgraded), serious concerns (certainty downgrade by one level) or very serious concerns (certainty downgrade by two levels). The assessment then considered whether to upgrade the level of certainty based on the three factors that may increase the certainty of the evidence: large magnitude of effect (upgrade one level if 'large' effect, upgrade two levels if 'very large' effect), dose-response gradient (not assessed), or influence of residual plausible confounding (upgrade one level).

The certainty of evidence levels were:

- **High (⊕⊕⊕⊕)** – We are very confident that the true effect lies close to that of the estimate of the effect.
- **Moderate (⊕⊕⊕⊖)** – We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
- **Low (⊕⊕⊖⊖)** – Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect.
- **Very low (⊕⊖⊖⊖)** – We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect.

The assessment of GRADE for each subgroup commenced at 'high' since all studies included in each body of evidence were RCTs. For each population and intervention, the five factors that GRADE determines can lower certainty were considered, as follows:

1. Risk of bias

Using RoB-2 (22) the final judgement for an individual study could be: Low, Some Concerns, or High risk of bias.

GRADE assessors did not downgrade if ≥50% of studies were rated as Low. A downgrade of one level was applied if the majority of studies (≥50%) were rated as Some Concerns or High. There was a downgrade of two levels applied if the majority of studies (≥50%) had an overall score of High.

Meta-analyses incorporated synthetic effects across multiple eligible outcomes for many studies. In some instances, the risk of bias was different for different outcomes within the one study. To determine the overall risk of bias at a study level, the risk of bias was counted separately for each intervention arm (as if it were a separate study) and for each separate outcome. For example, where there were two intervention arms from the same paper, and that paper reported three separate outcomes (i.e., three separate RoB tools were completed for that paper), six overall RoB assessments were counted (i.e. three per intervention arm). All relevant RoB assessments were synthesised to determine the overall RoB for each population/intervention.

2. Inconsistency (heterogeneity)

The interpretation ranges for the I^2 value presented in the Cochrane Handbook (16) and GRADE support materials (23, 24) guided the assessment of inconsistency. The I^2 value, indicative of the proportion of variance in point estimates due to among-study differences, could be considered to have a magnitude of heterogeneity as follows:

- **<40%** – inconsistency may be low
- **30% to 60%** – inconsistency may be moderate
- **50% to 90%** – inconsistency may be substantial
- **75% to 100%** – inconsistency may be considerable.

In this evidence synthesis, no downgrading was applied where I^2 <40%; downgrading of one level was applied where I^2 = 40-85%; and downgrading of two levels was applied where I^2 >85%.

Where vote counting rather than meta-analysis was used as the synthesis technique, downgrading of one level was applied for unspecified heterogeneity due to differences in exposure.

3. Indirectness (PICOT and applicability)

No downgrading was considered for indirectness in the GRADE process. Downgrading was unnecessary because all included studies met the *a priori* definitions for measuring direct associations between a weight management intervention and adiposity measures in a population of interest.

4. Imprecision

The GRADE approach to rating imprecision focuses on the 95% confidence interval (CI) around the best estimate of the absolute effect (21). GRADE guidance advises that assessors downgrade for imprecision if the effect estimate comes from only one or two small studies or if there were few events. Specific guidance relating to sample sizes is provided. In applying this guidance, the following downgrade principles were applied across all included studies:

- No downgrading occurred where 95% CI did not cross 1.0 and total sample size of all studies included in the meta-analysis $n \geq 400$
- A one-level downgrade occurred where 95% CI crossed 1.0 or total sample size of all studies included in the meta-analysis was $n<400$
- A two-level downgrade occurred where the total sample size was $n<50$ (irrespective of 95% CI).

The same principle was applied irrespective of the synthesis technique (meta-analysis or vote counting).

5. Other considerations

a) Publication bias

Where a meta-analysis included 10 or more studies, publication bias was assessed by examining the funnel plot and Egger's test. A statistically significant ($p<0.05$) Egger's test was interpreted as indicating potential publication bias.

b) Effect size (GRADE Large Effect consideration)

The magnitude of effect size was determined using Hedges' g, generated in the meta-analyses. The Cochrane handbook guided the interpretation of Hedges' g effect sizes. Guidelines for interpretation were defined a priori as:

- **Small effect** – Hedges' g ≤0.2
- **Small-moderate effect** – Hedges' g 0.21 to <0.50
- **Moderate to large effect** – Hedges' g 0.51 to <0.80
- **Large effect** – Hedges' g 0.80 to <1.00
- **Very large effect** – Hedges' g ≥1.00 (25).

c) Plausible confounding factors

Opposing plausible residual bias or confounding was unlikely as there were few (no) studies that determined the outcome of interest after adjusting for confounders.

d) Dose-response gradient

A dose-response gradient was not assessed due to heterogeneity in exposure by dose, intensity, and duration.

Evidence-to-Decision Framework

The Evidence-to-Decision framework guided the development of the recommendations, as detailed in the GRADE Handbook. Recommendation development was operationalised using GRADEpro GDT software (21). The evidence used to inform the Evidence-to-Decision framework assessments were meta-analyses and associated GRADE, the scoping reviews, and expert input from the Guideline Development Committee and the Deakin University Management Committee. The factors considered to determine the strength of recommendations included:

- Balance between desirable (benefits) and undesirable consequences (harms), determined by estimates of effect arising from statistical analyses of data extracted from studies included in the systematic review. Synthesis of statistically significant benefits and harms derived from studies included in the systematic review were also examined, and further complemented by analyses of data from the scoping reviews of studies of people with lived experience, and clinical outcomes other than weight loss or maintenance resultant of receiving a weight management intervention. Lastly, these were supplemented with additional considerations provided by the Guideline Development Committee.
- Confidence in the estimates of effect (derived from GRADE certainty of the evidence).
- Consumer and clinician values and preferences, and their variability (provided by Guideline Development Committee expertise).
- Resource use (including costs. These data were sourced from evidence-based searches to ascertain resource costs in Australia, where data were available, with additional considerations provided by Guideline Development Committee expertise).
- Acceptability (as determined by Guideline Development Committee expertise).
- Feasibility (as determined by Guideline Development Committee expertise).

Recommendation statements were determined using the methodology described in the GRADE handbook (21). Consensus statements and practice points were determined using the guidance in the NHMRC Procedures and requirements for meeting the NHMRC standards for clinical practice guidelines (3).

Strong Recommendation for the intervention
A strong recommendation was given when there was moderate to high certainty evidence that also showed benefits clearly outweighed reported harms.
Strong Recommendation against the intervention
A strong recommendation was given when there was moderate to high certainty evidence that also showed harms clearly outweighed reported benefits.
Conditional Recommendation for the intervention
A conditional recommendation was given when there was low certainty evidence that suggested benefits outweighed harms.
Conditional Recommendation against the intervention
A conditional recommendation was given when there was low certainty evidence that suggested harms outweighed benefits.

Consensus Statement for the intervention due to limited evidence

A consensus statement was given where there was very low certainty evidence, or where evidence was absent or insufficient, and/or if there was an unclear balance between benefits and harms. The statements were made based on the Guideline Development Committee's expert opinion and formulated by a consensus process.

Practice Points

Further guidance where the subject matter was outside of the search strategy scope were included as Practice Points.

Following the GRADE Handbook's guidance about how to word recommendations based on their strength, Strong Recommendations are worded using the terms '…should be recommended…'. Conditional Recommendations are worded using the terms '…may be recommended…'. The GRADE Handbook does not provide guidance on terminology use in Consensus Statements, but we have followed the method outlined in the Australian Pregnancy Care Guidelines Technical Report (26). For Consensus Statements, the wording adopted includes '…may be encouraged'.

Recommendations were assigned a strength rating. The GRADE Evidence-to-Decision framework recommendation rating system was based on the GRADE Handbook, as shown in Table 5 below. The Evidence-to-Decision framework criteria 'balance of the effect' and 'certainty of the evidence' were used in determining the strength of recommendations. Where 'certainty of the evidence' for a given population and intervention included both meta-analysis and narrative synthesis data, priority was given to the meta-analysis judgement.

Table 5: GRADE Evidence-to-Decision framework recommendation rating system

Symbol representation	GRADE handbook definition of recommendation strength
★☆☆☆☆	Strong recommendation against the intervention
★★☆☆☆	Conditional recommendation against the intervention
★★★☆☆	Conditional recommendation for either the intervention or the comparison
★★★★☆	Conditional recommendation for the intervention
★★★★★	Strong recommendation for the intervention
Δ	Consensus statement for the treatment

Specifically, the recommendation strength was determined using the criteria from the Evidence-to-Decision framework judgements described in Table 6.

Table 6: Balancing Evidence-to-Decision framework judgements to determine Recommendation strength

		Evidence-to-Decision framework component	
Recommendation type	**Definition**	**'Balance of effect' judgement**	**'Certainty of evidence' judgement**
Strong recommendation for the intervention	A strong recommendation was given when there was moderate to high certainty evidence that also showed benefits clearly outweighed reported harms.	'Probably favours the intervention' or 'Favours the intervention'	'Moderate' or 'High'
Strong recommendation against the intervention	A strong recommendation was given when there was	'Probably favours for the comparison' or 'Favours the comparison'	'Moderate' or 'High'

	moderate to high certainty evidence that also showed harms clearly outweighed reported benefits.		
Conditional Recommendation for the intervention	A conditional recommendation was given when there was low certainty evidence that suggested benefits outweighed harms.	'Probably favours the intervention' or 'Favours the intervention'	'Low'
Conditional Recommendation against the intervention	A conditional recommendation was given when there was low certainty evidence that suggested harms outweighed benefits.	'Probably favours for the comparison' or 'Favours the comparison'	'Low'
Consensus Statement for the intervention due to limited evidence	A consensus statement was given where there was very low certainty evidence, or where evidence was absent or insufficient, and/or if there was an unclear balance between benefits and harms. The statements were made based on the Guideline Development Committee's expert opinion and formulated by a consensus process.	N/A	No evidence, or 'Certainty of evidence' = 'Very low' or Narrative synthesis only.

Recommendation wording:
Following the GRADE Handbook's guidance about how to word recommendations based on their strength, Strong Recommendations are worded using the terms '…should be recommended…'. Conditional Recommendations are worded using the terms '…may be recommended…'.

The GRADE Handbook does not provide guidance on terminology use in Consensus Statements, but we have followed the method outlined in the Australian Pregnancy Care Guidelines Technical Report (26). For Consensus Statements, the wording adopted includes '…may be encouraged'.

GRADE certainty of evidence tables are presented alongside each Evidence-to-Decision framework in Supplementary file 3.

Process for expert and public consultation

Consultation will be undertaken with expert groups and the public during 2024 for a 1-month period guided by the NHMRC Guidelines for Guidelines process. An extensive list of organisations will be invited to contribute to the consultation process, including Government departments, professional organisations, and not-for-profit organisations.

Feedback will be synthesised post-consultation period and considered by the Guideline Development Committee.

Dissemination plan

The Department of Health and Aged Care (the Department) recognises that ultimate impact of these Guidelines is contingent upon the success of strategic efforts to promote the awareness, acceptance, uptake, and adherence of recommendations. To facilitate awareness of the availability, and to promote uptake of the Guidelines, consideration will be given to opportunities to disseminate the Guidelines to medical colleges and other relevant organisations to encourage promotion amongst members and the sector more broadly. Options to disseminate through existing health networks, for example Primary Health Networks (PHNs), will also be explored. The Department will facilitate any forthcoming dissemination and implementation of the Guidelines.

SYSTEMATIC REVIEW RESULTS

The initial literature search and updates yielded 69,837 publications, of which 48,333 duplicates were removed. The titles and abstracts of the remaining 21,504 were screened for eligibility to be included in the systematic review. Full-text papers were screened with 980 deemed ineligible, resulting in 688 (27-276)(277-526)(527-714) eligible papers included for data extraction. The PRISMA flow diagram for reviews used to inform the context of disease outcomes associated with overweight or obesity is shown in Figure 1. The reference lists of ineligible studies by reason for exclusion is included in Appendix D.

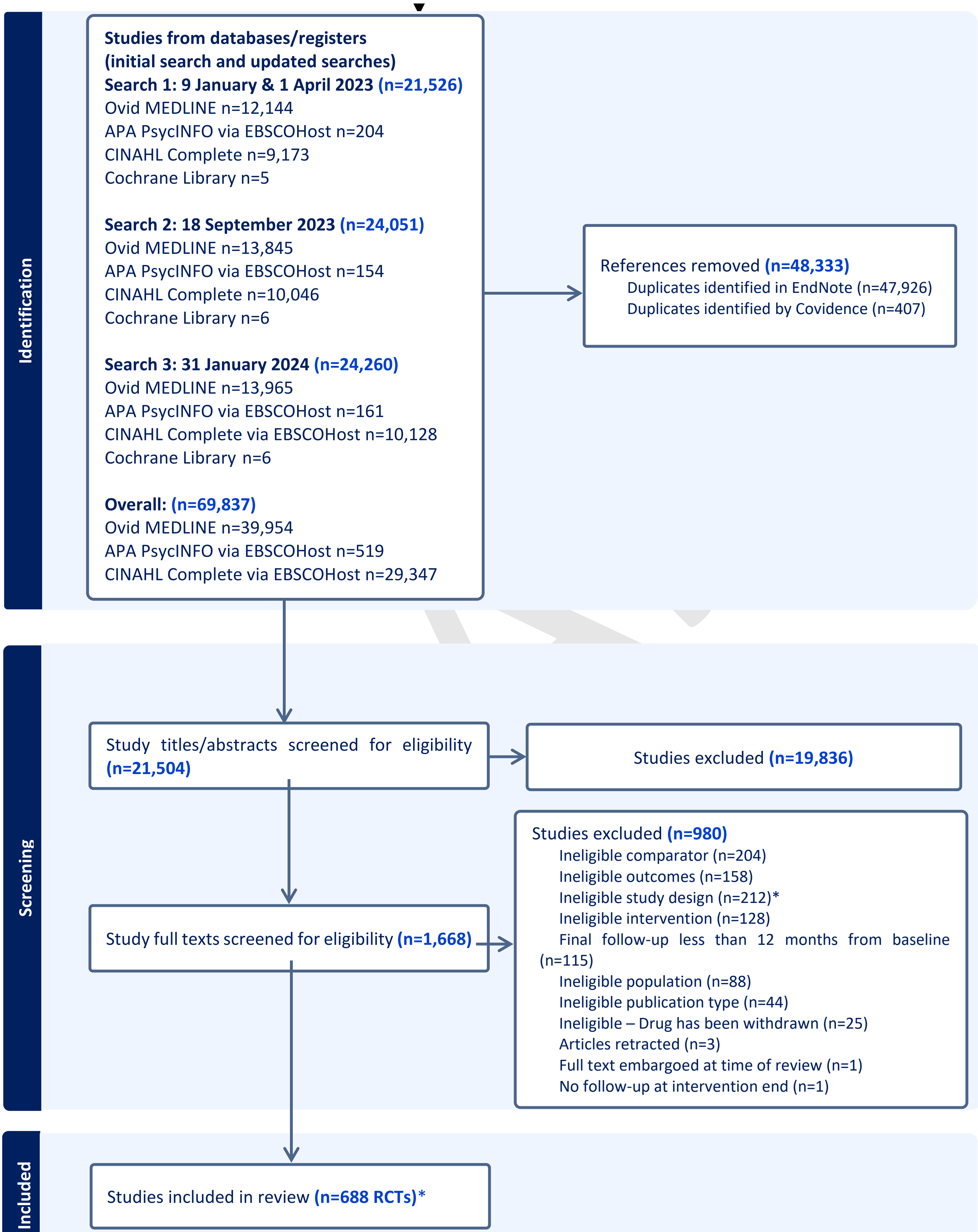


Figure 1: Systematic review PRISMA flow diagram

* Excluded n=84 systematic reviews

Individual drugs and dosages identified in this evidence review are summarised in Tables 7 and 8 below, by drug class. Table 7 summarises medications and dosages approved by the Australian Therapeutic Goods Administration (TGA) for the management of overweight or obesity at the time of this review. Table 8 summarises those medications not currently approved by the TGA and/or are not currently available in Australia but are approved internationally for use in overweight or obesity management. While studies using phentermine and topiramate in combination were included, none were identified that examined these drugs separately.

Table 7: Pharmacological intervention dosages approved by the Australian TGA for the management of overweight or obesity by drug classes

Drug class	Drug and dosage
Pharmacological interventions approved by the TGA for the treatment of overweight or obesity	
Glucagon-like peptide-1 receptor agonists	Liraglutide, 3.0 mg per day[†]
	Semaglutide, 2.4mg per week (subcutaneous)[§]
Lipase inhibitors	Orlistat, 360mg per day[†]
Opioid antagonist and Norepinephrine-dopamine reuptake inhibitor*	Naltrexone, 16mg and Bupropion, 360mg per day[†]
	Naltrexone, 32mg and Bupropion, 360mg per day[†]

*Some drugs from one class are used in combination with other drugs from other classes, as shown.

[†]Approved for use only in adults aged 18 and older.

[§]Approved for use in both adolescents aged 12-17 years and adults.

Table 8 Pharmacological intervention dosages not approved by the Australian TGA for the management of overweight or obesity by drug classes

Drug class	Drug and dosage
Pharmacological interventions not approved by the TGA for the treatment of overweight or obesity	
Anorectic and anticonvulsant*	Phentermine, 7.5mg and Topiramate, 46.0mg per day
	Phentermine, 15.0mg and Topiramate, 92.0mg per day
Glucose-dependent insulinotropic polypeptide (GIP) receptor and glucagon-like peptide-1 (GLP-1) receptor agonists	Tirzepatide[†], 5mg per week
	Tirzepatide[†], 10mg per week
	Tirzepatide[†], 15mg per week

*Some drugs from one class are used in combination with other drugs from other classes, as shown.

[†] At the time of public consultation, tirzepatide has been approved by the TGA for on-label weight management.

Surgical intervention studies were stratified as follows bariatric surgery versus medical treatment, adjuncts to surgical therapies, and endoscopic therapies for weight loss, with subgroup analyses by surgery type (Table 9).

Table 9: Surgical interventions by surgery type

Surgery type	Surgical interventions
Bariatric surgery versus medical treatment	Biliopancreatic diversion
	Laparoscopic adjustable gastric banding
	Laparoscopic Roux-en-Y gastric bypass or laparoscopic vertical sleeve gastrectomy*
	Roux-en-Y gastric bypass
	Sleeve gastrectomy
	Stapled laparoscopic mini-gastric bypass-one anastomosis gastric bypass
Endoscopic therapies for weight loss	Duodenal-jejunal bypass liner (EndoBarrier)
	Endoscopic sleeve gastroplasty
	g-CathEZ delivery catheter with snowshoe suture anchors
	Intragastric balloon therapy
	Percutaneous gastrostomy device
Bariatric surgery plus adjunct versus bariatric surgery plus usual care/placebo	Roux-en-Y gastric bypass
	One-anastomosis gastric bypass
	Roux-en-Y gastric bypass or sleeve gastrectomy*

* In some studies, participants underwent one or another of the indicated surgical interventions. Those studies did not distinguish between surgical types received by participants and are therefore listed together.

Studies included in the systematic review

The full list of studies included in the systematic review is shown in Table 10, below. Data extraction relating to each of these studies is included in Supplementary file 1.

Table 10: Studies included in the systematic review

Publication details	
1.	Abbenhardt C, McTiernan A, Alfano CM, Wener MH, Campbell KL, Duggan C, et al. Effects of individual and combined dietary weight loss and exercise interventions in postmenopausal women on adiponectin and leptin levels. J Intern Med. 2013;274(2):163-75. doi: 10.1111/joim.12062
2.	Abu Dayyeh BK, Bazerbachi F, Vargas EJ, Sharaiha RZ, Thompson CC, Thaemert BC, et al. Endoscopic sleeve gastroplasty for treatment of class 1 and 2 obesity (MERIT): a prospective, multicentre, randomised trial. Lancet. 2022;400(10350):441-51. doi: 10.1016/S0140-6736(22)01280-6
3.	Adab P, Pallan MJ, Lancashire ER, Hemming K, Frew E, Barrett T, et al. Effectiveness of a childhood obesity prevention programme delivered through schools, targeting 6 and 7 year olds: cluster randomised controlled trial (WAVES study). BMJ. 2018;360:k211. doi: 10.1136/bmj.k211
4.	Ahern AL, Wheeler GM, Aveyard P, Boyland EJ, Halford JCG, Mander AP, et al. Extended and standard duration weight-loss programme referrals for adults in primary care (WRAP): a randomised controlled trial. Lancet. 2017;389(10085):2214-25. doi: 10.1016/S0140-6736(17)30647-5
5.	Akers JD, Cornett RA, Savla JS, Davy KP, Davy BM. Daily self-monitoring of body weight, step count, fruit/vegetable intake, and water consumption: a feasible and effective long-term weight loss maintenance approach. J Acad Nutr Diet. 2012;112(5):685-92.e2. doi: 10.1016/j.jand.2012.01.022
6.	Alexander E, McGinty EE, Wang N-Y, Dalcin A, Jerome GJ, Miller ER, 3rd, et al. Effects of a behavioural weight loss intervention in people with serious mental illness: subgroup analyses from the ACHIEVE trial. Obes Res Clin Pract. 2019;13(2):205-10. doi: 10.1016/j.orcp.2019.02.002
7.	Aller EEJG, Larsen TM, Claus H, Lindroos AK, Kafatos A, Pfeiffer A, et al. Weight loss maintenance in overweight subjects on ad libitum diets with high or low protein content and glycemic index: the DIOGENES trial 12-month results. Int J Obes. 2014;38(12):1511-7. doi: 10.1038/ijo.2014.52
8.	Allison DB, Gadde KM, Garvey WT, Peterson CA, Schwiers ML, Najarian T, et al. Controlled-release phentermine/topiramate in severely obese adults: a randomized controlled trial (EQUIP). Obesity. 2012;20(2):330-42. doi: 10.1038/oby.2011.330
9.	Almeida FA, You W, Brito FA, Alves TF, Goessl C, Wall SS, et al. A randomized controlled trial to test the effectiveness of two technology-enhanced diabetes prevention programs in primary care: the DiaBEAT-it study. Front Public Health. 2023;11:1000162. doi: 10.3389/fpubh.2023.1000162
10.	Alustiza E, Perales A, Mateo-Abad M, Ozcoidi I, Aizpuru G, Albaina O, et al. Tackling risk factors for type 2 diabetes in adolescents: PRE-STARt study in Euskadi. An Pediatr (Barc). 2021;95(3):186-96. doi: 10.1016/j.anpede.2020.11.005
11.	Ambrosini GL, Solis-Trapala I, Ahern AL, Fuller NR, Holzapfel C, Hauner H, et al. Greater improvements in diet quality among overweight participants following a group-based commercial weight loss programme than those receiving support to lose weight in primary care. Nutr J. 2018;17:64. doi: 10.1186/s12937-018-0370-x
12.	Amer OE, Sabico S, Alfawaz HA, Aljohani N, Hussain SD, Alnaami AM, et al. Reversal of prediabetes in Saudi adults: results from an 18 month lifestyle intervention. Nutrients. 2020;12(3):804. doi: 10.3390/nu12030804
13.	Andersen E, van der Ploeg HP, van Mechelen W, Gray CM, Mutrie N, van Nassau F, et al. Contributions of changes in physical activity, sedentary time, diet and body weight to changes in cardiometabolic risk. Int J Behav Nutr Phys Act. 2021;18:166. doi: 10.1186/s12966-021-01237-1
14.	Anderson AS, Chong HY, Craigie AM, Donnan PT, Gallant S, Hickman A, et al. A novel approach to increasing community capacity for weight management a volunteer-delivered programme (ActWELL) initiated within breast screening clinics: a randomised controlled trial. Int J Behav Nutr Phys Act. 2021;18:34. doi: 10.1186/s12966-021-01099-7
15.	Anderson AS, Craigie AM, Caswell S, Treweek S, Stead M, Macleod M, et al. The impact of a bodyweight and physical activity intervention (BeWEL) initiated through a national colorectal cancer screening programme: randomised controlled trial. BMJ. 2014;348(7950):g1823. doi: 10.1136/bmj.g1823

16.	Anderson YC, Leung W, Grant CC, Cave TL, Derraik JGB, Cutfield WS, et al. Economic evaluation of a multi-disciplinary community-based intervention programme for New Zealand children and adolescents with obesity. Obes Res Clin Pract. 2018;12(3):293-8. doi: 10.1016/j.orcp.2018.04.001
17.	Annesi JJ. Mediation of the relationship of behavioural treatment type and changes in psychological predictors of healthy eating by body satisfaction changes in women with obesity. Obes Res Clin Pract. 2017;11(1):97-107. doi: 10.1016/j.orcp.2016.03.011
18.	Annesi JJ. Relationship of emotional eating and mood changes through self-regulation within three behavioral treatments for obesity. Psychol Rep. 2019;122(5):1689-706. doi: 10.1177/0033294118795883
19.	Annesi JJ. Psychosocial correlates of emotional eating and their interrelations: implications for obesity treatment research and development. J Primary Prevent. 2020;41(2):105-25. doi: 10.1007/s10935-020-00580-6
20.	Annesi JJ, Johnson PH, Tennant GA, Porter KJ, McEwen KL. Weight loss and the prevention of weight regain: evaluation of a treatment model of exercise self-regulation generalizing to controlled eating. Perm J. 2016;20(3):15-146. doi: 10.7812/TPP/15-146
21.	Apolzan JW, Venditti EM, Edelstein SL, Knowler WC, Dabelea D, Boyko EJ, et al. Long-term weight loss with metformin or lifestyle intervention in the Diabetes Prevention Program Outcomes Study. Ann Intern Med. 2019;170(10):682-90. doi: 10.7326/M18-1605
22.	Apovian CM, Aronne L, Rubino D, Still C, Wyatt H, Burns C, et al. A randomized, phase 3 trial of naltrexone SR/bupropion SR on weight and obesity-related risk factors (COR-II). Obesity. 2013;21(5):935-43. doi: 10.1002/oby.20309
23.	Ard JD, Gower B, Hunter G, Ritchie CS, Roth DL, Goss A, et al. Effects of calorie restriction in obese older adults: the CROSSROADS randomized controlled trial. J Gerontol A Biol Sci Med Sci. 2018;73(1):73-80. doi: 10.1093/gerona/glw237
24.	Arguin H, Dionne IJ, Sénéchal M, Bouchard DR, Carpentier AC, Ardilouze J-L, et al. Short- and long-term effects of continuous versus intermittent restrictive diet approaches on body composition and the metabolic profile in overweight and obese postmenopausal women: a pilot study. Menopause: The Journal of The North American Menopause Society. 2012;19(8):870-6. doi: 10.1097/gme.0b013e318250a287
25.	Arlinghaus KR, O'Connor DP, Johnston CA. Frequency of school-based intervention needed to improve weight outcomes of Mexican-American adolescents with overweight or obesity: a randomized controlled trial. Pediatr Obes. 2019;14(12):e12568. doi: 10.1111/ijpo.12568
26.	Armamento-Villareal R, Aguirre LE, Qualls C, Villareal DT. Effect of lifestyle intervention on the hormonal profile of frail, obese older men. J Nutr Health Aging. 2016;20(3):334-40. doi: 10.1007/s12603-016-0698-x
27.	Aronne LJ, Sattar N, Horn DB, Bays HE, Wharton S, Lin W-Y, et al. Continued treatment with tirzepatide for maintenance of weight reduction in adults with obesity: the SURMOUNT-4 randomized clinical trial. JAMA. 2024;331(1):38-48. doi: 10.1001/jama.2023.24945
28.	Arredondo EM, Elder JP, Haughton J, Slymen DJ, Sallis JF, Perez LG, et al. Fe en Acción: promoting physical activity among churchgoing Latinas. Am J Public Health. 2017;107(7):1109-15. doi: 10.2105/AJPH.2017.303785
29.	Arredondo EM, Haughton J, Ayala GX, Slymen D, Sallis JF, Perez LG, et al. Two-year outcomes of Faith in Action/Fe en Acción: a randomized controlled trial of physical activity promotion in Latinas. Int J Behav Nutr Phys Act. 2022;19:97. doi: 10.1186/s12966-022-01329-6
30.	Artene DV, Bordea CI, Blidaru A. Results of 1-year diet and exercise interventions for ER+/PR+/-/HER2- breast cancer patients correlated with treatment type. Chirurgia (Bucur). 2017;112(4):457-68. doi: 10.21614/chirurgia.112.4.457
31.	Astbury NM, Edwards RM, Ghebretinsea F, Shanyinde M, Mollison J, Aveyard P, et al. Extended follow-up of a short total diet replacement programme: results of the Doctor Referral of Overweight People to Low Energy total diet replacement Treatment (DROPLET) randomised controlled trial at 3 years. Int J Obes. 2021;45(11):2432-8. doi: 10.1038/s41366-021-00915-1
32.	Astrup A, Carraro R, Finer N, Harper A, Kunesova M, Lean ME, et al. Safety, tolerability and sustained weight loss over 2 years with the once-daily human GLP-1 analog, liraglutide. Int J Obes. 2012;36(6):843-54. doi: 10.1038/ijo.2011.158
33.	Baillot A, Vallée C-A, Mampuya WM, Dionne IJ, Comeau E, Méziat-Burdin A, et al. Effects of a pre-surgery supervised exercise training 1 year after bariatric surgery: a randomized controlled study. Obes Surg. 2018;28(4):955-62. doi: 10.1007/s11695-017-2943-8

34.	Balducci S, Zanuso S, Cardelli P, Salerno G, Fallucca S, Nicolucci A, et al. Supervised exercise training counterbalances the adverse effects of insulin therapy in overweight/obese subjects with type 2 diabetes. Diabetes Care. 2012;35(1):39-41. doi: 10.2337/dc11-1450
35.	Bartels SJ, Pratt SI, Aschbrenner KA, Barre LK, Jue K, Wolfe RS, et al. Clinically significant improved fitness and weight loss among overweight persons with serious mental illness. Psychiatr Serv. 2013;64(8):729-36. doi: 10.1176/appi.ps.003622012
36.	Bates S, Norman P, Breeze P, Brennan A, Ahern AL. Mechanisms of action in a behavioral weight-management program: latent growth curve analysis. Ann Behav Med. 2022;56(1):64-77. doi: 10.1093/abm/kaab019
37.	Bathrellou E, Yannakoulia M, Papanikolaou K, Pehlivanidis A, Pervanidou P, Kanaka-Gantenbein C, et al. Parental involvement does not augment the effectiveness of an intense behavioral program for the treatment of childhood obesity. Hormones. 2010;9(2):171-5.
38.	Bea JW, Cussler EC, Going SB, Blew RM, Metcalfe LL, Lohman TG. Resistance training predicts 6-yr body composition change in postmenopausal women. Med Sci Sports Exerc. 2010;42(7):1286-95. doi: 10.1249/MSS.0b013e3181ca8115
39.	Beavers KM, Ambrosius WT, Rejeski WJ, Burdette JH, Walkup MP, Sheedy JL, et al. Effect of exercise type during intentional weight loss on body composition in older adults with obesity. Obesity. 2017;25(11):1823-9. doi: 10.1002/oby.21977
40.	Beavers KM, Beavers DP, Nesbit BA, Ambrosius WT, Marsh AP, Nicklas BJ, et al. Effect of an 18-month physical activity and weight loss intervention on body composition in overweight and obese older adults. Obesity. 2014;22(2):325-31. doi: 10.1002/oby.20607
41.	Beavers KM, Beavers DP, Newman JJ, Anderson AM, Loeser RF, Jr., Nicklas BJ, et al. Effects of total and regional fat loss on plasma CRP and IL-6 in overweight and obese, older adults with knee osteoarthritis. Osteoarthritis Cartilage. 2015;23(2):249-56. doi: 10.1016/j.joca.2014.11.005
42.	Belalcazar LM, Anderson AM, Lang W, Schwenke DC, Haffner SM, Yatsuya H, et al. Fiber intake and plasminogen activator inhibitor-1 in type 2 diabetes: Look AHEAD (Action for Health in Diabetes) trial findings at baseline and year 1. J Acad Nutr Diet. 2014;114(11):1800-10.e2. doi: 10.1016/j.jand.2014.06.357
43.	Belalcazar LM, Haffner SM, Lang W, Hoogeveen RC, Rushing J, Schwenke DC, et al. Lifestyle intervention and/or statins for the reduction of C-reactive protein in type 2 diabetes: from the look AHEAD study. Obesity. 2013;21(5):944-50. doi: 10.1002/oby.20431
44.	Bellicha A, Ciangura C, Roda C, Torcivia A, Aron-Wisnewsky J, Poitou C, et al. Effect of exercise training after bariatric surgery: A 5-year follow-up study of a randomized controlled trial. PLoS ONE. 2022;17(7):e0271561. doi: 10.1371/journal.pone.0271561
45.	Belski R, Mori TA, Puddey IB, Sipsas S, Woodman RJ, Ackland TR, et al. Effects of lupin-enriched foods on body composition and cardiovascular disease risk factors: a 12-month randomized controlled weight loss trial. Int J Obes. 2011;35(6):810-9. doi: 10.1038/ijo.2010.213
46.	Belzile D, Auclair A, Roberge J, Piché ME, Lebel A, Pettigrew M, et al. Heart rate variability after bariatric surgery: the add-on value of exercise. Eur J Sport Sci. 2023;23(3):415-22. doi: 10.1080/17461391.2021.2017488
47.	Benasi G, Gostoli S, Zhu B, Offidani E, Artin MG, Gagliardi L, et al. Well-being therapy and lifestyle intervention in type 2 diabetes: a pilot randomized controlled trial. Psychosom Med. 2022;84(9):1041-9. doi: 10.1097/PSY.0000000000001115
48.	Bennett GG, Foley P, Levine E, Whiteley J, Askew S, Steinberg DM, et al. Behavioral treatment for weight gain prevention among black women in primary care practice: a randomized clinical trial. JAMA Intern Med. 2013;173(19):1770-7. doi: 10.1001/jamainternmed.2013.9263
49.	Bennett GG, Warner ET, Glasgow RE, Askew S, Goldman J, Ritzwoller DP, et al. Obesity treatment for socioeconomically disadvantaged patients in primary care practice. Arch Intern Med. 2012;172(7):565-74. doi: 10.1001/archinternmed.2012.1
50.	Bensignor MO, Bomberg EM, Bramante CT, Divyalasya TVS, Hale PM, Ramesh CK, et al. Effect of liraglutide treatment on body mass index and weight parameters in children and adolescents with type 2 diabetes: Post hoc analysis of the ellipse trial. Pediatr Obes. 2021;16(8):e12778. doi: 10.1111/ijpo.12778
51.	Bensignor MO, Bramante CT, Bomberg EM, Fox CK, Hale PM, Kelly AS, et al. Evaluating potential predictors of weight loss response to liraglutide in adolescents with obesity: a post hoc analysis of the randomized, placebo-controlled SCALE Teens trial. Pediatr Obes. 2023;18(9):e13061. doi: 10.1111/ijpo.13061

52.	Bergman F, Wahlström V, Stomby A, Otten J, Lanthén E, Renklint R, et al. Treadmill workstations in office workers who are overweight or obese: a randomised controlled trial. Lancet Public Health. 2018;3(11):e523-e35. doi: 10.1016/S2468-2667(18)30163-4
53.	Bergström H, Hagströmer M, Hagberg J, Elinder LS. A multi-component universal intervention to improve diet and physical activity among adults with intellectual disabilities in community residences: a cluster randomised controlled trial. Res Dev Disabil. 2013;34(11):3847-57. doi: 10.1016/j.ridd.2013.07.019
54.	Bertz F, Brekke HK, Ellegård L, Rasmussen KM, Wennergren M, Winkvist A. Diet and exercise weight-loss trial in lactating overweight and obese women. Am J Clin Nutr. 2012;96(4):698-705. doi: 10.3945/ajcn.112.040196
55.	Bhopal RS, Douglas A, Wallia S, Forbes JF, Lean MEJ, Gill JMR, et al. Effect of a lifestyle intervention on weight change in south Asian individuals in the UK at high risk of type 2 diabetes: a family-cluster randomised controlled trial. Lancet Diabetes Endocrinol. 2014;2(3):218-27. doi: 10.1016/S2213-8587(13)70204-3
56.	Bick D, Taylor C, Bhavnani V, Healey A, Seed P, Roberts S, et al. Lifestyle information and commercial weight management groups to support maternal postnatal weight management and positive lifestyle behaviour: the SWAN feasibility randomised controlled trial. BJOG. 2020;127(5):636-45. doi: 10.1111/1471-0528.16043
57.	Black MM, Hager E, Le K, Anliker J, Arteaga SS, DiClemente C, et al. Challenge! Health promotion/obesity prevention mentorship model among urban, black adolescents. Pediatrics. 2010;126(2):280-8. doi: 10.1542/peds.2009-1832
58.	Black MM, Hager ER, Wang Y, Hurley KM, Latta LW, Candelaria M, et al. Toddler obesity prevention: a two-generation randomized attention-controlled trial. Matern Child Nutr. 2021;17(1):e13075. doi: 10.1111/mcn.13075
59.	Blomster H, Laitinen T, Lyyra-Laitinen T, Vanninen E, Gylling H, Peltonen M, et al. Endothelial function is well preserved in obese patients with mild obstructive sleep apnea. Sleep Breath. 2014;18(1):177-86. doi: 10.1007/s11325-013-0867-7
60.	Bocca G, Corpeleijn E, Stolk RP, Sauer PJJ. Results of a multidisciplinary treatment program in 3-year-old to 5-year-old overweight or obese children: a randomized controlled clinical trial. Arch Pediatr Adolesc Med. 2012;166(12):1109-15. doi: 10.1001/archpediatrics.2012.1638
61.	Bogart LM, Elliott MN, Cowgill BO, Klein DJ, Hawes-Dawson J, Uyeda K, et al. Two-year BMI outcomes from a school-based intervention for nutrition and exercise: a randomized trial. Pediatrics. 2016;137(5):e20152493. doi: 10.1542/peds.2015-2493
62.	Bolinder J, Ljunggren Ö, Johansson L, Wilding J, Langkilde AM, Sjöström CD, et al. Dapagliflozin maintains glycaemic control while reducing weight and body fat mass over 2 years in patients with type 2 diabetes mellitus inadequately controlled on metformin. Diabetes, Obesity & Metabolism. 2014;16(2):159-69. doi: 10.1111/dom.12189
63.	Bonn SE, Hult M, Spetz K, Eke H, Andersson E, Wirén M, et al. Effect of a smartphone application on physical activity and weight loss after bariatric surgery-results from a randomized controlled trial. Obes Surg. 2023;33(9):2841-50. doi: 10.1007/s11695-023-06753-6
64.	Bouchonville M, Armamento-Villareal R, Shah K, Napoli N, Sinacore DR, Qualls C, et al. Weight loss, exercise or both and cardiometabolic risk factors in obese older adults: results of a randomized controlled trial. Int J Obes. 2014;38(3):423-31. doi: 10.1038/ijo.2013.122
65.	Boutelle KN, Eichen DM, Peterson CB, Strong DR, Kang-Sim D-JE, Rock CL, et al. Effect of a novel intervention targeting appetitive traits on body mass index among adults with overweight or obesity: a randomized clinical trial. JAMA Netw Open. 2022;5(5):e2212354. doi: 10.1001/jamanetworkopen.2022.12354
66.	Boutelle KN, Rhee KE, Liang J, Braden A, Douglas J, Strong D, et al. Effect of attendance of the child on body weight, energy intake, and physical activity in childhood obesity treatment: a randomized clinical trial. JAMA Pediatr. 2017;171(7):622-8. doi: 10.1001/jamapediatrics.2017.0651
67.	Bowen DJ, Quintiliani LM, Bhosrekar SG, Goodman R, Smith E. Changing the housing environment to reduce obesity in public housing residents: a cluster randomized trial. BMC Public Health. 2018;18:883. doi: 10.1186/s12889-018-5777-y
68.	Boyraz M, Pirgon Ö, Dündar B, Çekmez F, Hatipoğlu N. Long-term treatment with n-3 polyunsaturated fatty acids as a monotherapy in children with nonalcoholic fatty liver disease. J Clin Res Pediatr Endocrinol. 2015;7(2):121-7. doi: 10.4274/jcrpe.1749
69.	Bräutigam-Ewe M, Lydell M, Bergh H, Hildingh C, Baigi A, Månsson J. Two-year weight, risk and health factor outcomes of a weight-reduction intervention programme: primary prevention for overweight in a

	multicentre primary healthcare setting. Scand J Prim Health Care. 2020;38(2):192-200. doi: 10.1080/02813432.2020.1753379
70.	Brekke HK, Bertz F, Rasmussen KM, Bosaeus I, Ellegård L, Winkvist A. Diet and exercise interventions among overweight and obese lactating women: randomized trial of effects on cardiovascular risk factors. PLoS ONE. 2014;9(2):e88250. doi: 10.1371/journal.pone.0088250
71.	Brown A, Dornhorst A, McGowan B, Omar O, Leeds AR, Taheri S, et al. Low-energy total diet replacement intervention in patients with type 2 diabetes mellitus and obesity treated with insulin: a randomized trial. BMJ Open Diab Res Care. 2020;8(1):e001012. doi: 10.1136/bmjdrc-2019-001012
72.	Brown JC, Sarwer DB, Troxel AB, Sturgeon K, DeMichele AM, Denlinger CS, et al. A randomized trial of exercise and diet on body composition in survivors of breast cancer with overweight or obesity. Breast Cancer Res Treat. 2021;189(1):145-54. doi: 10.1007/s10549-021-06284-7
73.	Burke LE, Ewing LJ, Ye L, Styn M, Zheng Y, Music E, et al. The SELF trial: a self-efficacy-based behavioral intervention trial for weight loss maintenance. Obesity. 2015;23(11):2175-82. doi: 10.1002/oby.21238
74.	Burke LE, Sereika SM, Bizhanova Z, Parmanto B, Kariuki J, Cheng J, et al. The effect of tailored, daily, smartphone feedback to lifestyle self-monitoring on weight loss at 12 months: the SMARTER randomized clinical trial. J Med Internet Res. 2022;24(7):e38243. doi: 10.2196/38243
75.	Butryn ML, Crane NT, Lufburrow E, Hagerman CJ, Forman EM, Zhang F. The role of physical activity in long-term weight loss: 36-month results from a randomized controlled trial. Ann Behav Med. 2023;57(2):146-54. doi: 10.1093/abm/kaac028
76.	Butryn ML, Forman EM, Lowe MR, Gorin AA, Zhang F, Schaumberg K. Efficacy of environmental and acceptance-based enhancements to behavioral weight loss treatment: the ENACT trial. Obesity. 2017;25(5):866-72. doi: 10.1002/oby.21813
77.	Butryn ML, Godfrey KM, Call CC, Forman EM, Zhang F, Volpe SL. Promotion of physical activity during weight loss maintenance: a randomized controlled trial. Health Psychol. 2021;40(3):178-87. doi: 10.1037/hea0001043
78.	Cabrera-Rode E, Orlandi N, Padrón Y, Arranz C, Olano R, Machado M, et al. Effect of Diamel in patients with metabolic syndrome: a randomized double-blind placebo-controlled study. J Diabetes. 2013;5(2):180-91. doi: 10.1111/1753-0407.12007
79.	Cadmus-Bertram L, Nelson SH, Hartman S, Patterson RE, Parker BA, Pierce JP. Randomized trial of a phone- and web-based weight loss program for women at elevated breast cancer risk: the HELP study. J Behav Med. 2016;39(4):551-9. doi: 10.1007/s10865-016-9735-9
80.	Cai R, Chao J, Li D, Zhang M, Kong L, Wang Y. Effect of community-based lifestyle interventions on weight loss and cardiometabolic risk factors in obese elderly in China: a randomized controlled trial. Exp Gerontol. 2019;128:110749. doi: 10.1016/j.exger.2019.110749
81.	Caiazzo R, Branche J, Raverdy V, Czernichow S, Carette C, Robert M, et al. Efficacy and safety of the duodeno-jejunal bypass liner in patients with metabolic syndrome: a multicenter randomized controlled trial (ENDOMETAB). Ann Surg. 2020;272(5):696-702. doi: 10.1097/SLA.0000000000004339
82.	Calleja Fernández A, Vidal Casariego A, Cano Rodríguez I, Ballesteros Pomar MD. One-year effectiveness of two hypocaloric diets with different protein/carbohydrate ratios in weight loss and insulin resistance. Nutr Hosp. 2012;27(6):2093-101. doi: 10.3305/nh.2012.27.6.6133
83.	Campbell KL, Foster-Schubert KE, Alfano CM, Wang C-C, Wang C-Y, Duggan CR, et al. Reduced-calorie dietary weight loss, exercise, and sex hormones in postmenopausal women: randomized controlled trial. J Clin Oncol. 2012;30(19):2314-26. doi: 10.1200/JCO.2011.37.9792
84.	Campbell PT, Gross MD, Potter JD, Schmitz KH, Duggan C, McTiernan A, et al. Effect of exercise on oxidative stress: a 12-month randomized, controlled trial. Med Sci Sports Exerc. 2010;42(8):1448-53. doi: 10.1249/MSS.0b013e3181cfc908
85.	Carnier J, de Mello MT, Ackel-ĎElia C, Corgosinho FC, Campos RMdS, Sanches PdL, et al. Aerobic training (AT) is more effective than aerobic plus resistance training (AT+RT) to improve anorexigenic/orexigenic factors in obese adolescents. Appetite. 2013;69:168-73. doi: 10.1016/j.appet.2013.05.018
86.	Carraça EV, Markland D, Silva MN, Coutinho SR, Vieira PN, Minderico CS, et al. Physical activity predicts changes in body image during obesity treatment in women. Med Sci Sports Exerc. 2012;44(8):1604-12. doi: 10.1249/MSS.0b013e31824d922a
87.	Carraça EV, Silva MN, Coutinho SR, Vieira PN, Minderico CS, Sardinha LB, et al. The association between physical activity and eating self-regulation in overweight and obese women. Obes Facts. 2013;6(6):493-506. doi: 10.1159/000356449

88.	Carter S, Clifton PM, Keogh JB. The effect of intermittent compared with continuous energy restriction on glycaemic control in patients with type 2 diabetes: 24-month follow-up of a randomised noninferiority trial. Diabetes Res Clin Pract. 2019;151:11-9. doi: 10.1016/j.diabres.2019.03.022
89.	Cassidy S, Trenell M, Stefanetti RJ, Charman SJ, Barnes AC, Brosnahan N, et al. Physical activity, inactivity and sleep during the Diabetes Remission Clinical Trial (DiRECT). Diabet Med. 2023;40(3):e15010. doi: 10.1111/dme.15010
90.	Catalán-Lambán A, Ojeda-Rodríguez A, Marti Del Moral A, Azcona-Sanjulian C. Changes in objectively measured sleep after a multidisciplinary lifestyle intervention in children with abdominal obesity: a randomized trial. Sleep Med. 2023;109:252-60. doi: 10.1016/j.sleep.2023.07.004
91.	Cesa GL, Manzoni GM, Bacchetta M, Castelnuovo G, Conti S, Gaggioli A, et al. Virtual reality for enhancing the cognitive behavioral treatment of obesity with binge eating disorder: randomized controlled study with one-year follow-up. J Med Internet Res. 2013;15(6):e113. doi: 10.2196/jmir.2441
92.	Chair S-Y, Lo SWS, Cheng HY, Choi KC, Liu T, Wang Q, et al. Effects of a theory-based educational program on health behaviors and cardiovascular health outcomes among overweight postmenopausal women: a randomized controlled trial. Cardiovasc Nurs. 2024;39(1):79-87. doi: 10.1097/JCN.0000000000001032
93.	Chan DL, Cruz JR, Mui WL, Wong SKH, Ng EKW. Outcomes with intra-gastric balloon therapy in BMI < 35 non-morbid obesity: 10-year follow-up study of an RCT. Obes Surg. 2021;31(2):781-6. doi: 10.1007/s11695-020-04986-3
94.	Chang S-H, Chang Y-Y, Jeng W-J, Wai JPM. Efficacy of a multidimensional self-management intervention on low-education women with metabolic syndrome: a cluster randomized controlled trial. Sci Rep. 2023;13(1):10358. doi: 10.1038/s41598-023-36971-y
95.	Chang S-H, Chien N-H, Yu C-Y. Long-term lifestyle intervention in elderly with metabolic syndrome. Clin Nurs Res. 2019;28(6):658-75. doi: 10.1177/1054773817749923
96.	Cheng A, Yeoh E, Moh A, Low S, Tan CH, Lam B, et al. Roux-en-Y gastric bypass versus best medical treatment for type 2 diabetes mellitus in adults with body mass index between 27 and 32 kg/m2: a 5-year randomized controlled trial. Diabetes Res Clin Pract. 2022;188:109900. doi: 10.1016/j.diabres.2022.109900
97.	Cheng HL, Griffin HJ, Bryant CE, Rooney KB, Steinbeck KS, O'Connor HT. Impact of diet and weight loss on iron and zinc status in overweight and obese young women. Asia Pac J Clin Nutr. 2013;22(4):574-82. doi: 10.6133/apjcn.2013.22.4.08
98.	Chong K, Ikramuddin S, Lee W-J, Billington CJ, Bantle JP, Wang Q, et al. National differences in remission of type 2 diabetes mellitus after Roux-en-Y gastric bypass surgery-subgroup analysis of 2-year results of the Diabetes Surgery Study comparing Taiwanese with Americans with mild obesity (BMI 30-35 kg/m2). Obes Surg. 2017;27(5):1189-95. doi: 10.1007/s11695-016-2433-4
99.	Christensen JR, Overgaard K, Carneiro IG, Holtermann A, Søgaard K. Weight loss among female health care workers- a 1-year workplace based randomized controlled trial in the FINALE-health study. BMC Public Health. 2012;12(1):625. doi: 10.1186/1471-2458-12-625
100.	Christensen P, Frederiksen R, Bliddal H, Riecke BF, Bartels EM, Henriksen M, et al. Comparison of three weight maintenance programs on cardiovascular risk, bone and vitamins in sedentary older adults. Obesity. 2013;21(10):1982-90. doi: 10.1002/oby.20413
101.	Christensen R, Henriksen M, Leeds AR, Gudbergsen H, Christensen P, Sørensen TJ, et al. Effect of weight maintenance on symptoms of knee osteoarthritis in obese patients: a twelve-month randomized controlled trial. Arthritis Care Res. 2015;67(5):640-50. doi: 10.1002/acr.22504
102.	Clina JG, Sayer RD, Pan Z, Cohen CW, McDermott MT, Catenacci VA, et al. High- and normal-protein diets improve body composition and glucose control in adults with type 2 diabetes: a randomized trial. Obesity. 2023;31(8):2021-30. doi: 10.1002/oby.23815
103.	Cohen TR, Hazell TJ, Vanstone CA, Rodd C, Weiler HA. Changes in eating behavior and plasma leptin in children with obesity participating in a family-centered lifestyle intervention. Appetite. 2018;125:81-9. doi: 10.1016/j.appet.2018.01.017
104.	Cohen TR, Mak IL, Loiselle S-E, Kasvis P, Hazell TJ, Vanstone CA, et al. Changes in adiposity without impacting bone health in 9- to 12-year-old children with overweight and obesity after a one-year family-centered lifestyle behavior intervention. Child Obes. 2023;19(1):46-56. doi: 10.1089/chi.2022.0008
105.	Coleman KJ, Caparosa SL, Nichols JF, Fujioka K, Koebnick C, McCloskey KN, et al. Understanding the capacity for exercise in post-bariatric patients. Obes Surg. 2017;27(1):51-8. doi: 10.1007/s11695-016-2240-y
106.	Colleluori G, Napoli N, Phadnis U, Armamento-Villareal R, Villareal DT. Effect of weight loss, exercise, or both on undercarboxylated osteocalcin and insulin secretion in frail, obese older adults. Oxid Med Cell Longev. 2017;2017:4807046. doi: 10.1155/2017/4807046

107.	Collins CE, Okely AD, Morgan PJ, Jones RA, Burrows TL, Cliff DP, et al. Parent diet modification, child activity, or both in obese children: an RCT. Pediatrics. 2011;127(4):619-27. doi: 10.1542/peds.2010-1518
108.	Collins KA, Kraus WE, Rogers RJ, Hauser ER, Lang W, Jiang R, et al. Effect of behavioral weight-loss program on biomarkers of cardiometabolic disease risk: Heart Health Study randomized trial. Obesity. 2023;31(2):338-49. doi: 10.1002/oby.23618
109.	Conroy MB, McTigue KM, Bryce CL, Tudorascu D, Gibbs BB, Arnold J, et al. Effect of electronic health record-based coaching on weight maintenance: a randomized trial. Ann Intern Med. 2019;171(11):777-84. doi: 10.7326/M18-3337
110.	Conroy MB, Sward KL, Spadaro KC, Tudorascu D, Karpov I, Jones BL, et al. Effectiveness of a physical activity and weight loss intervention for middle-aged women: healthy bodies, healthy hearts randomized trial. J Gen Intern Med. 2015;30(2):207-13. doi: 10.1007/s11606-014-3077-5
111.	Cooper Z, Doll HA, Hawker DM, Byrne S, Bonner G, Eeley E, et al. Testing a new cognitive behavioural treatment for obesity: a randomized controlled trial with three-year follow-up. Behav Res Ther. 2010;48(8):706-13. doi: 10.1016/j.brat.2010.03.008
112.	Coppins DF, Margetts BM, Fa JL, Brown M, Garrett F, Huelin S. Effectiveness of a multi-disciplinary family-based programme for treating childhood obesity (The Family Project). Eur J Clin Nutr. 2011;65(8):903-9. doi: 10.1038/ejcn.2011.43
113.	Cornelius T, Gettens K, Gorin AA. Dyadic dynamics in a randomized weight loss intervention. Ann Behav Med. 2016;50(4):506-15. doi: 10.1007/s12160-016-9778-8
114.	Cornelli U, Belcaro G, Recchia M, D'Orazio N. Long-term treatment of overweight and obesity with polyglucosamine (PG L112): randomized study compared with placebo in subjects after caloric restriction. Curr Dev Nutr. 2017;1(10):e000919. doi: 10.3945/cdn.117.000919
115.	Coughlin JW, Brantley PJ, Champagne CM, Vollmer WM, Stevens VJ, Funk K, et al. The impact of continued intervention on weight: five-year results from the weight loss maintenance trial. Obesity. 2016;24(5):1046-53. doi: 10.1002/oby.21454
116.	Coughlin JW, Gullion CM, Brantley PJ, Stevens VJ, Bauck A, Champagne CM, et al. Behavioral mediators of treatment effects in the weight loss maintenance trial. Ann Behav Med. 2013;46(3):369-81. doi: 10.1007/s12160-013-9517-3
117.	Courcoulas AP, Belle SH, Neiberg RH, Pierson SK, Eagleton JK, Kalarchian MA, et al. Three-year outcomes of bariatric surgery vs lifestyle intervention for type 2 diabetes mellitus treatment: a randomized clinical trial. JAMA Surg. 2015;150(10):931-40. doi: 10.1001/jamasurg.2015.1534
118.	Courcoulas AP, Gallagher JW, Neiberg RH, Eagleton EB, DeLany JP, Lang W, et al. Bariatric surgery vs lifestyle intervention for diabetes treatment: 5-year outcomes from a randomized trial. J Clin Endocrinol Metab. 2020;105(3):866–76. doi: 10.1210/clinem/dgaa006
119.	Courcoulas AP, Goodpaster BH, Eagleton JK, Belle SH, Kalarchian MA, Lang W, et al. Surgical vs medical treatments for type 2 diabetes mellitus: a randomized clinical trial. JAMA Surg. 2014;149(7):707-15. doi: 10.1001/jamasurg.2014.467
120.	Cox DJ, Oser T, Moncrief M, Conaway M, McCall A. Long-term follow-up of a randomized clinical trial comparing glycemic excursion minimization (GEM) to weight loss (WL) in the management of type 2 diabetes. BMJ Open Diab Res Care. 2021;9(2):e00240. doi: 10.1136/bmjdrc-2021-002403
121.	Crespo NC, Elder JP, Ayala GX, Slymen DJ, Campbell NR, Sallis JF, et al. Results of a multi-level intervention to prevent and control childhood obesity among Latino children: the Aventuras Para Ninos Study. Ann Behav Med. 2012;43(1):84-100. doi: 10.1007/s12160-011-9332-7
122.	Crespo NC, Talavera GA, Campbell NR, Shadron LM, Behar AI, Slymen D, et al. A randomized controlled trial to prevent obesity among Latino paediatric patients. Pediatr Obes. 2018;13(11):697-704. doi: 10.1111/ijpo.12466
123.	Cummings DE, Arterburn DE, Westbrook EO, Kuzma JN, Stewart SD, Chan CP, et al. Gastric bypass surgery vs intensive lifestyle and medical intervention for type 2 diabetes: the CROSSROADS randomised controlled trial. Diabetologia. 2016;59(5):945-53. doi: 10.1007/s00125-016-3903-x
124.	Curtin C, Bandini LG, Must A, Gleason J, Lividini K, Phillips S, et al. Parent support improves weight loss in adolescents and young adults with Down syndrome. J Pediatr. 2013;163(5):1402-8.e1. doi: 10.1016/j.jpeds.2013.06.081
125.	da Silveira Campos RM, Landi Masquio DC, Campos Corgosinho F, de Lima Sanches P, de Piano A, Carnier J, et al. Homeostasis Model Assessment-Adiponectin: the role of different types of physical exercise in obese adolescents. J Sports Med Phys Fitness. 2017;57(6):831-8. doi: 10.23736/S0022-4707.16.06235-6

126.	Dâmaso AR, da Silveira Campos RM, Caranti DA, de Piano A, Fisberg M, Foschini D, et al. Aerobic plus resistance training was more effective in improving the visceral adiposity, metabolic profile and inflammatory markers than aerobic training in obese adolescents. J Sports Sci. 2014;32(15):1435-45. doi: 10.1080/02640414.2014.900692
127.	Das SK, Bukhari AS, Taetzsch AG, Ernst AK, Rogers GT, Gilhooly CH, et al. Randomized trial of a novel lifestyle intervention compared with the Diabetes Prevention Program for weight loss in adult dependents of military service members. Am J Clin Nutr. 2021;114(4):1546-59. doi: 10.1093/ajcn/nqab259
128.	Daumit GL, Dickerson FB, Wang N-Y, Dalcin A, Jerome GJ, Anderson CAM, et al. A behavioral weight-loss intervention in persons with serious mental illness. N Engl J Med. 2013;368(17):1594-602. doi: 10.1056/NEJMoa1214530
129.	Davidson MH, Tonstad S, Oparil S, Schwiers M, Day WW, Bowden CH. Changes in cardiovascular risk associated with phentermine and topiramate extended-release in participants with comorbidities and a body mass index >=27 kg/m(2). American Journal of Cardiology. 2013;111(8):1131-8. doi: 10.1016/j.amjcard.2012.12.038
130.	Davies M, Færch L, Jeppesen OK, Pakseresht A, Pedersen SD, Perreault L, et al. Semaglutide 2·4 mg once a week in adults with overweight or obesity, and type 2 diabetes (STEP 2): a randomised, double-blind, double-dummy, placebo-controlled, phase 3 trial. Lancet. 2021;397(10278):971-84. doi: 10.1016/S0140-6736(21)00213-0
131.	Davies MJ, Bergenstal R, Bode B, Kushner RF, Lewin A, Skjøth TV, et al. Efficacy of liraglutide for weight loss among patients with type 2 diabetes: the SCALE Diabetes randomized clinical trial. JAMA. 2015;314(7):687-99. doi: 10.1001/jama.2015.9676
132.	Davis SM, Myers OB, Cruz TH, Morshed AB, Canaca GF, Keane PC, et al. CHILE: outcomes of a group randomized controlled trial of an intervention to prevent obesity in preschool Hispanic and American Indian children. Prev Med. 2016;89:162-8. doi: 10.1016/j.ypmed.2016.05.018
133.	Davy BM, Winett RA, Savla J, Marinik EL, Baugh ME, Flack KD, et al. Resist diabetes: a randomized clinical trial for resistance training maintenance in adults with prediabetes. PLoS ONE. 2017;12(2):e0172610. doi: 10.1371/journal.pone.0172610
134.	de Oliveira Maranhão Pureza IR, da Silva Junior AE, Silva Praxedes DR, Lessa Vasconcelos LG, de Lima Macena M, Vieira de Melo IS, et al. Effects of time-restricted feeding on body weight, body composition and vital signs in low-income women with obesity: a 12-month randomized clinical trial. Clin Nutr. 2021;40(3):759-66. doi: 10.1016/j.clnu.2020.06.036
135.	de Piano A, de Mello MT, Sanches PdL, da Silva PL, Campos RMS, Carnier J, et al. Long-term effects of aerobic plus resistance training on the adipokines and neuropeptides in nonalcoholic fatty liver disease obese adolescents. Eur J Gastroenterol Hepatol. 2012;24(11):1313-24. doi: 10.1097/MEG.0b013e32835793ac
136.	de Vos BC, Runhaar J, Bierma-Zeinstra SMA. Effectiveness of a tailor-made weight loss intervention in primary care. Eur J Nutr. 2014;53(1):95-104. doi: 10.1007/s00394-013-0505-y
137.	de Vos BC, Runhaar J, van Middelkoop M, Krul M, Bierma-Zeinstra SM. Long-term effects of a randomized, controlled, tailor-made weight-loss intervention in primary care on the health and lifestyle of overweight and obese women. Am J Clin Nutr. 2016;104(1):33-40. doi: 10.3945/ajcn.116.133512
138.	DeBar LL, Stevens VJ, Perrin N, Wu P, Pearson J, Yarborough BJ, et al. A primary care-based, multicomponent lifestyle intervention for overweight adolescent females. Pediatrics. 2012;129(3):e611-e20. doi: 10.1542/peds.2011-0863
139.	Debussche X, Rollot O, Le Pommelet C, Fianu A, Le Moullec N, Régnier C, et al. Quarterly individual outpatients lifestyle counseling after initial inpatients education on type 2 diabetes: the REDIA Prev-2 randomized controlled trial in Reunion Island. Diabetes Metab. 2012;38(1):46-53. doi: 10.1016/j.diabet.2011.07.002
140.	Dekkers JC, van Wier MF, Ariëns GA, Hendriksen IJ, Pronk NP, Smid T, et al. Comparative effectiveness of lifestyle interventions on cardiovascular risk factors among a Dutch overweight working population: a randomized controlled trial. BMC Public Health. 2011;11:49. doi: 10.1186/1471-2458-11-49
141.	Demark-Wahnefried W, Jones LW, Snyder DC, Sloane RJ, Kimmick GG, Hughes DC, et al. Daughters and Mothers Against Breast Cancer (DAMES): main outcomes of a randomized controlled trial of weight loss in overweight mothers with breast cancer and their overweight daughters. Cancer. 2014;120(16):2522-34. doi: 10.1002/cncr.28761
142.	Demark-Wahnefried W, Morey MC, Sloane R, Snyder DC, Miller PE, Hartman TJ, et al. Reach out to enhance wellness home-based diet-exercise intervention promotes reproducible and sustainable long-term

	improvements in health behaviors, body weight, and physical functioning in older, overweight/obese cancer survivors. J Clin Oncol. 2012;30(19):2354-61. doi: 10.1200/JCO.2011.40.0895
143.	Derosa G, Cicero AF, D'Angelo A, Fogari E, Maffioli P. Effects of 1-year orlistat treatment compared to placebo on insulin resistance parameters in patients with type 2 diabetes. Journal of Clinical Pharmacy & Therapeutics. 2012;37(2):187-95. doi: 10.1111/j.1365-2710.2011.01280.x
144.	Derwig M, Tiberg I, Björk J, Kristensson Hallström I. Changes in perceived parental self-efficacy after a Child-Centred Health Dialogue about preventing obesity. Acta Paediatr. 2022;111(10):1956-65. doi: 10.1111/apa.16453
145.	Díaz RG, Esparza-Romero J, Moya-Camarena SY, Robles-Sardín AE, Valencia ME. Lifestyle intervention in primary care settings improves obesity parameters among Mexican youth. J Am Diet Assoc. 2010;110(2):285-90. doi: 10.1016/j.jada.2009.10.042
146.	Díaz-López A, Becerra-Tomás N, Ruiz V, Toledo E, Babio N, Corella D, et al. Effect of an intensive weight-loss lifestyle intervention on kidney function: a randomized controlled trial. Am J Nephrol. 2021;52(1):45-58. doi: 10.1159/000513664
147.	Dietz de Loos A, Jiskoot G, Beerthuizen A, Busschbach J, Laven J. Metabolic health during a randomized controlled lifestyle intervention in women with PCOS. Eur J Endocrinol. 2021;186(1):53-64. doi: 10.1530/EJE-21-0669
148.	Ding S-A, Simonson DC, Wewalka M, Halperin F, Foster K, Goebel-Fabbri A, et al. Adjustable gastric band surgery or medical management in patients with type 2 diabetes: a randomized clinical trial. J Clin Endocrinol Metab. 2015;100(7):2546-56. doi: 10.1210/jc.2015-1443
149.	Dixon JB, Schachter LM, O'Brien PE, Jones K, Grima M, Lambert G, et al. Surgical vs conventional therapy for weight loss treatment of obstructive sleep apnea: a randomized controlled trial. JAMA. 2012;308(11):1142-9. doi: 10.1001/2012.jama.11580
150.	Dorenbos E, Drummen M, Adam T, Rijks J, Winkens B, Martínez JA, et al. Effect of a high protein/low glycaemic index diet on insulin resistance in adolescents with overweight/obesity-a PREVIEW randomized clinical trial. Pediatr Obes. 2021;16(1):e12702. doi: 10.1111/ijpo.12702
151.	Dorling JL, Martin CK, Yu Q, Cao W, Höchsmann C, Apolzan JW, et al. Mediators of weight change in underserved patients with obesity: exploratory analyses from the Promoting Successful Weight Loss in Primary Care in Louisiana (PROPEL) cluster-randomized trial. Am J Clin Nutr. 2022;116(4):1112-22. doi: 10.1093/ajcn/nqac179
152.	Dowsey MM, Brown WA, Cochrane A, Burton PR, Liew D, Choong PF. Effect of bariatric surgery on risk of complications after total knee arthroplasty: a randomized clinical trial. JAMA Netw Open. 2022;5(4):e226722. doi: 10.1001/jamanetworkopen.2022.6722
153.	Driehuis F, Barte JCM, ter Bogt NCW, Beltman FW, Smit AJ, van der Meer K, et al. Maintenance of lifestyle changes: 3-year results of the Groningen Overweight and Lifestyle study. Patient Educ Couns. 2012;88(2):249-55. doi: 10.1016/j.pec.2012.03.017
154.	Due A, Larsen TM, Mu H, Hermansen K, Stender S, Toubro S, et al. The effect of three different ad libitum diets for weight loss maintenance: a randomized 18-month trial. Eur J Nutr. 2017;56(2):727-38. doi: 10.1007/s00394-015-1116-6
155.	Duggan C, Tapsoba JdD, Shivappa N, Harris HR, Hébert JR, Wang C-Y, et al. Changes in dietary inflammatory index patterns with weight loss in women: a randomized controlled trial. Cancer Prev Res (Phila). 2021;14(1):85-94. doi: 10.1158/1940-6207.CAPR-20-0181
156.	Duggan C, Tapsoba JdD, Stanczyk F, Wang C-Y, Schubert KF, McTiernan A. Long-term weight loss maintenance, sex steroid hormones, and sex hormone-binding globulin. Menopause. 2019;26(4):417-22. doi: 10.1097/GME.0000000000001250
157.	Duggan C, Tapsoba JdD, Wang C-Y, Campbell KL, Foster-Schubert K, Gross MD, et al. Dietary weight loss, exercise, and oxidative stress in postmenopausal women: a randomized controlled trial. Cancer Prev Res (Phila). 2016;9(11):835-43. doi: 10.1158/1940-6207.CAPR-16-0163
158.	Duggins M, Cherven P, Carrithers J, Messamore J, Harvey A. Impact of family YMCA membership on childhood obesity: a randomized controlled effectiveness trial. J Am Board Fam Med. 2010;23(3):323-33. doi: 10.3122/jabfm.2010.03.080266
159.	Duncan MJ, Fenton S, Brown WJ, Collins CE, Glozier N, Kolt GS, et al. Efficacy of a multi-component m-health weight-loss intervention in overweight and obese adults: a randomised controlled trial. Int J Environ Res Public Health. 2020;17(17):6200. doi: 10.3390/ijerph17176200

160.	Duncan S, Goodyear-Smith F, McPhee J, Grøntved A, Schofield G. Family-centered brief intervention for reducing obesity and cardiovascular disease risk: a randomized controlled trial. Obesity. 2016;24(11):2311-8. doi: 10.1002/oby.21602
161.	Dutheil F, Lac G, Lesourd B, Chapier R, Walther G, Vinet A, et al. Different modalities of exercise to reduce visceral fat mass and cardiovascular risk in metabolic syndrome: the RESOLVE randomized trial. Int J Cardiol. 2013;168(4):3634-42. doi: 10.1016/j.ijcard.2013.05.012
162.	Dutton GR, Gowey MA, Tan F, Zhou D, Ard J, Perri MG, et al. Comparison of an alternative schedule of extended care contacts to a self-directed control: a randomized trial of weight loss maintenance. Int J Behav Nutr Phys Act. 2017;14:107. doi: 10.1186/s12966-017-0564-1
163.	Eakin EG, Winkler EA, Dunstan DW, Healy GN, Owen N, Marshall AM, et al. Living well with diabetes: 24-month outcomes from a randomized trial of telephone-delivered weight loss and physical activity intervention to improve glycemic control. Diabetes Care. 2014;37(8):2177-85. doi: 10.2337/dc13-2427
164.	Eaton CB, Hartman SJ, Perzanowski E, Pan G, Roberts MB, Risica PM, et al. A randomized clinical trial of a tailored lifestyle intervention for obese, sedentary, primary care patients. Ann Fam Med. 2016;14(4):311-9. doi: 10.1370/afm.1952
165.	Epstein LH, Wilfley DE, Kilanowski C, Quattrin T, Cook SR, Eneli IU, et al. Family-based behavioral treatment for childhood obesity implemented in pediatric primary care: a randomized clinical trial. JAMA. 2023;329(22):1947-56. doi: 10.1001/jama.2023.8061
166.	Erickson ZD, Kwan CL, Gelberg HA, Arnold IY, Chamberlin V, Rosen JA, et al. A randomized, controlled multisite study of behavioral interventions for veterans with mental illness and antipsychotic medication-associated obesity. J Gen Intern Med. 2017;32:32-9. doi: 10.1007/s11606-016-3960-3
167.	Erickson ZD, Mena SJ, Pierre JM, Blum LH, Martin E, Hellemann GS, et al. Behavioral interventions for antipsychotic medication-associated obesity: a randomized, controlled clinical trial. J Clin Psychiatry. 2016;77(2):e183-e9. doi: 10.4088/JCP.14m09552
168.	Espeland MA, Carmichael O, Hayden K, Neiberg RH, Newman AB, Keller JN, et al. Long-term impact of weight loss intervention on changes in cognitive function: exploratory analyses from the action for health in diabetes randomized controlled clinical trial. J Gerontol A Biol Sci Med Sci. 2018;73(4):484-91. doi: 10.1093/gerona/glx165
169.	Espeland MA, Lewis CE, Bahnson J, Knowler WC, Regensteiner JG, Gaussoin SA, et al. Impact of weight loss on ankle-brachial index and interartery blood pressures. Obesity. 2014;22(4):1032-41. doi: 10.1002/oby.20658
170.	Espeland MA, Luchsinger JA, Neiberg RH, Carmichael O, Laurienti PJ, Pi-Sunyer X, et al. Long term effect of intensive lifestyle intervention on cerebral blood flow. J Am Geriatr Soc. 2018;66(1):120-6. doi: 10.1111/jgs.15159
171.	Espeland MA, Rejeski WJ, West DS, Bray GA, Clark JM, Peters AL, et al. Intensive weight loss intervention in older individuals: results from the Action for Health in Diabetes Type 2 diabetes mellitus trial. J Am Geriatr Soc. 2013;61(6):912-22. doi: 10.1111/jgs.12271
172.	Estruch R, Martínez-González MA, Corella D, Salas-Salvadó J, Fitó M, Chiva-Blanch G, et al. Effect of a high-fat Mediterranean diet on bodyweight and waist circumference: a prespecified secondary outcomes analysis of the PREDIMED randomised controlled trial. Lancet Diabetes Endocrinol. 2019;7(5):e6-e17. doi: 10.1016/S2213-8587(19)30074-9
173.	Evans EM, Mojtahedi MC, Thorpe MP, Valentine RJ, Kris-Etherton PM, Layman DK. Effects of protein intake and gender on body composition changes: a randomized clinical weight loss trial. Nutr Metab. 2012;9(1):55. doi: 10.1186/1743-7075-9-55
174.	Everett B, Salamonson Y, Koirala B, Zecchin R, Davidson PM. A randomized controlled trial of motivational interviewing as a tool to enhance secondary prevention strategies in cardiovascular disease (MICIS study). Contemp Nurse. 2021;57(1-2):80-98. doi: 10.1080/10376178.2021.1927774
175.	Fagevik Olsén M, Wiklund M, Sandberg E, Lundqvist S, Dean E. Long-term effects of physical activity prescription after bariatric surgery: a randomized controlled trial. Physiother Theory Pract. 2022;38(11):1591-601. doi: 10.1080/09593985.2021.1885087
176.	Fahs PS, Pribulick M, Williams IC, James GD, Rovynak V, Seibold-Simpson SM. Promoting heart health in rural women. J Rural Health. 2013;29(3):248-57. doi: 10.1111/j.1748-0361.2012.00442.x
177.	Fanning J, Rejeski WJ, Leng I, Barnett C, Lovato JF, Lyles MF, et al. Intervening on exercise and daylong movement for weight loss maintenance in older adults: a randomized, clinical trial. Obesity. 2022;30(1):85-95. doi: 10.1002/oby.23318

178.	Farinatti P, Monteiro WD, Oliveira RB. Long term home-based exercise is effective to reduce blood pressure in low income Brazilian hypertensive patients: a controlled trial. High Blood Press Cardiovasc Prev. 2016;23(4):395-404. doi: 10.1007/s40292-016-0169-9
179.	Farpour-Lambert NJ, Martin XE, Bucher Della Torre S, von Haller L, Ells LJ, Herrmann FR, et al. Effectiveness of individual and group programmes to treat obesity and reduce cardiovascular disease risk factors in pre-pubertal children. Clin Obes. 2019;9(6):e12335. doi: 10.1111/cob.12335
180.	Farsijani S, Cauley JA, Santanasto AJ, Glynn NW, Boudreau RM, Newman AB. Transition to a more even distribution of daily protein intake is associated with enhanced fat loss during a hypocaloric & physical activity intervention in obese older adults. J Nutr Health Aging. 2020;24(2):210-7. doi: 10.1007/s12603-020-1313-8
181.	Feigel-Guiller B, Drui D, Dimet J, Zair Y, Le Bras M, Fuertes-Zamorano N, et al. Laparoscopic gastric banding in obese patients with sleep apnea: a 3-year controlled study and follow-up after 10 years. Obes Surg. 2015;25(10):1886-92. doi: 10.1007/s11695-015-1627-5
182.	Fernández-Ruiz VE, Armero-Barranco D, Paniagua-Urbano JA, Sole-Agusti M, Ruiz-Sánchez A, Gómez-Marín J. Short-medium-long-term efficacy of interdisciplinary intervention against overweight and obesity: randomized controlled clinical trial. Int J Nurs Pract. 2018;24(6):e12690. doi: 10.1111/ijn.12690
183.	Fernández-Ruiz VE, Ramos-Morcillo AJ, Solé-Agustí M, Paniagua-Urbano JA, Armero-Barranco D. Effectiveness of an interdisciplinary program performed on obese people regarding nutritional habits and metabolic comorbidity: a randomized controlled clinical trial. Int J Environ Res Public Health. 2020;17(1):336. doi: 10.3390/ijerph17010336
184.	Fernández-Ruiz VE, Solé-Agustí M, Armero-Barranco D, Cauli O. Weight loss and improvement of metabolic alterations in overweight and obese children through the I2AO2 family program: a randomized controlled clinical trial. Biol Res Nurs. 2021;23(3):488-503. doi: 10.1177/1099800420987303
185.	Ferrara A, Hedderson MM, Brown SD, Albright CL, Ehrlich SF, Tsai A-L, et al. The comparative effectiveness of diabetes prevention strategies to reduce postpartum weight retention in women with gestational diabetes mellitus: the Gestational Diabetes' Effects on Moms (GEM) cluster randomized controlled trial. Diabetes Care. 2016;39(1):65-74. doi: 10.2337/dc15-1254
186.	Fichtner UA, Armbruster C, Bischoff M, Maiwald P, Sehlbrede M, Tinsel I, et al. Evaluation of an interactive web-based health program for weight loss -a randomized controlled trial. Int J Environ Res Public Health. 2022;19(22):15157. doi: 10.3390/ijerph192215157
187.	Fisher G, Hunter GR, Gower BA. Aerobic exercise training conserves insulin sensitivity for 1 yr following weight loss in overweight women. J Appl Physiol (1985). 2012;112(4):688-93. doi: 10.1152/japplphysiol.00843.2011
188.	Fitzgibbon ML, Stolley MR, Schiffer L, Sharp LK, Singh V, Dyer A. Obesity reduction black intervention trial (ORBIT): 18-month results. Obesity. 2010;18(12):2317-25. doi: 10.1038/oby.2010.47
189.	Fitzgibbon ML, Tussing-Humphreys L, Schiffer L, Smith-Ray R, Marquez DX, DeMott AD, et al. Fit and Strong! Plus: twelve and eighteen month follow-up results for a comparative effectiveness trial among overweight/obese older adults with osteoarthritis. Prev Med. 2020;141:106267. doi: 10.1016/j.ypmed.2020.106267
190.	Fjeldsoe BS, Goode AD, Phongsavan P, Bauman A, Maher G, Winkler E, et al. Get Healthy, Stay Healthy: evaluation of the maintenance of lifestyle changes six months after an extended contact intervention. JMIR mHealth uHealth. 2019;7(3):e11070. doi: 10.2196/11070
191.	Fontana L, Villareal DT, Das SK, Smith SR, Meydani SN, Pittas AG, et al. Effects of 2-year calorie restriction on circulating levels of IGF-1, IGF-binding proteins and cortisol in nonobese men and women: a randomized clinical trial. Aging Cell. 2016;15(1):22-7. doi: 10.1111/acel.12400
192.	Forman EM, Butryn ML, Juarascio AS, Bradley LE, Lowe MR, Herbert JD, et al. The mind your health project: a randomized controlled trial of an innovative behavioral treatment for obesity. Obesity. 2013;21(6):1119-26. doi: 10.1002/oby.20169
193.	Forman EM, Manasse SM, Butryn ML, Crosby RD, Dallal DH, Crochiere RJ. Long-term follow-up of the mind your health project: acceptance-based versus standard behavioral treatment for obesity. Obesity. 2019;27(4):565-71. doi: 10.1002/oby.22412
194.	Foster GD, Shantz KL, Vander Veur SS, Oliver TL, Lent MR, Virus A, et al. A randomized trial of the effects of an almond-enriched, hypocaloric diet in the treatment of obesity. Am J Clin Nutr. 2012;96(2):249-54. doi: 10.3945/ajcn.112.037895

195.	Foster GD, Wyatt HR, Hill JO, Makris AP, Rosenbaum DL, Brill C, et al. Weight and metabolic outcomes after 2 years on a low-carbohydrate versus low-fat diet: a randomized trial. Ann Intern Med. 2010;153(3):147-57. doi: 10.7326/0003-4819-153-3-201008030-00005
196.	Foster-Schubert KE, Alfano CM, Duggan CR, Xiao L, Campbell KL, Kong A, et al. Effect of diet and exercise, alone or combined, on weight and body composition in overweight-to-obese postmenopausal women. Obesity. 2012;20(8):1628-38. doi: 10.1038/oby.2011.76
197.	Franklin KA, Lindberg E, Svensson J, Larsson C, Lindahl B, Mellberg C, et al. Effects of a palaeolithic diet on obstructive sleep apnoea occurring in females who are overweight after menopause-a randomised controlled trial. Int J Obes. 2022;46(10):1833-9. doi: 10.1038/s41366-022-01182-4
198.	French SA, Gerlach AF, Mitchell NR, Hannan PJ, Welsh EM. Household obesity prevention: Take Action—a group-randomized trial. Obesity. 2011;19(10):2082-8. doi: 10.1038/oby.2010.328
199.	French SA, Kunin-Batson AS, Sherwood NE, Berge JM, Shanley R. NET-Works paediatric obesity prevention trial: 66 month outcomes. Pediatr Obes. 2023;18(8):e13055. doi: 10.1111/ijpo.13055
200.	French SA, Sherwood NE, Veblen-Mortenson S, Crain AL, JaKa MM, Mitchell NR, et al. Multicomponent obesity prevention intervention in low-income preschoolers: primary and subgroup analyses of the NET-Works randomized clinical trial, 2012-2017. Am J Public Health. 2018;108(12):1695-706. doi: 10.2105/AJPH.2018.304696
201.	Friedenreich CM, Neilson HK, O'Reilly R, Duha A, Yasui Y, Morielli AR, et al. Effects of a high vs moderate volume of aerobic exercise on adiposity outcomes in postmenopausal women: a randomized clinical trial. JAMA Oncol. 2015;1(6):766-76. doi: 10.1001/jamaoncol.2015.2239
202.	Friedenreich CM, Neilson HK, Wang Q, Stanczyk FZ, Yasui Y, Duha A, et al. Effects of exercise dose on endogenous estrogens in postmenopausal women: a randomized trial. Endocr Relat Cancer. 2015;22(5):863-76. doi: 10.1530/ERC-15-0243
203.	Friedenreich CM, Woolcott CG, McTiernan A, Terry T, Brant R, Ballard-Barbash R, et al. Adiposity changes after a 1-year aerobic exercise intervention among postmenopausal women: a randomized controlled trial. Int J Obes. 2011;35(3):427-35. doi: 10.1038/ijo.2010.147
204.	Fuller NR, Pearson S, Lau NS, Wlodarczyk J, Halstead MB, Tee H-P, et al. An intragastric balloon in the treatment of obese individuals with metabolic syndrome: a randomized controlled study. Obesity. 2013;21(8):1561-70. doi: 10.1002/oby.20414
205.	Fuller NR, Williams K, Shrestha R, Ahern AL, Holzapfel C, Hauner H, et al. Changes in physical activity during a weight loss intervention and follow-up: a randomized controlled trial. Clin Obes. 2014;4(3):127-35. doi: 10.1111/cob.12057
206.	Furlan SF, Drager LF, Santos RN, Damiani LP, Bersch-Ferreira AC, Miranda TA, et al. Three-year effects of bariatric surgery on obstructive sleep apnea in patients with obesity grade 1 and 2: a sub-analysis of the GATEWAY trial. Int J Obes. 2021;45(4):914-7. doi: 10.1038/s41366-021-00752-2
207.	Gabriel KKP, Conroy MB, Schmid KK, Storti KL, High RR, Underwood DA, et al. The impact of weight and fat mass loss and increased physical activity on physical function in overweight, postmenopausal women: results from the Women on the Move Through Activity and Nutrition study. Menopause. 2011;18(7):759-65. doi: 10.1097/gme.0b013e31820acdcc
208.	Gadde KM, Allison DB, Ryan DH, Peterson CA, Troupin B, Schwiers ML, et al. Effects of low-dose, controlled-release, phentermine plus topiramate combination on weight and associated comorbidities in overweight and obese adults (CONQUER): a randomised, placebo-controlled, phase 3 trial. Lancet. 2011;377(9774):1341-52. doi: 10.1016/S0140-6736(11)60205-5
209.	Gade H, Friborg O, Rosenvinge JH, Småstuen MC, Hjelmesæth J. The impact of a preoperative cognitive behavioural therapy (CBT) on dysfunctional eating behaviours, affective symptoms and body weight 1 year after bariatric surgery: a randomised controlled trial. Obes Surg. 2015;25(11):2112-9. doi: 10.1007/s11695-015-1673-z
210.	Gallagher D, Heshka S, Kelley DE, Thornton J, Boxt L, Pi-Sunyer FX, et al. Changes in adipose tissue depots and metabolic markers following a 1-year diet and exercise intervention in overweight and obese patients with type 2 diabetes. Diabetes Care. 2014;37(12):3325-32. doi: 10.2337/dc14-1585
211.	Gallagher D, Kelley DE, Thornton J, Boxt L, Pi-Sunyer X, Lipkin E, et al. Changes in skeletal muscle and organ size after a weight-loss intervention in overweight and obese type 2 diabetic patients. Am J Clin Nutr. 2017;105(1):78-84. doi: 10.3945/ajcn.116.139188
212.	Gallè F, Di Onofrio V, Romano Spica V, Mastronuzzi R, Russo Krauss P, Belfiore P, et al. Improving physical fitness and health status perception in community-dwelling older adults through a structured program for

	physical activity promotion in the city of Naples, Italy: a randomized controlled trial. Geriatr Gerontol Int. 2017;17(10):1421-8. doi: 10.1111/ggi.12879
213.	Garcia-Silva J, Borrego IRS, Navarrete NN, Peralta-Ramirez MI, Águila FJ, Caballo VE. Efficacy of cognitive-behavioural therapy for lifestyle modification in metabolic syndrome: a randomised controlled trial with an 18-months follow-up. Psychol Health. 2024;39(2):195-215. doi: 10.1080/08870446.2022.2055023
214.	Garvey WT, Batterham RL, Bhatta M, Buscemi S, Christensen LN, Frias JP, et al. Two-year effects of semaglutide in adults with overweight or obesity: the STEP 5 trial. Nat Med. 2022;28(10):2083-91. doi: 10.1038/s41591-022-02026-4
215.	Garvey WT, Birkenfeld AL, Dicker D, Mingrone G, Pedersen SD, Satylganova A, et al. Efficacy and safety of liraglutide 3.0 mg in individuals with overweight or obesity and type 2 diabetes treated with basal insulin: the SCALE Insulin randomized controlled trial. Diabetes Care. 2020;43(5):1085-93. doi: 10.2337/dc19-1745
216.	Garvey WT, Frias JP, Jastreboff AM, le Roux CW, Sattar N, Aizenberg D, et al. Tirzepatide once weekly for the treatment of obesity in people with type 2 diabetes (SURMOUNT-2): a double-blind, randomised, multicentre, placebo-controlled, phase 3 trial. Lancet. 2023;402(10402):613-26. doi: 10.1016/S0140-6736(23)01200-X
217.	Garvey WT, Ryan DH, Henry R, Bohannon NJ, Toplak H, Schwiers M, et al. Prevention of type 2 diabetes in subjects with prediabetes and metabolic syndrome treated with phentermine and topiramate extended release. Diabetes Care. 2014;37(4):912-21. doi: 10.2337/dc13-1518
218.	Garvey WT, Ryan DH, Look M, Gadde KM, Allison DB, Peterson CA, et al. Two-year sustained weight loss and metabolic benefits with controlled-release phentermine/topiramate in obese and overweight adults (SEQUEL): a randomized, placebo-controlled, phase 3 extension study. Am J Clin Nutr. 2012;95(2):297-308. doi: 10.3945/ajcn.111.024927
219.	Georgoulis M, Yiannakouris N, Kechribari I, Lamprou K, Perraki E, Vagiakis E, et al. Sustained improvements in the cardiometabolic profile of patients with obstructive sleep apnea after a weight-loss Mediterranean diet/lifestyle intervention: 12-month follow-up (6 months post-intervention) of the "MIMOSA" randomized clinical trial. Nutr Metab Cardiovasc Dis. 2023;33(5):1019-28. doi: 10.1016/j.numecd.2023.02.010
220.	Gepner Y, Shelef I, Schwarzfuchs D, Zelicha H, Tene L, Yaskolka Meir A, et al. Effect of distinct lifestyle interventions on mobilization of fat storage pools: CENTRAL magnetic resonance imaging randomized controlled trial. Circulation. 2018;137(11):1143-57. doi: 10.1161/CIRCULATIONAHA.117.030501
221.	Gerards SMPL, Dagnelie PC, Gubbels JS, van Buuren S, Hamers FJM, Jansen MWJ, et al. The effectiveness of lifestyle triple P in the Netherlands: a randomized controlled trial. PLoS ONE. 2015;10(4):e0122240. doi: 10.1371/journal.pone.0122240
222.	Gessler N, Willems S, Steven D, Aberle J, Akbulak RO, Gosau N, et al. Supervised Obesity Reduction Trial for AF ablation patients: results from the SORT-AF trial. Europace. 2021;23(10):1548-58. doi: 10.1093/europace/euab122
223.	Gilcharan Singh HK, Chee WSS, Hamdy O, Mechanick JI, Lee VKM, Barua A, et al. Eating self-efficacy changes in individuals with type 2 diabetes following a structured lifestyle intervention based on the transcultural Diabetes Nutrition Algorithm (tDNA): a secondary analysis of a randomized controlled trial. PLoS ONE. 2020;15(11):e0242487. doi: 10.1371/journal.pone.0242487
224.	Gillison F, Stathi A, Reddy P, Perry R, Taylor G, Bennett P, et al. Processes of behavior change and weight loss in a theory-based weight loss intervention program: a test of the process model for lifestyle behavior change. Int J Behav Nutr Phys Act. 2015;12:2. doi: 10.1186/s12966-014-0160-6
225.	Glasgow RE, Kurz D, King D, Dickman JM, Faber AJ, Halterman E, et al. Twelve-month outcomes of an Internet-based diabetes self-management support program. Patient Educ Couns. 2012;87(1):81-92. doi: 10.1016/j.pec.2011.07.024
226.	Glaysher MA, Ward J, Aldhwayan M, Ruban A, Prechtl CG, Fisk HL, et al. The effect of a duodenal-jejunal bypass liner on lipid profile and blood concentrations of long chain polyunsaturated fatty acids. Clin Nutr. 2021;40(4):2343-54. doi: 10.1016/j.clnu.2020.10.026
227.	Gómez V, Woodman G, Abu Dayyeh BK. Delayed gastric emptying as a proposed mechanism of action during intragastric balloon therapy: results of a prospective study. Obesity. 2016;24(9):1849-53. doi: 10.1002/oby.21555
228.	Gomez-Marcos MA, Patino-Alonso MC, Recio-Rodriguez JI, Agudo-Conde C, Romaguera-Bosch M, Magdalena-Gonzalez O, et al. Short- and long-term effectiveness of a smartphone application for improving measures of adiposity: a randomised clinical trial - EVIDENT II study. Eur J Cardiovasc Nurs. 2018;17(6):552-62. doi: 10.1177/1474515118761870

229.	Gómez-Pardo E, Fernández-Alvira JM, Vilanova M, Haro D, Martínez R, Carvajal I, et al. A comprehensive lifestyle peer group-based intervention on cardiovascular risk factors: the randomized controlled Fifty-Fifty Program. J Am Coll Cardiol. 2016;67(5):476-85. doi: 10.1016/j.jacc.2015.10.033
230.	Gong L, Yuan F, Teng J, Li X, Zheng S, Lin L, et al. Weight loss, inflammatory markers, and improvements of iron status in overweight and obese children. J Pediatr. 2014;164(4):795-800.e2. doi: 10.1016/j.jpeds.2013.12.004
231.	Goodwin PJ, Segal RJ, Vallis M, Ligibel JA, Pond GR, Robidoux A, et al. Randomized trial of a telephone-based weight loss intervention in postmenopausal women with breast cancer receiving letrozole: the LISA Trial. J Clin Oncol. 2014;32(21):2231-9. doi: 10.1200/JCO.2013.53.1517
232.	Gorin AA, Raynor HA, Fava J, Maguire K, Robichaud E, Trautvetter J, et al. Randomized controlled trial of a comprehensive home environment-focused weight-loss program for adults. Health Psychol. 2013;32(2):128-37. doi: 10.1037/a0026959
233.	Gotfredsen JL, Hoppe C, Andersen R, Andersen EW, Landberg R, Overvad K, et al. Effects of substitution dietary guidelines targeted at prevention of IHD on dietary intake and risk factors in middle-aged Danish adults: the Diet and Prevention of Ischemic Heart Disease: a Translational Approach (DIPI) randomised controlled trial. Br J Nutr. 2021;126(8):1179-93. doi: 10.1017/S0007114520005164
234.	Gram B, Christensen R, Christiansen C, Gram J. Effects of Nordic walking and exercise in type 2 diabetes mellitus: a randomized controlled trial. Clin J Sport Med. 2010;20(5):355-61. doi: 10.1227/NEU.0b013e3181e56e0a
235.	Greaves C, Gillison F, Stathi A, Bennett P, Reddy P, Dunbar J, et al. Waste the waist: a pilot randomised controlled trial of a primary care based intervention to support lifestyle change in people with high cardiovascular risk. Int J Behav Nutr Phys Act. 2015;12:1. doi: 10.1186/s12966-014-0159-z
236.	Green CA, Yarborough BJH, Leo MC, Yarborough MT, Stumbo SP, Janoff SL, et al. The STRIDE weight loss and lifestyle intervention for individuals taking antipsychotic medications: a randomized trial. Am J Psychiatry. 2015;172(1):71-81. doi: 10.1176/appi.ajp.2014.14020173
237.	Greenway FL, Fujioka K, Plodkowski RA, Mudaliar S, Guttadauria M, Erickson J, et al. Effect of naltrexone plus bupropion on weight loss in overweight and obese adults (COR-I): a multicentre, randomised, double-blind, placebo-controlled, phase 3 trial. Lancet. 2010;376(9741):595-605. doi: 10.1016/S0140-6736(10)60888-4
238.	Grilo CM, Ivezaj V, Duffy AJ, Gueorguieva R. 24-month follow-up of randomized controlled trial of guided-self-help for loss-of-control eating after bariatric surgery. Int J Eat Disord. 2022;55(11):1521-31. doi: 10.1002/eat.23804
239.	Gudbergsen H, Overgaard A, Henriksen M, Wæhrens EE, Bliddal H, Christensen R, et al. Liraglutide after diet-induced weight loss for pain and weight control in knee osteoarthritis: a randomized controlled trial. Am J Clin Nutr. 2021;113(2):314-23. doi: 10.1093/ajcn/nqaa328
240.	Guo H, Zeng X, Zhuang Q, Zheng Y, Chen S. Intervention of childhood and adolescents obesity in Shantou city. Obes Res Clin Pract. 2015;9(4):357-64. doi: 10.1016/j.orcp.2014.11.006
241.	Gupta A, Kaur J, Shukla G, Bhullar KK, Lamo P, KC B, et al. Effect of yoga-based lifestyle and dietary modification in overweight individuals with sleep apnea: a randomized controlled trial (ELISA). Sleep Med. 2023;107:149-56. doi: 10.1016/j.sleep.2023.04.020
242.	Gussenhoven AHM, van Wier MF, Bosmans JE, Dekkers JC, van Mechelen W. Cost-effectiveness of a distance lifestyle counselling programme among overweight employees from a company perspective, ALIFE@Work: a randomized controlled trial. Work. 2013;46(3):337-46. doi: 10.3233/WOR-121555
243.	Habib-Mourad C, Ghandour LA, Maliha C, Dagher M, Kharroubi S, Hwalla N. Impact of a three-year obesity prevention study on healthy behaviors and BMI among Lebanese schoolchildren: findings from Ajyal Salima program. Nutrients. 2020;12(9):2687. doi: 10.3390/nu12092687
244.	Haire-Joshu D, Schwarz CD, Steger-May K, Lapka C, Schechtman K, Brownson RC, et al. A randomized trial of weight change in a national home visiting program. Am J Prev Med. 2018;54(3):341-51. doi: 10.1016/j.amepre.2017.12.012
245.	Hajek P, Przulj D, Pesola F, McRobbie H, Peerbux S, Phillips-Waller A, et al. A randomised controlled trial of the 5:2 diet. PLoS ONE. 2021;16(11):e0258853. doi: 10.1371/journal.pone.0258853
246.	Halle M, Röhling M, Banzer W, Braumann KM, Kempf K, McCarthy D, et al. Meal replacement by formula diet reduces weight more than a lifestyle intervention alone in patients with overweight or obesity and accompanied cardiovascular risk factors-the ACOORH trial. Eur J Clin Nutr. 2021;75(4):661-9. doi: 10.1038/s41430-020-00783-4

247.	Halperin F, Ding S-A, Simonson DC, Panosian J, Goebel-Fabbri A, Wewalka M, et al. Roux-en-Y gastric bypass surgery or lifestyle with intensive medical management in patients with type 2 diabetes: feasibility and 1-year results of a randomized clinical trial. JAMA Surg. 2014;149(7):716-26. doi: 10.1001/jamasurg.2014.514
248.	Hanvold SE, Vinknes KJ, Løken EB, Hjartåker A, Klungsøyr O, Birkeland E, et al. Does lifestyle intervention after gastric bypass surgery prevent weight regain? A randomized clinical trial. Obes Surg. 2019;29(11):3419-31. doi: 10.1007/s11695-019-04109-7
249.	Hao M, Han W, Yamauchi T. Short-term and long-term effects of a combined intervention of rope skipping and nutrition education for overweight children in Northeast China. Asia Pac J Public Health. 2019;31(4):348-58. doi: 10.1177/1010539519848275
250.	Hardcastle SJ, Taylor AH, Bailey MP, Harley RA, Hagger MS. Effectiveness of a motivational interviewing intervention on weight loss, physical activity and cardiovascular disease risk factors: a randomised controlled trial with a 12-month post-intervention follow-up. Int J Behav Nutr Phys Act. 2013;10:40. doi: 10.1186/1479-5868-10-40
251.	Harris L, Hankey C, Jones N, Pert C, Murray H, Tobin J, et al. A cluster randomised control trial of a multi-component weight management programme for adults with intellectual disabilities and obesity. Br J Nutr. 2017;118(3):229-40. doi: 10.1017/S0007114517001933
252.	Harvie M, Pegington M, McMullan D, Bundred N, Livingstone K, Campbell A, et al. The effectiveness of home versus community-based weight control programmes initiated soon after breast cancer diagnosis: a randomised controlled trial. Br J Canc. 2019;121:443-54. doi: 10.1038/s41416-019-0522-6
253.	Hébert JR, Wirth M, Davis L, Davis B, Harmon BE, Hurley TG, et al. C-reactive protein levels in African Americans: a diet and lifestyle randomized community trial. Am J Prev Med. 2013;45(4):430-40. doi: 10.1016/j.amepre.2013.05.011
254.	Herrera-Espiñeira C, Martínez-Cirre MdC, López-Morales M, Lozano-Sánchez A, Rodríguez-Ruíz A, Salmerón-López LE, et al. Hospital intervention to reduce overweight with educational reinforcement after discharge: a multicenter randomized clinical trial. Nutrients. 2022;14(12):2499. doi: 10.3390/nu14122499
255.	Hersey JC, Khavjou O, Strange LB, Atkinson RL, Blair SN, Campbell S, et al. The efficacy and cost-effectiveness of a community weight management intervention: a randomized controlled trial of the health weight management demonstration. Prev Med. 2012;54(1):42-9. doi: 10.1016/j.ypmed.2011.09.018
256.	Hershey MS, Chang C-R, Sotos-Prieto M, Fernandez-Montero A, Cash SB, Christophi CA, et al. Effect of a nutrition intervention on mediterranean diet adherence among firefighters: a cluster randomized clinical trial. JAMA Netw Open. 2023;6(8):e2329147. doi: 10.1001/jamanetworkopen.2023.29147
257.	Hinderliter AL, Sherwood A, Craighead LW, Lin P-H, Watkins L, Babyak MA, et al. The long-term effects of lifestyle change on blood pressure: one-year follow-up of the ENCORE study. Am J Hypertens. 2014;27(5):734-41. doi: 10.1093/ajh/hpt183
258.	Hintze LJ, Messier V, Lavoie M-È, Brochu M, Lavoie J-M, Prud'homme D, et al. A one-year resistance training program following weight loss has no significant impact on body composition and energy expenditure in postmenopausal women living with overweight and obesity. Physiol Behav. 2018;189:99-106. doi: 10.1016/j.physbeh.2018.03.014
259.	Hjelmesæth J, Rosenvinge JH, Gade H, Friborg O. Effects of cognitive behavioral therapy on eating behaviors, affective symptoms, and weight loss after bariatric surgery: a randomized clinical trial. Obes Surg. 2019;29(1):61-9. doi: 10.1007/s11695-018-3471-x
260.	Hoerster KD, Hunter-Merrill R, Nguyen T, Rise P, Barón AE, McDowell J, et al. Effect of a remotely delivered self-directed behavioral intervention on body weight and physical health status among adults with obesity: the D-ELITE randomized clinical trial. JAMA. 2022;328(22):2230-41. doi: 10.1001/jama.2022.21177
261.	Hojan K, Kwiatkowska-Borowczyk E, Leporowska E, Milecki P. Inflammation, cardiometabolic markers, and functional changes in men with prostate cancer. A randomized controlled trial of a 12-month exercise program. Pol Arch Intern Med. 2017;127(1):25-35. doi: 10.20452/pamw.3888
262.	Hollander P, Gupta AK, Plodkowski R, Greenway F, Bays H, Burns C, et al. Effects of naltrexone sustained-release/bupropion sustained-release combination therapy on body weight and glycemic parameters in overweight and obese patients with type 2 diabetes. Diabetes Care. 2013;36(12):4022-9. doi: 10.2337/dc13-0234
263.	Holt RIG, Gossage-Worrall R, Hind D, Bradburn MJ, McCrone P, Morris T, et al. Structured lifestyle education for people with schizophrenia, schizoaffective disorder and first-episode psychosis (STEPWISE): randomised controlled trial. Br J Psychiatry. 2019;214(2):63-73. doi: 10.1192/bjp.2018.167

264.	Horie NC, Serrao VT, Simon SS, Gascon MRP, dos Santos AX, Zambone MA, et al. Cognitive effects of intentional weight loss in elderly obese individuals with mild cognitive impairment. J Clin Endocrinol Metab. 2016;101(3):1104-12. doi: 10.1210/jc.2015-2315
265.	Houston DK, Leng X, Bray GA, Hergenroeder AL, Hill JO, Jakicic JM, et al. A long-term intensive lifestyle intervention and physical function: the look AHEAD Movement and Memory Study. Obesity. 2015;23(1):77-84. doi: 10.1002/oby.20944
266.	Houston DK, Neiberg RH, Miller ME, Hill JO, Jakicic JM, Johnson KC, et al. Physical function following a long-term lifestyle intervention among middle aged and older adults with type 2 diabetes: the Look AHEAD study. J Gerontol A Biol Sci Med Sci. 2018;73(11):1552-9. doi: 10.1093/gerona/glx204
267.	Howden EJ, Leano R, Petchey W, Coombes JS, Isbel NM, Marwick TH. Effects of exercise and lifestyle intervention on cardiovascular function in CKD. Clin J Am Soc Nephrol. 2013;8(9):1494-501. doi: 10.2215/CJN.10141012
268.	Hu T, Yao L, Reynolds K, Whelton PK, Niu T, Li S, et al. The effects of a low-carbohydrate diet vs. a low-fat diet on novel cardiovascular risk factors: a randomized controlled trial. Nutrients. 2015;7(9):7978-94. doi: 10.3390/nu7095377
269.	Hunter GR, Brock DW, Byrne NM, Chandler-Laney PC, Del Corral P, Gower BA. Exercise training prevents regain of visceral fat for 1 year following weight loss. Obesity. 2010;18(4):690-5. doi: 10.1038/oby.2009.316
270.	Huseinovic E, Bertz F, Leu Agelii M, Hellebö Johansson E, Winkvist A, Brekke HK. Effectiveness of a weight loss intervention in postpartum women: results from a randomized controlled trial in primary health care. Am J Clin Nutr. 2016;104(2):362-70. doi: 10.3945/ajcn.116.135673
271.	Huseinovic E, Bertz F, Winkvist A, Brekke HK. Two-year follow-up of a postpartum weight loss intervention: results from a randomized controlled trial. Matern Child Nutr. 2018;14(2):e12539. doi: 10.1111/mcn.12539
272.	Huvinen E, Koivusalo SB, Meinilä J, Valkama A, Tiitinen A, Rönö K, et al. Effects of a lifestyle intervention during pregnancy and first postpartum year: findings from the RADIEL study. J Clin Endocrinol Metab. 2018;103(4):1669–77. doi: 10.1210/jc.2017-02477
273.	Hystad HT, Steinsbekk S, Ødegård R, Wichstrøm L, Gudbrandsen OA. A randomised study on the effectiveness of therapist-led v. self-help parental intervention for treating childhood obesity. Br J Nutr. 2013;110(6):1143-50. doi: 10.1017/S0007114513000056
274.	Ikramuddin S, Billington CJ, Lee W-J, Bantle JP, Thomas AJ, Connett JE, et al. Roux-en-Y gastric bypass for diabetes (the Diabetes Surgery Study): 2-year outcomes of a 5-year, randomised, controlled trial. Lancet Diabetes Endocrinol. 2015;3(6):413-22. doi: 10.1016/S2213-8587(15)00089-3
275.	Ikramuddin S, Korner J, Lee W-J, Bantle JP, Thomas AJ, Connett JE, et al. Durability of addition of Roux-en-Y gastric bypass to lifestyle intervention and medical management in achieving primary treatment goals for uncontrolled type 2 diabetes in mild to moderate obesity: a randomized control trial. Diabetes Care. 2016;39(9):1510-8. doi: 10.2337/dc15-2481
276.	Ikramuddin S, Korner J, Lee W-J, Connett JE, Inabnet WB, Billington CJ, et al. Roux-en-Y gastric bypass vs intensive medical management for the control of type 2 diabetes, hypertension, and hyperlipidemia: the Diabetes Surgery Study randomized clinical trial. JAMA. 2013;309(21):2240-9. doi: 10.1001/jama.2013.5835
277.	Iłowiecka K, Glibowski P, Skrzypek M, Styk W. The long-term dietitian and psychological support of obese patients who have reduced their weight allows them to maintain the effects. Nutrients. 2021;13(6):2020. doi: 10.3390/nu13062020
278.	Imayama I, Alfano CM, Kong A, Foster-Schubert KE, Bain CE, Xiao L, et al. Dietary weight loss and exercise interventions effects on quality of life in overweight/obese postmenopausal women: a randomized controlled trial. Int J Behav Nutr Phys Act. 2011;8:118. doi: 10.1186/1479-5868-8-118
279.	Imayama I, Alfano CM, Mason C, Wang C, Duggan C, Campbell KL, et al. Weight and metabolic effects of dietary weight loss and exercise interventions in postmenopausal antidepressant medication users and non-users: a randomized controlled trial. Prev Med. 2013;57(5):525-32. doi: 10.1016/j.ypmed.2013.07.006
280.	Inoue DS, De Mello MT, Foschini D, Lira FS, De Piano Ganen A, Da Silveira Campos RM, et al. Linear and undulating periodized strength plus aerobic training promote similar benefits and lead to improvement of insulin resistance on obese adolescents. J Diabetes Complicat. 2015;29(2):258-64. doi: 10.1016/j.jdiacomp.2014.11.002
281.	Iqbal N, Vetter ML, Moore RH, Chittams JL, Dalton-Bakes CV, Dowd M, et al. Effects of a low-intensity intervention that prescribed a low-carbohydrate vs. a low-fat diet in obese, diabetic participants. Obesity. 2010;18(9):1733-8. doi: 10.1038/oby.2009.460
282.	Jaakkola J, Isolauri E, Poussa T, Laitinen K. Benefits of repeated individual dietary counselling in long-term weight control in women after delivery. Matern Child Nutr. 2015;11(4):1041-8. doi: 10.1111/mcn.12115

283.	Jago R, McMurray RG, Drews KL, Moe EL, Murray T, Pham TH, et al. HEALTHY intervention: fitness, physical activity, and metabolic syndrome results. Med Sci Sports Exerc. 2011;43(8):1513-22. doi: 10.1249/MSS.0b013e31820c9797
284.	Jakicic JM, Davis KK, Rogers RJ, King WC, Marcus MD, Helsel D, et al. Effect of wearable technology combined with a lifestyle intervention on long-term weight loss: the IDEA randomized clinical trial. JAMA. 2016;316(11):1161-71. doi: 10.1001/jama.2016.12858
285.	Jakicic JM, Egan CM, Fabricatore AN, Gaussoin SA, Glasser SP, Hesson LA, et al. Four-year change in cardiorespiratory fitness and influence on glycemic control in adults with type 2 diabetes in a randomized trial: the Look AHEAD Trial. Diabetes Care. 2013;36(5):1297-303. doi: 10.2337/dc12-0712
286.	Jakicic JM, Otto AD, Lang W, Semler L, Winters C, Polzien K, et al. The effect of physical activity on 18-month weight change in overweight adults. Obesity. 2011;19(1):100-9. doi: 10.1038/oby.2010.122
287.	Jakicic JM, Rickman AD, Lang W, Davis KK, Gibbs BB, Neiberg R, et al. Time-based physical activity interventions for weight loss: a randomized trial. Med Sci Sports Exerc. 2015;47(5):1061-9. doi: 10.1249/MSS.0000000000000482
288.	Jakicic JM, Rogers RJ, Lang W, Gibbs BB, Yuan N, Fridman Y, et al. Impact of weight loss with diet or diet plus physical activity on cardiac magnetic resonance imaging and cardiovascular disease risk factors: Heart Health Study randomized trial. Obesity. 2022;30(5):1039-56. doi: 10.1002/oby.23412
289.	Jakicic JM, Tate DF, Lang W, Davis KK, Polzien K, Rickman AD, et al. Effect of a stepped-care intervention approach on weight loss in adults: a randomized clinical trial. JAMA. 2012;307(24):2617-26. doi: 10.1001/jama.2012.6866
290.	Jakobsen AS, Speyer H, Nørgaard HCB, Karlsen M, Birk M, Hjorthøj C, et al. Effect of lifestyle coaching versus care coordination versus treatment as usual in people with severe mental illness and overweight: two-years follow-up of the randomized CHANGE trial. PLoS ONE. 2017;12(10):e0185881. doi: 10.1371/journal.pone.0185881
291.	Janicke DM, Lim CS, Perri MG, Mathews AE, Bobroff LB, Gurka MJ, et al. Featured article: behavior interventions addressing obesity in rural settings: the E-FLIP for Kids trial. J Pediatr Psychol. 2019;44(8):889-901. doi: 10.1093/jpepsy/jsz029
292.	Jansson SP, Engfeldt P, Magnuson A, Lohse PT G, Liljegren G. Interventions for lifestyle changes to promote weight reduction, a randomized controlled trial in primary health care. BMC Res Notes. 2013;6:213. doi: 10.1186/1756-0500-6-213
293.	Janus ED, Best JD, Davis-Lameloise N, Philpot B, Hernan A, Bennett CM, et al. Scaling-up from an implementation trial to state-wide coverage: results from the preliminary Melbourne Diabetes Prevention Study. Trials. 2012;13:152. doi: 10.1186/1745-6215-13-152
294.	Järvholm K, Janson A, Peltonen M, Neovius M, Gronowitz E, Engström M, et al. Metabolic and bariatric surgery versus intensive non-surgical treatment for adolescents with severe obesity (AMOS2): a multicentre, randomised, controlled trial in Sweden. Lancet Child Adolesc Health. 2023;7(4):249-60. doi: 10.1016/S2352-4642(22)00373-X
295.	Jastreboff AM, Aronne LJ, Ahmad NN, Wharton S, Connery L, Alves B, et al. Tirzepatide once weekly for the treatment of obesity. N Engl J Med. 2022;387(3):205-16. doi: 10.1056/NEJMoa2206038
296.	Jebb SA, Ahern AL, Olson AD, Aston LM, Holzapfel C, Stoll J, et al. Primary care referral to a commercial provider for weight loss treatment versus standard care: a randomised controlled trial. Lancet. 2011;378(9801):1485-92. doi: 10.1016/S0140-6736(11)61344-5
297.	Jelalian E, Lloyd-Richardson EE, Mehlenbeck RS, Hart CN, Flynn-O'Brien K, Kaplan J, et al. Behavioral weight control treatment with supervised exercise or peer-enhanced adventure for overweight adolescents. J Pediatr. 2010;157(6):923-8.e1. doi: 10.1016/j.jpeds.2010.05.047
298.	Jenkins DJA, Boucher BA, Ashbury FD, Sloan M, Brown P, El-Sohemy A, et al. Effect of current dietary recommendations on weight loss and cardiovascular risk factors. J Am Coll Cardiol. 2017;69(9):1103-12. doi: 10.1016/j.jacc.2016.10.089
299.	Jiang X, Fan X, Wu R, Geng F, Hu C. The effect of care intervention for obese patients with type II diabetes. Medicine. 2017;96(42):e7524. doi: 10.1097/MD.0000000000007524
300.	Jiskoot G, Timman R, Beerthuizen A, Dietz de Loos A, Busschbach J, Laven J. Weight reduction through a cognitive behavioral therapy lifestyle intervention in PCOS: the primary outcome of a randomized controlled trial. Obesity. 2020;28(11):2134-41. doi: 10.1002/oby.22980
301.	Johansen MY, MacDonald CS, Hansen KB, Karstoft K, Christensen R, Pedersen M, et al. Effect of an intensive lifestyle intervention on glycemic control in patients with type 2 diabetes: a randomized clinical trial. JAMA. 2017;318(7):637-46. doi: 10.1001/jama.2017.10169

302.	Johnson KC, Bray GA, Cheskin LJ, Clark JM, Egan CM, Foreyt JP, et al. The effect of intentional weight loss on fracture risk in persons with diabetes: results from the Look AHEAD randomized clinical trial. J Bone Miner Res. 2017;32(11):2278-87. doi: 10.1002/jbmr.3214
303.	Johnston CA, Moreno JP, Gallagher MR, Wang J, Papaioannou MA, Tyler C, et al. Achieving long-term weight maintenance in Mexican-American adolescents with a school-based intervention. J Adolesc Health. 2013;53(3):335-41. doi: 10.1016/j.jadohealth.2013.04.001
304.	Johnston CA, Tyler C, McFarlin BK, Poston WSC, Haddock CK, Reeves RS, et al. Effects of a school-based weight maintenance program for Mexican-American children: results at 2 years. Obesity. 2010;18(3):542-7. doi: 10.1038/oby.2009.241
305.	Jolly K, Lewis A, Beach J, Denley J, Adab P, Deeks JJ, et al. Comparison of range of commercial or primary care led weight reduction programmes with minimal intervention control for weight loss in obesity: Lighten Up randomised controlled trial. BMJ. 2011;343:d6500. doi: 10.1136/bmj.d6500
306.	Joosten SA, Khoo JK, Edwards BA, Landry SA, Naughton MT, Dixon JB, et al. Improvement in obstructive sleep apnea with weight loss is dependent on body position during sleep. Sleep. 2017;40(5). doi: 10.1093/sleep/zsx047
307.	Jorge R, Santos I, Tomás R, Silva MN, Carraça EV, Teixeira VH, et al. Behavioural and psychological pretreatment predictors of short- and long-term weight loss among women with overweight and obesity. Eat Weight Disord. 2020;25(5):1377-85. doi: 10.1007/s40519-019-00775-9
308.	Jospe MR, Roy M, Brown RC, Williams SM, Osborne HR, Meredith-Jones KA, et al. The effect of different types of monitoring strategies on weight loss: a randomized controlled trial. Obesity. 2017;25(9):1490-8. doi: 10.1002/oby.21898
309.	Jung ME, Locke SR, Bourne JE, Beauchamp MR, Lee T, Singer J, et al. Cardiorespiratory fitness and accelerometer-determined physical activity following one year of free-living high-intensity interval training and moderate-intensity continuous training: a randomized trial. Int J Behav Nutr Phys Act. 2020;17(1):25. doi: 10.1186/s12966-020-00933-8
310.	Juul L, Andersen VJ, Arnoldsen J, Maindal HT. Effectiveness of a brief theory-based health promotion intervention among adults at high risk of type 2 diabetes: One-year results from a randomised trial in a community setting. Prim Care Diabetes. 2016;10(2):111-20. doi: 10.1016/j.pcd.2015.07.002
311.	Kabisch S, Meyer NMT, Honsek C, Gerbracht C, Dambeck U, Kemper M, et al. Obesity does not modulate the glycometabolic benefit of insoluble cereal fibre in subjects with prediabetes-a stratified post hoc analysis of the Optimal Fibre Trial (OptiFiT). Nutrients. 2019;11(11):2726. doi: 10.3390/nu11112726
312.	Kadowaki T, Isendahl J, Khalid U, Lee SY, Nishida T, Ogawa W, et al. Semaglutide once a week in adults with overweight or obesity, with or without type 2 diabetes in an east Asian population (STEP 6): a randomised, double-blind, double-dummy, placebo-controlled, phase 3a trial. Lancet Diabetes Endocrinol. 2022;10(3):193-206. doi: 10.1016/S2213-8587(22)00008-0
313.	Kahhan N, Hossain MJ, Lang J, Harrison C, Canas J, Wysocki T, et al. Durability of changes in biomarkers of cardiometabolic disease: 1-year family-based intervention in children with obesity. Metab Syndr Relat Disord. 2021;19(5):264-71. doi: 10.1089/met.2020.0097
314.	Kaikkonen KM, Korpelainen R, Vanhala ML, Keinänen-Kiukaanniemi SM, Korpelainen JT. Long-term effects on weight loss and maintenance by intensive start with diet and exercise. Scand J Med Sci Sports. 2023;33(3):246-56. doi: 10.1111/sms.14269
315.	Kaikkonen KM, Saltevo SS, Korpelainen JT, Vanhala ML, Jokelainen JJ, Korpelainen RI, et al. Effective weight loss and maintenance by intensive start with diet and exercise. Med Sci Sports Exerc. 2019;51(5):920-9. doi: 10.1249/MSS.0000000000001855
316.	Kalarchian MA, Levine MD, Klem ML, Burke LE, Soulakova JN, Marcus MD. Impact of addressing reasons for weight loss on behavioral weight-control outcome. Am J Prev Med. 2011;40(1):18-24. doi: 10.1016/j.amepre.2010.09.019
317.	Kalarchian MA, Marcus MD, Courcoulas AP, Cheng Y, Levine MD. Preoperative lifestyle intervention in bariatric surgery: a randomized clinical trial. Surg Obes Relat Dis. 2016;12(1):180-7. doi: 10.1016/j.soard.2015.05.004
318.	Kalarchian MA, Marcus MD, Courcoulas AP, Cheng Y, Levine MD, Josbeno D. Optimizing long-term weight control after bariatric surgery: a pilot study. Surg Obes Relat Dis. 2012;8(6):710-5. doi: 10.1016/j.soard.2011.04.231
319.	Kalter-Leibovici O, Younis-Zeidan N, Atamna A, Lubin F, Alpert G, Chetrit A, et al. Lifestyle intervention in obese Arab women: a randomized controlled trial. Arch Intern Med. 2010;170(11):970-6. doi: 10.1001/archinternmed.2010.103

320.	Kashyap SR, Bhatt DL, Wolski K, Watanabe RM, Abdul-Ghani M, Abood B, et al. Metabolic effects of bariatric surgery in patients with moderate obesity and type 2 diabetes: analysis of a randomized control trial comparing surgery with intensive medical treatment. Diabetes Care. 2013;36(8):2175-82. doi: 10.2337/dc12-1596
321.	Katula JA, Vitolins MZ, Morgan TM, Lawlor MS, Blackwell CS, Isom SP, et al. The Healthy Living Partnerships to Prevent Diabetes study: 2-year outcomes of a randomized controlled trial. Am J Prev Med. 2013;44(4 Suppl 4):S324-S32. doi: 10.1016/j.amepre.2012.12.015
322.	Katzmarzyk PT, Martin CK, Newton RL, Jr., Apolzan JW, Arnold CL, Davis TC, et al. Weight loss in underserved patients - a cluster-randomized trial. N Engl J Med. 2020;383(10):909-18. doi: 10.1056/NEJMoa2007448
323.	Kegler MC, Haardörfer R, Alcantara IC, Gazmararian JA, Veluswamy JK, Hodge TL, et al. Impact of improving home environments on energy intake and physical activity: a randomized controlled trial. Am J Public Health. 2016;106(1):143-52. doi: 10.2105/AJPH.2015.302942
324.	Keller C, Ainsworth B, Records K, Todd M, Belyea M, Vega-López S, et al. A comparison of a social support physical activity intervention in weight management among post-partum Latinas. BMC Public Health. 2014;14:971. doi: 10.1186/1471-2458-14-971
325.	Kelley JC, Stettler-Davis N, Leonard MB, Hill D, Wrotniak BH, Shults J, et al. Effects of a randomized weight loss intervention trial in obese adolescents on tibia and radius bone geometry and volumetric density. J Bone Miner Res. 2018;33(1):42-53. doi: 10.1002/jbmr.3288
326.	Kelly AS, Auerbach P, Barrientos-Perez M, Gies I, Hale PM, Marcus C, et al. A randomized, controlled trial of liraglutide for adolescents with obesity. N Engl J Med. 2020;382(22):2117-28. doi: 10.1056/NEJMoa1916038
327.	Kelly AS, Bensignor MO, Hsia DS, Shoemaker AH, Shih W, Peterson C, et al. Phentermine/topiramate for the treatment of adolescent obesity. NEJM Evidence. 2022;1(6). doi: 10.1056/EVIDoa2200014
328.	Kempf K, Röhling M, Martin S, Schneider M. Telemedical coaching for weight loss in overweight employees: a three-armed randomised controlled trial. BMJ Open. 2019;9(4):e022242. doi: 10.1136/bmjopen-2018-022242
329.	Kennedy BM, Ryan DH, Johnson WD, Harsha DW, Newton RL, Jr., Champagne CM, et al. Baton Rouge Healthy Eating and Lifestyle Program (BR-HELP): a pilot health promotion program. J Prev Interv Community. 2015;43(2):95-108. doi: 10.1080/10852352.2014.973256
330.	Kennedy SG, Smith JJ, Morgan PJ, Peralta LR, Hilland TA, Eather N, et al. Implementing resistance training in secondary schools: a cluster randomized controlled trial. Med Sci Sports Exerc. 2018;50(1):62-72. doi: 10.1249/MSS.0000000000001410
331.	Kinsey AW, Gowey MA, Tan F, Zhou D, Ard J, Affuso O, et al. Similar weight loss and maintenance in African American and White women in the Improving Weight Loss (ImWeL) trial. Ethn Health. 2021;26(2):251-63. doi: 10.1080/13557858.2018.1493435
332.	Kirby ML, Beatty S, Stack J, Harrison M, Greene I, McBrinn S, et al. Changes in macular pigment optical density and serum concentrations of lutein and zeaxanthin in response to weight loss. Br J Nutr. 2011;105(7):1036-46. doi: 10.1017/S0007114510004721
333.	Knäuper B, Carrière K, Frayn M, Ivanova E, Xu Z, Ames-Bull A, et al. The effects of if-then plans on weight loss: results of the McGill CHIP Healthy Weight Program randomized controlled trial. Obesity. 2018;26(8):1285-95. doi: 10.1002/oby.22226
334.	Knäuper B, Shireen H, Carrière K, Frayn M, Ivanova E, Xu Z, et al. The effects of if-then plans on weight loss: results of the 24-month follow-up of the McGill CHIP Healthy Weight Program randomized controlled trial. Trials. 2020;21:40. doi: 10.1186/s13063-019-4014-z
335.	Knop FK, Aroda VR, do Vale RD, Holst-Hansen T, Laursen PN, Rosenstock J, et al. Oral semaglutide 50 mg taken once per day in adults with overweight or obesity (OASIS 1): a randomised, double-blind, placebo-controlled, phase 3 trial. Lancet. 2023;402(10403):705-19. doi: 10.1016/S0140-6736(23)01185-6
336.	Koehestanie P, de Jonge C, Berends FJ, Janssen IM, Bouvy ND, Greve JWM. The effect of the endoscopic duodenal-jejunal bypass liner on obesity and type 2 diabetes mellitus, a multicenter randomized controlled trial. Ann Surg. 2014;260(6):984-92. doi: 10.1097/SLA.0000000000000794
337.	Kohl J, Brame J, Centner C, Wurst R, Fuchs R, Sehlbrede M, et al. Effects of a web-based lifestyle intervention on weight loss and cardiometabolic risk factors in adults with overweight and obesity: randomized controlled clinical trial. J Med Internet Res. 2023;25:e43426. doi: 10.2196/43426
338.	Kokkvoll A, Grimsgaard S, Ødegaard R, Flægstad T, Njølstad I. Single versus multiple-family intervention in childhood overweight--Finnmark Activity School: a randomised trial. Arch Dis Child. 2014;99(3):225-31. doi: 10.1136/archdischild-2012-303571

339.	Kokkvoll A, Grimsgaard S, Steinsbekk S, Flægstad T, Njølstad I. Health in overweight children: 2-year follow-up of Finnmark Activity School--a randomised trial. Arch Dis Child. 2015;100(5):441-8. doi: 10.1136/archdischild-2014-307107
340.	Kokkvoll AS, Grimsgaard S, Flægstad T, Andersen LB, Ball GDC, Wilsgaard T, et al. No additional long-term effect of group vs individual family intervention in the treatment of childhood obesity-a randomised trial. Acta Paediatr. 2020;109(1):183-92. doi: 10.1111/apa.14916
341.	Kolt GS, Schofield GM, Kerse N, Garrett N, Ashton T, Patel A. Healthy Steps trial: pedometer-based advice and physical activity for low-active older adults. Ann Fam Med. 2012;10(3):206-12. doi: 10.1370/afm.1345
342.	Kong A, Beresford SAA, Alfano CM, Foster-Schubert KE, Neuhouser ML, Johnson DB, et al. Associations between snacking and weight loss and nutrient intake among postmenopausal overweight to obese women in a dietary weight-loss intervention. J Am Diet Assoc. 2011;111(12):1898-903. doi: 10.1016/j.jada.2011.09.012
343.	Kong A, Beresford SAA, Alfano CM, Foster-Schubert KE, Neuhouser ML, Johnson DB, et al. Self-monitoring and eating-related behaviors are associated with 12-month weight loss in postmenopausal overweight-to-obese women. J Acad Nutr Diet. 2012;112(9):1428-35. doi: 10.1016/j.jand.2012.05.014
344.	Koschker A-C, Warrings B, Morbach C, Seyfried F, Jung P, Dischinger U, et al. Effect of bariatric surgery on cardio-psycho-metabolic outcomes in severe obesity: a randomized controlled trial. Metabolism. 2023;147:155655. doi: 10.1016/j.metabol.2023.155655
345.	Kosiborod MN, Abildstrøm SZ, Borlaug BA, Butler J, Rasmussen S, Davies M, et al. Semaglutide in patients with heart failure with preserved ejection fraction and obesity. N Engl J Med. 2023;389(12):1069-84. doi: 10.1056/NEJMoa2306963
346.	Kouwenhoven-Pasmooij TA, Robroek SJW, Kraaijenhagen RA, Helmhout PH, Nieboer D, Burdorf A, et al. Effectiveness of the blended-care lifestyle intervention 'PerfectFit': a cluster randomised trial in employees at risk for cardiovascular diseases. BMC Public Health. 2018;18:766. doi: 10.1186/s12889-018-5633-0
347.	Kroeger CM, Trepanowski JF, Klempel MC, Barnosky A, Bhutani S, Gabel K, et al. Eating behavior traits of successful weight losers during 12 months of alternate-day fasting: an exploratory analysis of a randomized controlled trial. Nutr Health. 2018;24(1):5-10. doi: 10.1177/0260106017753487
348.	Kuller LH, Pettee Gabriel KK, Kinzel LS, Underwood DA, Conroy MB, Chang Y, et al. The Women on the Move Through Activity and Nutrition (WOMAN) study: final 48-month results. Obesity. 2012;20(3):636-43. doi: 10.1038/oby.2011.80
349.	Kumanyika SK, Fassbender JE, Sarwer DB, Phipps E, Allison KC, Localio R, et al. One-year results of the Think Health! study of weight management in primary care practices. Obesity. 2012;20(6):1249-57. doi: 10.1038/oby.2011.329
350.	Kuna ST, Reboussin DM, Borradaile KE, Sanders MH, Millman RP, Zammit G, et al. Long-term effect of weight loss on obstructive sleep apnea severity in obese patients with type 2 diabetes. Sleep. 2013;36(5):641-9. doi: 10.5665/sleep.2618
351.	Kuna ST, Reboussin DM, Strotmeyer ES, Millman RP, Zammit G, Walkup MP, et al. Effects of weight loss on obstructive sleep apnea severity. Ten-year results of the Sleep AHEAD study. Am J Respir Crit Care Med. 2021;203(2):221-9. doi: 10.1164/rccm.201912-2511OC
352.	LaRose JG, Neiberg RH, Evans EW, Tate DF, Espeland MA, Gorin AA, et al. Dietary outcomes within the study of novel approaches to weight gain prevention (SNAP) randomized controlled trial. Int J Behav Nutr Phys Act. 2019;16(1):14. doi: 10.1186/s12966-019-0771-z
353.	Larsen KT, Huang T, Møller NC, Andersen LB, Sørensen J. Cost-effectiveness of a day-camp weight-loss intervention programme for children: results based on a randomised controlled trial with one-year follow-up. Scand J Public Health. 2017;45(6):666-74. doi: 10.1177/1403494816688374
354.	Larsen KT, Huang T, Ried-Larsen M, Andersen LB, Heidemann M, Møller NC. A multi-component day-camp weight-loss program is effective in reducing BMI in children after one year: a randomized controlled trial. PLoS ONE. 2016;11(6):e0157182. doi: 10.1371/journal.pone.0157182
355.	Latner JD, Ciao AC, Wendicke AU, Murakami JM, Durso LE. Community-based behavioral weight-loss treatment: long-term maintenance of weight loss, physiological, and psychological outcomes. Behav Res Ther. 2013;51(8):451-9. doi: 10.1016/j.brat.2013.04.009
356.	Leahey TM, Subak LL, Fava J, Schembri M, Thomas G, Xu X, et al. Benefits of adding small financial incentives or optional group meetings to a web-based statewide obesity initiative. Obesity. 2015;23(1):70-6. doi: 10.1002/oby.20937

357.	Leehey DJ, Collins E, Kramer HJ, Cooper C, Butler J, McBurney C, et al. Structured exercise in obese diabetic patients with chronic kidney disease: a randomized controlled trial. Am J Nephrol. 2016;44(1):54-62. doi: 10.1159/000447703
358.	Levy RL, Jeffery RW, Langer SL, Graham DJ, Welsh EM, Flood AP, et al. Maintenance-tailored therapy vs. standard behavior therapy for 30-month maintenance of weight loss. Prev Med. 2010;51(6):457-9. doi: 10.1016/j.ypmed.2010.09.010
359.	Li B, Pallan M, Liu WJ, Hemming K, Frew E, Lin R, et al. The CHIRPY DRAGON intervention in preventing obesity in Chinese primary-school--aged children: a cluster-randomised controlled trial. PLoS Med. 2019;16(11):e1002971. doi: 10.1371/journal.pmed.1002971
360.	Li Y-P, Hu X-Q, Schouten EG, Liu A-L, Du S-M, Li L-Z, et al. Report on childhood obesity in China (8): effects and sustainability of physical activity intervention on body composition of Chinese youth. Biomed Environ Sci. 2010;23(3):180-7. doi: 10.1016/S0895-3988(10)60050-5
361.	Lier HØ, Biringer E, Stubhaug B, Tangen T. The impact of preoperative counseling on postoperative treatment adherence in bariatric surgery patients: a randomized controlled trial. Patient Educ Couns. 2012;87(3):336-42. doi: 10.1016/j.pec.2011.09.014
362.	Lillis J, Dunsiger S, Thomas JG, Ross KM, Wing RR. Novel behavioral interventions to improve long-term weight loss: A randomized trial of acceptance and commitment therapy or self-regulation for weight loss maintenance. J Behav Med. 2021;44(4):527-40. doi: 10.1007/s10865-021-00215-z
363.	Lillis J, Niemeier HM, Thomas JG, Unick J, Ross KM, Leahey TM, et al. A randomized trial of an acceptance-based behavioral intervention for weight loss in people with high internal disinhibition. Obesity. 2016;24(12):2509-14. doi: 10.1002/oby.21680
364.	Lin S, Cienfuegos S, Ezpeleta M, Pavlou V, Chakos K, McStay M, et al. Effect of time-restricted eating versus daily calorie restriction on mood and quality of life in adults with obesity. Nutrients. 2023;15(20):4313. doi: 10.3390/nu15204313
365.	Linde JA, Nygaard KE, MacLehose RF, Mitchell NR, Harnack LJ, Cousins JM, et al. HealthWorks: results of a multi-component group-randomized worksite environmental intervention trial for weight gain prevention. Int J Behav Nutr Phys Act. 2012;9:14. doi: 10.1186/1479-5868-9-14
366.	Lindström J, Peltonen M, Eriksson JG, Ilanne-Parikka P, Aunola S, Keinänen-Kiukaanniemi S, et al. Improved lifestyle and decreased diabetes risk over 13 years: long-term follow-up of the randomised Finnish Diabetes Prevention Study (DPS). Diabetologia. 2013;56(2):284-93. doi: 10.1007/s00125-012-2752-5
367.	Lisevick A, Cartmel B, Harrigan M, Li F, Sanft T, Fogarasi M, et al. Effect of the Lifestyle, Exercise, and Nutrition (LEAN) study on long-term weight loss maintenance in women with breast cancer. Nutrients. 2021;13(9):3265. doi: 10.3390/nu13093265
368.	Little P, Stuart B, Hobbs RR, Kelly J, Smith ER, Bradbury KJ, et al. Randomised controlled trial and economic analysis of an internet-based weight management programme: POWeR+ (Positive Online Weight Reduction). Health Technol Assess. 2017;21(4). doi: 10.3310/hta21040
369.	Liu D, Huang Y, Huang C, Yang S, Wei X, Zhang P, et al. Calorie Restriction with or without time-restricted eating in weight loss. N Engl J Med. 2022;386(16):1495-504. doi: 10.1056/NEJMoa2114833
370.	Llaneza P, González C, Fernández-Iñarrea J, Alonso A, Díaz F, Pérez-López FR. Soy isoflavones improve insulin sensitivity without changing serum leptin among postmenopausal women. Climacteric. 2012;15(6):611-20. doi: 10.3109/13697137.2011.631062
371.	Llargues E, Franco R, Recasens A, Nadal A, Vila M, Pérez MJ, et al. Assessment of a school-based intervention in eating habits and physical activity in school children: the AVall study. J Epidemiol Community Health. 2011;65(10):896-901. doi: 10.1136/jech.2009.102319
372.	Llauradó E, Tarro L, Moriña D, Aceves-Martins M, Giralt M, Solà R. Follow-up of a healthy lifestyle education program (the EdAl study): four years after cessation of randomized controlled trial intervention. BMC Public Health. 2018;18:104. doi: 10.1186/s12889-017-5006-0
373.	Lloyd-Richardson EE, Jelalian E, Sato AF, Hart CN, Mehlenbeck R, Wing RR. Two-year follow-up of an adolescent behavioral weight control intervention. Pediatrics. 2012;130(2):e281-e8. doi: 10.1542/peds.2011-3283
374.	Lohse B, Krall JS, Psota T, Kris-Etherton P. Impact of a weight management intervention on eating competence: importance of measurement interval in protocol design. Am J Health Promot. 2018;32(3):718-28. doi: 10.1177/0890117117692201
375.	Lombard C, Harrison C, Kozica S, Zoungas S, Ranasinha S, Teede H. Preventing weight gain in women in rural communities: a cluster randomised controlled trial. PLoS Med. 2016;13(1):e1001941. doi: 10.1371/journal.pmed.1001941

376.	Looijmans A, Stiekema APM, Bruggeman R, van der Meer L, Stolk RP, Schoevers RA, et al. Changing the obesogenic environment to improve cardiometabolic health in residential patients with a severe mental illness: cluster randomised controlled trial. Br J Psychiatry. 2017;211(5):296-303. doi: 10.1192/bjp.bp.117.199315
377.	Look AHEAD Study Group. Association between change in accelerometer-measured and self-reported physical activity and cardiovascular disease in the Look AHEAD Trial. Diabetes Care. 2022;45(3):742-9. doi: 10.2337/dc21-1206
378.	López Tarraga PJ, Madrona-Marcos F, Panisello-Royo J, Carbayo-Herencia JA, Rosich N, Tarraga-Marcos L, et al. [Evaluation of a motivational intervention of physical activity program in the treatment of obesity and overweight]. Hipertens Riesgo Vasc. 2020;37(1):11-6. doi: 10.1016/j.hipert.2019.05.003
379.	López-Padrós C, Salord N, Alves C, Vilarrasa N, Gasa M, Planas R, et al. Effectiveness of an intensive weight-loss program for severe OSA in patients undergoing CPAP treatment: a randomized controlled trial. J Clin Sleep Med. 2020;16(4):503-14. doi: 10.5664/jcsm.8252
380.	Lovell K, Wearden A, Bradshaw T, Tomenson B, Pedley R, Davies LM, et al. An exploratory randomized controlled study of a healthy living intervention in early intervention services for psychosis: the INTERvention to encourage ACTivity, improve diet, and reduce weight gain (INTERACT) study. J Clin Psychiatry. 2014;75(5):498-505. doi: 10.4088/JCP.13m08503
381.	Lowe MR, Butryn ML, Zhang F. Evaluation of meal replacements and a home food environment intervention for long-term weight loss: a randomized controlled trial. Am J Clin Nutr. 2018;107(1):12-9. doi: 10.1093/ajcn/nqx005
382.	Lubans DR, Smith JJ, Plotnikoff RC, Dally KA, Okely AD, Salmon J, et al. Assessing the sustained impact of a school-based obesity prevention program for adolescent boys: the ATLAS cluster randomized controlled trial. Int J Behav Nutr Phys Act. 2016;13:92. doi: 10.1186/s12966-016-0420-8
383.	Lugones-Sanchez C, Recio-Rodriguez JI, Agudo-Conde C, Repiso-Gento I, G Adalia E, Ramirez-Manent JI, et al. Long-term effectiveness of a smartphone app combined with a smart band on weight loss, physical activity, and caloric intake in a population with overweight and obesity (Evident 3 Study): randomized controlled trial. J Med Internet Res. 2022;24(2):e30416. doi: 10.2196/30416
384.	Lundgren JR, Janus C, Jensen SBK, Juhl CR, Olsen LM, Christensen RM, et al. Healthy weight loss maintenance with exercise, liraglutide, or both combined. N Engl J Med. 2021;384(18):1719-30. doi: 10.1056/NEJMoa2028198
385.	Lutes LD, Cummings DM, Littlewood K, Dinatale E, Hambidge B. A community health worker-delivered intervention in African American women with type 2 diabetes: a 12-month randomized trial. Obesity. 2017;25(8):1329-35. doi: 10.1002/oby.21883
386.	Lutes LD, Damschroder LJ, Masheb R, Kim HM, Gillon L, Holleman RG, et al. Behavioral treatment for veterans with obesity: 24-month weight outcomes from the ASPIRE-VA small changes randomized trial. J Gen Intern Med. 2017;32(Suppl 1):40-7. doi: 10.1007/s11606-017-3987-0
387.	Ma J, Strub P, Xiao L, Lavori PW, Camargo CA, Jr., Wilson SR, et al. Behavioral weight loss and physical activity intervention in obese adults with asthma. A randomized trial. Ann Am Thorac Soc. 2015;12(1):1-11. doi: 10.1513/AnnalsATS.201406-271OC
388.	Ma J, Yank V, Xiao L, Lavori PW, Wilson SR, Rosas LG, et al. Translating the Diabetes Prevention Program lifestyle intervention for weight loss into primary care: a randomized trial. JAMA Intern Med. 2013;173(2):113-21. doi: 10.1001/2013.jamainternmed.987
389.	Maddison R, Hargreaves EA, Jiang Y, Calder AJ, Wyke S, Gray CM, et al. Rugby Fans in Training New Zealand (RUFIT NZ): a randomized controlled trial to assess the effectiveness of a healthy lifestyle program for overweight men delivered through professional rugby clubs. Int J Behav Nutr Phys Act. 2023;20(1):37. doi: 10.1186/s12966-022-01395-w
390.	Madrona Marcos F, Panisello Royo JM, Tarraga Marcos ML, Rosich N, Carbayo Herencia JA, Alins J, et al. Effect of a motivational physical activity program on lipid parameters in patients with obesity and overweight. Clín Investig Arterioscler. 2019;31(6):245-50. doi: 10.1016/j.artere.2019.11.002
391.	Maghrabi AH, Wolski K, Abood B, Licata A, Pothier C, Bhatt DL, et al. Two-year outcomes on bone density and fracture incidence in patients with T2DM randomized to bariatric surgery versus intensive medical therapy. Obesity. 2015;23(12):2344-8. doi: 10.1002/oby.21150
392.	Mai K, Brachs M, Leupelt V, Jumpertz-von Schwartzenberg R, Maurer L, Grüters-Kieslich A, et al. Effects of a combined dietary, exercise and behavioral intervention and sympathetic system on body weight maintenance after intended weight loss: results of a randomized controlled trial. Metabolism. 2018;83:60-7. doi: 10.1016/j.metabol.2018.01.003

393.	Mallorquí-Bagué N, Lozano-Madrid M, Vintró-Alcaraz C, Forcano L, Díaz-López A, Galera A, et al. Effects of a psychosocial intervention at one-year follow-up in a PREDIMED-plus sample with obesity and metabolic syndrome. Sci Rep. 2021;11(1):9144. doi: 10.1038/s41598-021-88298-1
394.	Mangieri CW, Johnson RJ, Sweeney LB, Choi YU, Wood JC. Mobile health applications enhance weight loss efficacy following bariatric surgery. Obes Res Clin Pract. 2019;13(2):176-9. doi: 10.1016/j.orcp.2019.01.004
395.	Manini TM, Newman AB, Fielding R, Blair SN, Perri MG, Anton SD, et al. Effects of exercise on mobility in obese and nonobese older adults. Obesity. 2010;18(6):1168-75. doi: 10.1038/oby.2009.317
396.	Manzoni GM, Cesa GL, Bacchetta M, Castelnuovo G, Conti S, Gaggioli A, et al. Virtual reality-enhanced cognitive-behavioral therapy for morbid obesity: a randomized controlled study with 1 year follow-up. Cyberpsychol Behav Soc Netw. 2016;19(2):134-40. doi: 10.1089/cyber.2015.0208
397.	Mårild S, Gronowitz E, Forsell C, Dahlgren J, Friberg P. A controlled study of lifestyle treatment in primary care for children with obesity. Pediatr Obes. 2013;8(3):207-17. doi: 10.1111/j.2047-6310.2012.00105.x
398.	Marin-Alejandre BA, Cantero I, Perez-Diaz-Del-Campo N, Monreal JI, Elorz M, Herrero JI, et al. Effects of two personalized dietary strategies during a 2-year intervention in subjects with nonalcoholic fatty liver disease: a randomized trial. Liver Int. 2021;41(7):1532-44. doi: 10.1111/liv.14818
399.	Markert J, Herget S, Petroff D, Gausche R, Grimm A, Kiess W, et al. Telephone-based adiposity prevention for families with overweight children (T.A.F.F.-Study): one year outcome of a randomized, controlled trial. Int J Environ Res Public Health. 2014;11(10):10327-44. doi: 10.3390/ijerph111010327
400.	Marrero DG, Palmer KNB, Phillips EO, Miller-Kovach K, Foster GD, Saha CK. Comparison of commercial and self-initiated weight loss programs in people with prediabetes: a randomized control trial. Am J Public Health. 2016;106(5):949-56. doi: 10.2105/AJPH.2015.303035
401.	Marti A, Fernández de la Puente M, Canudas S, Zalba G, Razquin C, Valle-Hita C, et al. Effect of a 3-year lifestyle intervention on telomere length in participants from PREDIMED-Plus: a randomized trial. Clin Nutr. 2023;42(9):1581-7. doi: 10.1016/j.clnu.2023.06.030
402.	Mason AE, Epel ES, Aschbacher K, Lustig RH, Acree M, Kristeller J, et al. Reduced reward-driven eating accounts for the impact of a mindfulness-based diet and exercise intervention on weight loss: data from the SHINE randomized controlled trial. Appetite. 2016;100:86-93. doi: 10.1016/j.appet.2016.02.009
403.	Mason AE, Hecht FM, Daubenmier JJ, Sbarra DA, Lin J, Moran PJ, et al. Weight loss maintenance and cellular aging in the supporting health through nutrition and exercise study. Psychosom Med. 2018;80(7):609-19. doi: 10.1097/PSY.0000000000000616
404.	Mason C, de Dieu Tapsoba J, Duggan C, Wang C-Y, Alfano CM, McTiernan A. Eating behaviors and weight loss outcomes in a 12-month randomized trial of diet and/or exercise intervention in postmenopausal women. Int J Behav Nutr Phys Act. 2019;16:113. doi: 10.1186/s12966-019-0887-1
405.	Mason C, Foster-Schubert KE, Imayama I, Kong A, Xiao L, Bain C, et al. Dietary weight loss and exercise effects on insulin resistance in postmenopausal women. Am J Prev Med. 2011;41(4):366-75. doi: 10.1016/j.amepre.2011.06.042
406.	Mason C, Xiao L, Duggan C, Imayama I, Foster-Schubert KE, Kong A, et al. Effects of dietary weight loss and exercise on insulin-like growth factor-I and insulin-like growth factor-binding protein-3 in postmenopausal women: a randomized controlled trial. Cancer Epidemiol Biomarkers Prev. 2013;22(8):1457-63. doi: 10.1158/1055-9965.EPI-13-0337
407.	Mason C, Xiao L, Imayama I, Duggan C, Wang C-Y, Korde L, et al. Vitamin D3 supplementation during weight loss: a double-blind randomized controlled trial. Am J Clin Nutr. 2014;99(5):1015-25. doi: 10.3945/ajcn.113.073734
408.	Mason C, Xiao L, Imayama I, Duggan CR, Campbell KL, Kong A, et al. The effects of separate and combined dietary weight loss and exercise on fasting ghrelin concentrations in overweight and obese women: a randomized controlled trial. Clin Endocrinol. 2015;82(3):369-76. doi: 10.1111/cen.12483
409.	McCaffery JM, Papandonatos GD, Huggins GS, Peter I, Erar B, Kahn SE, et al. Human cardiovascular disease IBC chip-wide association with weight loss and weight regain in the Look AHEAD trial. Hum Hered. 2013;75(2-4):160-74. doi: 10.1159/000353181
410.	McElfish PA, Felix HC, Bursac Z, Rowland B, Yeary KHK, Long CR, et al. A cluster randomized controlled trial comparing diabetes prevention program interventions for overweight/obese Marshallese adults. Inquiry. 2023;60. doi: 10.1177/00469580231152051
411.	McGowan BM, Houshmand-Oeregaard A, Laursen PN, Zeuthen N, Baker-Knight J. Impact of BMI and comorbidities on efficacy of once-weekly semaglutide: post hoc analyses of the STEP 1 randomized trial. Obesity. 2023;31(4):990-9. doi: 10.1002/oby.23732

412.	McRobbie H, Hajek P, Peerbux S, Kahan BC, Eldridge S, Trépel D, et al. Randomised controlled trial and economic evaluation of a task-based weight management group programme. BMC Public Health. 2019;19:365. doi: 10.1186/s12889-019-6679-3
413.	Meenan RT, Stumbo SP, Yarborough MT, Leo MC, Yarborough BJH, Green CA. An economic evaluation of a weight loss intervention program for people with serious mental illnesses taking antipsychotic medications. Adm Policy Ment Health. 2016;43(4):604-15. doi: 10.1007/s10488-015-0669-2
414.	Mellberg C, Sandberg S, Ryberg M, Eriksson M, Brage S, Larsson C, et al. Long-term effects of a Palaeolithic-type diet in obese postmenopausal women: a 2-year randomized trial. Eur J Clin Nutr. 2014;68(3):350-7. doi: 10.1038/ejcn.2013.290
415.	Melnyk BM, Jacobson D, Kelly SA, Belyea MJ, Shaibi GQ, Small L, et al. Twelve-month effects of the COPE Healthy Lifestyles TEEN program on overweight and depressive symptoms in high school adolescents. J Sch Health. 2015;85(12):861-70. doi: 10.1111/josh.12342
416.	Mensinger JL, Calogero RM, Stranges S, Tylka TL. A weight-neutral versus weight-loss approach for health promotion in women with high BMI: a randomized-controlled trial. Appetite. 2016;105:364-74. doi: 10.1016/j.appet.2016.06.006
417.	Metzgar CJ, Nickols-Richardson SM. Effects of nutrition education on weight gain prevention: a randomized controlled trial. Nutr J. 2016;15:31. doi: 10.1186/s12937-016-0150-4
418.	Miguel Soca PE, Peña Pérez I, Niño Escofet S, Cruz Torres W, Niño Peña A, Ponce De León D. [Randomised controlled trial: the role of diet and exercise in women with metabolic syndrome]. Aten Primaria. 2012;44(7):387-93. doi: 10.1016/j.aprim.2011.07.010
419.	Miller CT, Fraser SF, Selig SE, Rice T, Grima M, van den Hoek DJ, et al. Fitness, strength and body composition during weight loss in women with clinically severe obesity: a randomised clinical trial. Obes Facts. 2020;13(4):307-21. doi: 10.1159/000506643
420.	Miller GD, Beavers DP, Hamm D, Mihalko SL, Messier SP. Nutrient intake during diet-induced weight loss and exercise interventions in a randomized trial in older overweight and obese adults. J Nutr Health Aging. 2017;21(10):1216-24. doi: 10.1007/s12603-017-0892-5
421.	Miller GD, Isom S, Morgan TM, Vitolins MZ, Blackwell C, Brosnihan KB, et al. Effects of a community-based weight loss intervention on adipose tissue circulating factors. Diabetes Metab Syndr. 2014;8(4):205-11. doi: 10.1016/j.dsx.2014.09.003
422.	Miller K, Turró R, Greve JW, Bakker CM, Buchwald JN, Espinos JC. MILEPOST multicenter randomized controlled trial: 12-month weight loss and satiety outcomes after *pose* ^{SM} vs. medical therapy. Obes Surg. 2017;27(2):310-22. doi: 10.1007/s11695-016-2295-9
423.	Mingrone G, Panunzi S, De Gaetano A, Guidone C, Iaconelli A, Nanni G, et al. Bariatric-metabolic surgery versus conventional medical treatment in obese patients with type 2 diabetes: 5 year follow-up of an open-label, single-centre, randomised controlled trial. Lancet. 2015;386(9997):964-73. doi: 10.1016/S0140-6736(15)00075-6
424.	Mobasseri M, Yavari A, Najafipoor F, Aliasgarzadeh A, Niafar M. Effect of a long-term regular physical activity on hypertension and body mass index in type 2 diabetes patients. J Sports Med Phys Fitness. 2015;55(1-2):84-90.
425.	Mokhtari Z, Karbaschian Z, Pazouki A, Kabir A, Hedayati M, Mirmiran P, et al. The effects of probiotic supplements on blood markers of endotoxin and lipid peroxidation in patients undergoing gastric bypass surgery; a randomized, double-blind, placebo-controlled, clinical trial with 13 months follow-up. Obes Surg. 2019;29(4):1248-58. doi: 10.1007/s11695-018-03667-6
426.	Molenaar EA, van Ameijden EJC, Vergouwe Y, Grobbee DE, Numans ME. Effect of nutritional counselling and nutritional plus exercise counselling in overweight adults: a randomized trial in multidisciplinary primary care practice. Fam Pract. 2010;27(2):143-50. doi: 10.1093/fampra/cmp104
427.	Moncrieft AE, Llabre MM, McCalla JR, Gutt M, Mendez AJ, Gellman MD, et al. Effects of a multicomponent life-style intervention on weight, glycemic control, depressive symptoms, and renal function in low-income, minority patients with type 2 diabetes: results of the Community Approach to Lifestyle Modification for Diabetes randomized controlled trial. Psychosom Med. 2016;78(7):851-60. doi: 10.1097/PSY.0000000000000348
428.	Montemayor S, Bouzas C, Mascaró CM, Casares M, Llompart I, Abete I, et al. Effect of dietary and lifestyle interventions on the amelioration of NAFLD in patients with metabolic syndrome: the FLIPAN study. Nutrients. 2022;14(11):2223. doi: 10.3390/nu14112223

429.	Moore SM, Borawski EA, Love TE, Jones S, Casey T, McAleer S, et al. Two family interventions to reduce BMI in low-income urban youth: a randomized trial. Pediatrics. 2019;143(6):e20182185. doi: 10.1542/peds.2018-2185
430.	Morales-Palomo F, Ramirez-Jimenez M, Ortega JF, Mora-Rodriguez R. Exercise periodization over the year improves metabolic syndrome and medication use. Med Sci Sports Exerc. 2018;50(10):1983-91. doi: 10.1249/MSS.0000000000001659
431.	Moreno B, Bellido D, Sajoux I, Goday A, Saavedra D, Crujeiras AB, et al. Comparison of a very low-calorie-ketogenic diet with a standard low-calorie diet in the treatment of obesity. Endocrine. 2014;47(3):793-805. doi: 10.1007/s12020-014-0192-3
432.	Morey MC, Pieper CF, Edelman DE, Yancy WS, Jr., Green JB, Lum H, et al. Enhanced fitness: a randomized controlled trial of the effects of home-based physical activity counseling on glycemic control in older adults with prediabetes mellitus. J Am Geriatr Soc. 2012;60(9):1655-62. doi: 10.1111/j.1532-5415.2012.04119.x
433.	Morgan PJ, Lubans DR, Collins CE, Warren JM, Callister R. 12-month outcomes and process evaluation of the SHED-IT RCT: an internet-based weight loss program targeting men. Obesity. 2011;19(1):142-51. doi: 10.1038/oby.2010.119
434.	Mundbjerg LH, Stolberg CR, Cecere S, Bladbjerg E-M, Funch-Jensen P, Gram B, et al. Supervised physical training improves weight loss after Roux-en-Y gastric bypass surgery: a randomized controlled trial. Obesity. 2018;26(5):828-37. doi: 10.1002/oby.22143
435.	Muollo V, Rossi AP, Milanese C, Zamboni M, Rosa R, Schena F, et al. Prolonged unsupervised Nordic walking and walking exercise following six months of supervision in adults with overweight and obesity: a randomised clinical trial. Nutr Metab Cardiovasc Dis. 2021;31(4):1247-56. doi: 10.1016/j.numecd.2020.12.012
436.	Muralidharan J, Moreno-Indias I, Bulló M, Lopez JV, Corella D, Castañer O, et al. Effect on gut microbiota of a 1-y lifestyle intervention with Mediterranean diet compared with energy-reduced Mediterranean diet and physical activity promotion: PREDIMED-Plus study. Am J Clin Nutr. 2021;114(3):1148-58. doi: 10.1093/ajcn/nqab150
437.	Murphy JC, McDaniel JL, Mora K, Villareal DT, Fontana L, Weiss EP. Preferential reductions in intermuscular and visceral adipose tissue with exercise-induced weight loss compared with calorie restriction. J Appl Physiol (1985). 2012;112(1):79-85. doi: 10.1152/japplphysiol.00355.2011
438.	Nackers LM, Middleton KR, Dubyak PJ, Daniels MJ, Anton SD, Perri MG. Effects of prescribing 1,000 versus 1,500 kilocalories per day in the behavioral treatment of obesity: a randomized trial. Obesity. 2013;21(12):2481-7. doi: 10.1002/oby.20439
439.	Nakade M, Aiba N, Suda N, Morita A, Miyachi M, Sasaki S, et al. Behavioral change during weight loss program and one-year follow-up: Saku Control Obesity Program (SCOP) in Japan. Asia Pac J Clin Nutr. 2012;21(1):22-34. doi: 10.3316/ielapa.004014331025523
440.	Nakata Y, Okada M, Hashimoto K, Harada Y, Sone H, Tanaka K. Weight loss maintenance for 2 years after a 6-month randomised controlled trial comparing education-only and group-based support in Japanese adults. Obes Facts. 2014;7(6):376-87. doi: 10.1159/000369913
441.	Napolitano MA, Whiteley JA, Mavredes M, Tjaden AH, Simmens S, Hayman LL, et al. Effect of tailoring on weight loss among young adults receiving digital interventions: an 18 month randomized controlled trial. Transl Behav Med. 2021;11(4):970-80. doi: 10.1093/tbm/ibab017
442.	Neale EP, Tapsell LC, Martin A, Batterham MJ, Wibisono C, Probst YC. Impact of providing walnut samples in a lifestyle intervention for weight loss: a secondary analysis of the HealthTrack trial. Food Nutr Res. 2017;61(1). doi: 10.1080/16546628.2017.1344522
443.	Nguyen B, Shrewsbury VA, O'Connor J, Steinbeck KS, Hill AJ, Shah S, et al. Two-year outcomes of an adjunctive telephone coaching and electronic contact intervention for adolescent weight-loss maintenance: the Loozit randomized controlled trial. Int J Obes. 2013;37(3):468-72. doi: 10.1038/ijo.2012.74
444.	Nguyen KT, Billington CJ, Vella A, Wang Q, Ahmed L, Bantle JP, et al. Preserved insulin secretory capacity and weight loss are the predominant predictors of glycemic control in patients with type 2 diabetes randomized to Roux-en-Y gastric bypass. Diabetes. 2015;64(9):3104-10. doi: 10.2337/db14-1870
445.	Nordklint AK, Almdal TP, Vestergaard P, Lundby-Christensen L, Boesgaard TW, Breum L, et al. Effect of metformin and insulin vs. placebo and insulin on whole body composition in overweight patients with type 2 diabetes: a randomized placebo-controlled trial. Osteoporosis International. 2021;32(9):1837-48. doi: 10.1007/s00198-021-05870-1

446.	Norman G, Huang J, Davila EP, Kolodziejczyk JK, Carlson J, Covin JR, et al. Outcomes of a 1-year randomized controlled trial to evaluate a behavioral 'stepped-down' weight loss intervention for adolescent patients with obesity. Pediatr Obes. 2016;11(1):18-25. doi: 10.1111/ijpo.12013
447.	Nybacka Å, Carlström K, Ståhle A, Nyrén S, Hellström PM, Hirschberg AL. Randomized comparison of the influence of dietary management and/or physical exercise on ovarian function and metabolic parameters in overweight women with polycystic ovary syndrome. Fertil Steril. 2011;96(6):1508-13. doi: 10.1016/j.fertnstert.2011.09.006
448.	O'Brien MJ, Perez A, Scanlan AB, Alos VA, Whitaker RC, Foster GD, et al. PREVENT-DM comparative effectiveness trial of lifestyle intervention and metformin. Am J Prev Med. 2017;52(6):788-97. doi: 10.1016/j.amepre.2017.01.008
449.	O'Brien PE, Sawyer SM, Laurie C, Brown WA, Skinner S, Veit F, et al. Laparoscopic adjustable gastric banding in severely obese adolescents: a randomized trial. JAMA. 2010;303(6):519-26. doi: 10.1001/jama.2010.81
450.	O'Neil PM, Birkenfeld AL, McGowan B, Mosenzon O, Pedersen SD, Wharton S, et al. Efficacy and safety of semaglutide compared with liraglutide and placebo for weight loss in patients with obesity: a randomised, double-blind, placebo and active controlled, dose-ranging, phase 2 trial. Lancet. 2018;392(10148):637-49. doi: 10.1016/S0140-6736(18)31773-2
451.	Ockene IS, Tellez TL, Rosal MC, Reed GW, Mordes J, Merriam PA, et al. Outcomes of a Latino community-based intervention for the prevention of diabetes: the Lawrence Latino Diabetes Prevention Project. Am J Public Health. 2012;102(2):336-42. doi: 10.2105/AJPH.2011.300357
452.	Ogden J, Hollywood A, Pring C. The impact of psychological support on weight loss post weight loss surgery: a randomised control trial. Obes Surg. 2015;25(3):500-5. doi: 10.1007/s11695-014-1428-2
453.	Øhman EA, Fossli M, Ottestad I, Holven KB, Ulven SM, Løland BF, et al. Dietary treatment postpartum in women with obesity reduces weight and prevents weight gain: a randomised controlled trial. BMC Pregnancy Childbirth. 2023;23(1):695. doi: 10.1186/s12884-023-05976-w
454.	Ojeda-Rodríguez A, Morell-Azanza L, Martín-Calvo N, Zalba G, Chueca M, Azcona-Sanjulian MC, et al. Association between favourable changes in objectively measured physical activity and telomere length after a lifestyle intervention in pediatric patients with abdominal obesity. Appl Physiol Nutr Metab. 2021;46(3):205-12. doi: 10.1139/apnm-2020-0297
455.	Okely AD, Collins CE, Morgan PJ, Jones RA, Warren JM, Cliff DP, et al. Multi-site randomized controlled trial of a child-centered physical activity program, a parent-centered dietary-modification program, or both in overweight children: the HIKCUPS study. J Pediatr. 2010;157(3):388-94.e1. doi: 10.1016/j.jpeds.2010.03.028
456.	Orazio LK, Isbel NM, Armstrong KA, Tarnarskyj J, Johnson DW, Hale RE, et al. Evaluation of dietetic advice for modification of cardiovascular disease risk factors in renal transplant recipients. J Ren Nutr. 2011;21(6):462-71. doi: 10.1053/j.jrn.2010.12.002
457.	Ortner Hadžiabdić M, Vitali Čepo D, Rahelić D, Božikov V. The effect of the Mediterranean diet on serum total antioxidant capacity in obese patients: a randomized controlled trial. J Am Coll Nutr. 2016;35(3):224-35. doi: 10.1080/07315724.2014.982770
458.	Ospanov O, Akilzhanova A, Buchwald JN, Fursov A, Bekmurzinova F, Rakhimova S, et al. Stapleless vs stapled gastric bypass vs hypocaloric diet: a three-arm randomized controlled trial of body mass evolution with secondary outcomes for telomere length and metabolic syndrome changes. Obes Surg. 2021;31(7):3165-76. doi: 10.1007/s11695-021-05454-2
459.	Østbye T, Stroo M, Brouwer RJN, Peterson BL, Eisenstein EL, Fuemmeler BF, et al. Steps to Health employee weight management randomized control trial: short-term follow-up results. J Occup Environ Med. 2015;57(2):188-95. doi: 10.1097/JOM.0000000000000335
460.	Otten J, Ryberg M, Mellberg C, Andersson T, Chorell E, Lindahl B, et al. Postprandial levels of GLP-1, GIP and glucagon after 2 years of weight loss with a Paleolithic diet: a randomised controlled trial in healthy obese women. Eur J Endocrinol. 2019;180(6):417-27. doi: 10.1530/EJE-19-0082
461.	Pakpour AH, Gellert P, Dombrowski SU, Fridlund B. Motivational interviewing with parents for obesity: an RCT. Pediatrics. 2015;135(3):e644-e52. doi: 10.1542/peds.2014-1987
462.	Palnati M, Marcus BH, Pekow P, Rosal MC, Manson JE, Chasan-Taber L. The impact of a lifestyle intervention on postpartum weight retention among at-risk Hispanic women. Am J Prev Med. 2021;61(1):44-54. doi: 10.1016/j.amepre.2021.02.005
463.	Pannen ST, Maldonado SG, Nonnenmacher T, Sowah SA, Gruner LF, Watzinger C, et al. Adherence and dietary composition during intermittent vs. continuous calorie restriction: follow-up data from a

	randomized controlled trial in adults with overweight or obesity. Nutrients. 2021;13(4):1195. doi: 10.3390/nu13041195
464.	Panosian J, Ding S-A, Wewalka M, Simonson DC, Goebel-Fabbri A, Foster K, et al. Physical activity in obese type 2 diabetes after gastric bypass or medical management. Am J Med. 2017;130(1):83-92. doi: 10.1016/j.amjmed.2016.07.019
465.	Papalazarou A, Yannakoulia M, Kavouras SA, Komesidou V, Dimitriadis G, Papakonstantinou A, et al. Lifestyle intervention favorably affects weight loss and maintenance following obesity surgery. Obesity. 2010;18(7):1348-53. doi: 10.1038/oby.2009.346
466.	Parker SM, Barr M, Stocks N, Denney-Wilson E, Zwar N, Karnon J, et al. Preventing chronic disease in overweight and obese patients with low health literacy using eHealth and teamwork in primary healthcare (HeLP-GP): a cluster randomised controlled trial. BMJ Open. 2022;12(11):e060393. doi: 10.1136/bmjopen-2021-060393
467.	Paskett ED, Baltic RD, Young GS, Katz ML, Lesko SM, Webber KH, et al. A group randomized trial to reduce obesity among Appalachian church members: the Walk by Faith study. Cancer Epidemiol Biomarkers Prev. 2018;27(11):1289-97. doi: 10.1158/1055-9965.EPI-17-1085
468.	Patel MS, Small DS, Harrison JD, Hilbert V, Fortunato MP, Oon AL, et al. Effect of behaviorally designed gamification with social incentives on lifestyle modification among adults with uncontrolled diabetes: a randomized clinical trial. JAMA Netw Open. 2021;4(5):e2110255. doi: 10.1001/jamanetworkopen.2021.10255
469.	Patrick K, Calfas KJ, Norman GJ, Rosenberg D, Zabinski MF, Sallis JF, et al. Outcomes of a 12-month web-based intervention for overweight and obese men. Ann Behav Med. 2011;42(3):391-401. doi: 10.1007/s12160-011-9296-7
470.	Patrick K, Norman GJ, Davila EP, Calfas KJ, Raab F, Gottschalk M, et al. Outcomes of a 12-month technology-based intervention to promote weight loss in adolescents at risk for type 2 diabetes. J Diabetes Sci Technol. 2013;7(3):759-70.
471.	Paul L, van der Heiden C, van Hoeken D, Deen M, Vlijm A, Klaassen R, et al. Three- and five-year follow-up results of a randomized controlled trial on the effects of cognitive behavioral therapy before bariatric surgery. Int J Eat Disord. 2022;55(12):1824-37. doi: 10.1002/eat.23825
472.	Paul L, van der Heiden C, van Hoeken D, Deen M, Vlijm A, Klaassen RA, et al. Cognitive behavioral therapy versus usual care before bariatric surgery: one-year follow-up results of a randomized controlled trial. Obes Surg. 2021;31(3):970-9. doi: 10.1007/s11695-020-05081-3
473.	Pavić E, Hadžiabdić MO, Mucalo I, Martinis I, Romić Ž, Božikov V, et al. Effect of the Mediterranean diet in combination with exercise on metabolic syndrome parameters: 1-year randomized controlled trial. Int J Vitam Nutr Res. 2019;89(3-4):132-43. doi: 10.1024/0300-9831/a000462
474.	Pearl RL, Wadden TA, Bach C, LaFata EM, Gautam S, Leonard S, et al. Long-term effects of an internalized weight stigma intervention: a randomized controlled trial. J Consult Clin Psychol. 2023;91(7):398-410. doi: 10.1037/ccp0000819
475.	Pearl RL, Wadden TA, Bach C, Tronieri JS, Berkowitz RI. Six-month follow-up from a randomized controlled trial of the Weight BIAS program. Obesity. 2020;28(10):1878-88. doi: 10.1002/oby.22931
476.	Pearl RL, Wadden TA, Chao AM, Alamuddin N, Berkowitz RI, Walsh O, et al. Associations between causal attributions for obesity and long-term weight loss. Behav Med. 2020;46(2):87-91. doi: 10.1080/08964289.2018.1556202
477.	Pedersen E, Jesudason DR, Clifton PM. High protein weight loss diets in obese subjects with type 2 diabetes mellitus. Nutr Metab Cardiovasc Dis. 2014;24(5):554-62. doi: 10.1016/j.numecd.2013.11.003
478.	Pedersen LR, Olsen RH, Anholm C, Astrup A, Eugen-Olsen J, Fenger M, et al. Effects of 1 year of exercise training versus combined exercise training and weight loss on body composition, low-grade inflammation and lipids in overweight patients with coronary artery disease: a randomized trial. Cardiovasc Diabetol. 2019;18:127. doi: 10.1186/s12933-019-0934-x
479.	Pedley CF, Case LD, Blackwell CS, Katula JA, Vitolins MZ. The 24-month metabolic benefits of the healthy living partnerships to prevent diabetes: a community-based translational study. Diabetes Metab Syndr. 2018;12(3):215-20. doi: 10.1016/j.dsx.2017.09.011
480.	Pedrosa C, Oliveira BMPM, Albuquerque I, Simões-Pereira C, Vaz-de-Almeida MD, Correia F. Markers of metabolic syndrome in obese children before and after 1-year lifestyle intervention program. Eur J Nutr. 2011;50(6):391-400. doi: 10.1007/s00394-010-0148-1

481.	Pedrosa C, Oliveira BMPM, Albuquerque I, Simões-Pereira C, Vaz-de-Almeida MD, Correia F. Metabolic syndrome, adipokines and ghrelin in overweight and obese schoolchildren: results of a 1-year lifestyle intervention programme. Eur J Pediatr. 2011;170(4):483-92. doi: 10.1007/s00431-010-1316-2
482.	Pekkarinen T, Kaukua J, Mustajoki P. Long-term weight maintenance after a 17-week weight loss intervention with or without a one-year maintenance program: a randomized controlled trial. J Obes. 2015;2015:651460. doi: 10.1155/2015/651460
483.	Pérez-Ferre N, Del Valle L, Torrejón MJ, Barca I, Calvo MI, Matía P, et al. Diabetes mellitus and abnormal glucose tolerance development after gestational diabetes: a three-year, prospective, randomized, clinical-based, Mediterranean lifestyle interventional study with parallel groups. Clin Nutr. 2015;34(4):579-85. doi: 10.1016/j.clnu.2014.09.005
484.	Perri MG, Limacher MC, von Castel-Roberts K, Daniels MJ, Durning PE, Janicke DM, et al. Comparative effectiveness of three doses of weight-loss counseling: two-year findings from the rural LITE trial. Obesity. 2014;22(11):2293-300. doi: 10.1002/oby.20832
485.	Perry CD, Degeneffe D, Davey C, Kollannoor-Samuel G, Reicks M. Weight gain prevention among midlife women: a randomized controlled trial to address needs related to the physical and social environment. Int J Environ Res Public Health. 2016;13(6):530. doi: 10.3390/ijerph13060530
486.	Peven JC, Jakicic JM, Rogers RJ, Lesnovskaya A, Erickson KI, Kang C, et al. The effects of a 12-month weight loss intervention on cognitive outcomes in adults with overweight and obesity. Nutrients. 2020;12(10):2988. doi: 10.3390/nu12102988
487.	Phelan S, Hagobian T, Brannen A, Hatley KE, Schaffner A, Muñoz-Christian K, et al. Effect of an internet-based program on weight loss for low-income postpartum women: a randomized clinical trial. JAMA. 2017;317(23):2381-91. doi: 10.1001/jama.2017.7119
488.	Phelan S, Hart CN, Jelalian E, Muñoz-Christian K, Alarcon N, McHugh A, et al. Effect of prenatal lifestyle intervention on maternal postpartum weight retention and child body mass index z-score at 36 months. Int J Obes. 2021;45(5):1133-42. doi: 10.1038/s41366-021-00784-8
489.	Phelan S, Phipps MG, Abrams B, Darroch F, Grantham K, Schaffner A, et al. Does behavioral intervention in pregnancy reduce postpartum weight retention? Twelve-month outcomes of the Fit for Delivery randomized trial. Am J Clin Nutr. 2014;99(2):302-11. doi: 10.3945/ajcn.113.070151
490.	Phelan S, Wing RR, Brannen A, McHugh A, Hagobian T, Schaffner A, et al. Does partial meal replacement during pregnancy reduce 12-month postpartum weight retention? Obesity. 2019;27(2):226-36. doi: 10.1002/oby.22361
491.	Phillips EG, Wells MT, Winston G, Ramos R, Devine CM, Wethington E, et al. Innovative approaches to weight loss in a high-risk population: the small changes and lasting effects (SCALE) trial. Obesity. 2017;25(5):833-41. doi: 10.1002/oby.21780
492.	Pi-Sunyer X, Astrup A, Fujioka K, Greenway F, Halpern A, Krempf M, et al. A randomized, controlled trial of 3.0 mg of liraglutide in weight management. N Engl J Med. 2015;373(1):11-22. doi: 10.1056/NEJMoa1411892
493.	Pimentel GD, Portero-McLellan KC, Oliveira ÉP, Spada APM, Oshiiwa M, Zemdegs JCS, et al. Long-term nutrition education reduces several risk factors for type 2 diabetes mellitus in Brazilians with impaired glucose tolerance. Nutr Res. 2010;30(3):186-90. doi: 10.1016/j.nutres.2010.03.003
494.	Poddar KH, Ames M, Hsin-Jen C, Feeney MJ, Wang Y, Cheskin LJ. Positive effect of mushrooms substituted for meat on body weight, body composition, and health parameters. A 1-year randomized clinical trial. Appetite. 2013;71:379-87. doi: 10.1016/j.appet.2013.09.008
495.	Pogacnik Murillo AL, Eckstein F, Wirth W, Beavers D, Loeser RF, Nicklas BJ, et al. Impact of diet and/or exercise intervention on infrapatellar fat pad morphology: secondary analysis from the Intensive Diet and Exercise for Arthritis (IDEA) trial. Cells Tissues Organs. 2017;203(4):258-66. doi: 10.1159/000449407
496.	Porca C, Rodriguez-Carnero G, Tejera C, Andujar P, Casanueva FF, Crujeiras AB, et al. Effectiveness to promote weight loss maintenance and healthy lifestyle habits of a group educational intervention program in adults with obesity: IGOBE program. Obes Res Clin Pract. 2021;15(6):570-8. doi: 10.1016/j.orcp.2021.10.003
497.	Poulsen SK, Crone C, Astrup A, Larsen TM. Long-term adherence to the New Nordic Diet and the effects on body weight, anthropometry and blood pressure: a 12-month follow-up study. Eur J Nutr. 2015;54(1):67-76. doi: 10.1007/s00394-014-0686-z
498.	Pownall HJ, Bray GA, Wagenknecht LE, Walkup MP, Heshka S, Hubbard VS, et al. Changes in body composition over 8 years in a randomized trial of a lifestyle intervention: the look AHEAD study. Obesity. 2015;23(3):565-72. doi: 10.1002/oby.21005

499.	Pownall HJ, Schwartz AV, Bray GA, Berkowitz RI, Lewis CE, Boyko EJ, et al. Changes in regional body composition over 8 years in a randomized lifestyle trial: the look AHEAD study. Obesity. 2016;24(9):1899-905. doi: 10.1002/oby.21577
500.	Psota TL, Tindall AM, Lohse B, Miller PE, Petersen KS, Kris-Etherton PM. The Weight Optimization Revamping Lifestyle using the Dietary Guidelines (WORLD) study: sustained weight loss over 12 months. Obesity. 2020;28(7):1235-44. doi: 10.1002/oby.22824
501.	Ptomey LT, Gibson CA, Lee J, Sullivan DK, Washburn RA, Gorczyca AM, et al. Caregivers' effect on weight management in adults with intellectual and developmental disabilities. Disabil Health J. 2017;10(4):542-7. doi: 10.1016/j.dhjo.2017.02.001
502.	Ptomey LT, Saunders RR, Saunders M, Washburn RA, Mayo MS, Sullivan DK, et al. Weight management in adults with intellectual and developmental disabilities: a randomized controlled trial of two dietary approaches. J Appl Res Intellect Disabil. 2018;31(S1):82-96. doi: 10.1111/jar.12348
503.	Ptomey LT, Washburn RA, Goetz JR, Sullivan DK, Gibson CA, Mayo MS, et al. A randomized trial comparing diet and delivery strategies for weight management in adolescents with intellectual disabilities. Pediatr Obes. 2023;18(1):e12972. doi: 10.1111/ijpo.12972
504.	Puhkala J, Kukkonen-Harjula K, Mansikkamäki K, Aittasalo M, Hublin C, Kärmeniemi P, et al. Lifestyle counseling to reduce body weight and cardiometabolic risk factors among truck and bus drivers--a randomized controlled trial. Scand J Work Environ Health. 2015;41(1):54-64. doi: 10.5271/sjweh.3463
505.	Purcell K, Sumithran P, Prendergast LA, Bouniu CJ, Delbridge E, Proietto J. The effect of rate of weight loss on long-term weight management: a randomised controlled trial. Lancet Diabetes Endocrinol. 2014;2(12):954-62. doi: 10.1016/S2213-8587(14)70200-1
506.	Quattrin T, Roemmich JN, Paluch R, Yu J, Epstein LH, Ecker MA. Treatment outcomes of overweight children and parents in the medical home. Pediatrics. 2014;134(2):290-7. doi: 10.1542/peds.2013-4084
507.	Raben A, Vestentoft PS, Brand-Miller J, Jalo E, Drummen M, Simpson L, et al. The PREVIEW intervention study: results from a 3-year randomized 2 x 2 factorial multinational trial investigating the role of protein, glycaemic index and physical activity for prevention of type 2 diabetes. Diabetes Obes Metab. 2021;23(2):324-37. doi: 10.1111/dom.14219
508.	Raynor HA, Osterholt KM, Hart CN, Jelalian E, Vivier P, Wing RR. Efficacy of US paediatric obesity primary care guidelines: two randomized trials. Pediatr Obes. 2012;7(1):28-38. doi: 10.1111/j.2047-6310.2011.00005.x
509.	Raynor HA, Steeves EA, Hecht J, Fava JL, Wing RR. Limiting variety in non-nutrient-dense, energy-dense foods during a lifestyle intervention: a randomized controlled trial. Am J Clin Nutr. 2012;95(6):1305-14. doi: 10.3945/ajcn.111.031153
510.	Recasens MA, Xicola-Coromina E, Manresa J-M, Ullmo PA, Jensen BB, Franco R, et al. Impact of school-based nutrition and physical activity intervention on body mass index eight years after cessation of randomized controlled trial (AVall study). Clin Nutr. 2019;38(6):2592-8. doi: 10.1016/j.clnu.2018.12.029
511.	Redmon JB, Bertoni AG, Connelly S, Feeney PA, Glasser SP, Glick H, et al. Effect of the look AHEAD study intervention on medication use and related cost to treat cardiovascular disease risk factors in individuals with type 2 diabetes. Diabetes Care. 2010;33(6):1153-8. doi: 10.2337/dc09-2090
512.	Reeves MM, Terranova CO, Winkler EAH, McCarthy N, Hickman IJ, Ware RS, et al. Effect of a remotely delivered weight loss intervention in early-stage breast cancer: randomized controlled trial. Nutrients. 2021;13(11):4091. doi: 10.3390/nu13114091
513.	Reichard A, Saunders MD, Saunders RR, Donnelly JE, Lauer E, Sullivan DK, et al. A comparison of two weight management programs for adults with mobility impairments. Disabil Health J. 2015;8(1):61-9. doi: 10.1016/j.dhjo.2014.08.002
514.	Reid RD, McDonnell LA, Riley DL, Mark AE, Mosca L, Beaton L, et al. Effect of an intervention to improve the cardiovascular health of family members of patients with coronary artery disease: a randomized trial. CMAJ. 2014;186(1):23-30. doi: 10.1503/cmaj.130550
515.	Reis LO, Favaro WJ, Barreiro GC, de Oliveira LC, Chaim EA, Fregonesi A, et al. Erectile dysfunction and hormonal imbalance in morbidly obese male is reversed after gastric bypass surgery: a prospective randomized controlled trial. Int J Androl. 2010;33(5):736-44. doi: 10.1111/j.1365-2605.2009.01017.x
516.	Rejeski WJ, Ambrosius WT, Burdette JH, Walkup MP, Marsh AP. Community weight loss to combat obesity and disability in at-risk older adults. J Gerontol A Biol Sci Med Sci. 2017;72(11):1547-53. doi: 10.1093/gerona/glw252

517.	Rejeski WJ, Brubaker PH, Goff DC, Jr., Bearon LB, McClelland JW, Perri MG, et al. Translating weight loss and physical activity programs into the community to preserve mobility in older, obese adults in poor cardiovascular health. Arch Intern Med. 2011;171(10):880-6. doi: 10.1001/archinternmed.2010.522
518.	Rendeli C, Kuczynska E, Giuliano AC, Chiaretti A, Ausili E. Dietary approach to prevent obesity risk in Spina Bifida patients. Child’s Nervous System. 2020;36(7):1515-20. doi: 10.1007/s00381-019-04471-y
519.	Rieger E, Treasure J, Murray K, Caterson I. The use of support people to improve the weight-related and psychological outcomes of adults with obesity: a randomised controlled trial. Behav Res Ther. 2017;94:48-59. doi: 10.1016/j.brat.2017.04.012
520.	Risica PM, Gans KM, Kumanyika S, Kirtania U, Lasater TM. SisterTalk: final results of a culturally tailored cable television delivered weight control program for Black women. Int J Behav Nutr Phys Act. 2013;10:141. doi: 10.1186/1479-5868-10-141
521.	Robertson W, Fleming J, Kamal A, Hamborg T, Khan KA, Griffiths F, et al. Randomised controlled trial and economic evaluation of the 'Families for Health' programme to reduce obesity in children. Arch Dis Child. 2017;102(5):416-26. doi: 10.1136/archdischild-2016-311514
522.	Robinson TN, Matheson D, Wilson DM, Weintraub DL, Banda JA, McClain A, et al. A community-based, multi-level, multi-setting, multi-component intervention to reduce weight gain among low socioeconomic status Latinx children with overweight or obesity: the Stanford GOALS randomised controlled trial. Lancet Diabetes Endocrinol. 2021;9(6):336-49. doi: 10.1016/S2213-8587(21)00084-X
523.	Rock CL, Flatt SW, Byers TE, Colditz GA, Demark-Wahnefried W, Ganz PA, et al. Results of the Exercise and Nutrition to Enhance Recovery and Good Health for You (ENERGY) trial: a behavioral weight loss intervention in overweight or obese breast cancer survivors. J Clin Oncol. 2015;33(28):3169-76. doi: 10.1200/JCO.2015.61.1095
524.	Rock CL, Flatt SW, Sherwood NE, Karanja N, Pakiz B, Thomson CA. Effect of a free prepared meal and incentivized weight loss program on weight loss and weight loss maintenance in obese and overweight women: a randomized controlled trial. JAMA. 2010;304(16):1803-10. doi: 10.1001/jama.2010.1503
525.	Rodríguez Cristóbal JJ, Alonso-Villaverde Grote C, Travé Mercadé P, Pérez Santos JM, Peña Sendra E, Muñoz Lloret A, et al. Randomised clinical trial of an intensive intervention in the primary care setting of patients with high plasma fibrinogen in the primary prevention of cardiovascular disease. BMC Res Notes. 2012;5:126. doi: 10.1186/1756-0500-5-126
526.	Röhling M, Stensitzky A, Oliveira CLP, Beck A, Braumann KM, Halle M, et al. Effects of a protein-rich, low-glycaemic meal replacement on changes in dietary intake and body weight following a weight-management intervention—the ACOORH trial. Nutrients. 2021;13(2):376. doi: 10.3390/nu13020376
527.	Rojo-Tirado MA, Benito PJ, Ruiz JR, Ortega FB, Romero-Moraleda B, Butragueño J, et al. Body composition changes after a weight loss intervention: a 3-year follow-up study. Nutrients. 2021;13(1):164. doi: 10.3390/nu13010164
528.	Rosas LG, Lv N, Xiao L, Lewis MA, Venditti EMJ, Zavella P, et al. Effect of a culturally adapted behavioral intervention for Latino adults on weight loss over 2 years: a randomized clinical trial. JAMA Netw Open. 2020;3(12):e2027744. doi: 10.1001/jamanetworkopen.2020.27744
529.	Rosas LG, Lv N, Xiao L, Venditti EM, Lewis MA, Azar KMJ, et al. HOMBRE: a trial comparing 2 weight loss approaches for Latino men. Am J Prev Med. 2022;63(3):341-53. doi: 10.1016/j.amepre.2022.03.032
530.	Ross R, Lam M, Blair SN, Church TS, Godwin M, Hotz SB, et al. Trial of prevention and reduction of obesity through active living in clinical settings: a randomized controlled trial. Arch Intern Med. 2012;172(5):414-24. doi: 10.1001/archinternmed.2011.1972
531.	Ross R, Latimer-Cheung AE, Day AG, Brennan AM, Hill JO. A small change approach to prevent long-term weight gain in adults with overweight and obesity: a randomized controlled trial. CMAJ. 2022;194(9):E324-E31. doi: 10.1503/cmaj.211041
532.	Roth B, Munsch S, Meyer AH. [Long-term evaluation of a psychological training for obese children and their parents (TAKE)]. Prax Kinderpsychol Kinderpsychiat. 2011;60(4):304-21. doi: 10.13109/prkk.2011.60.4.304
533.	Rubino DM, Greenway FL, Khalid U, O'Neil PM, Rosenstock J, Sørrig R, et al. Effect of weekly subcutaneous semaglutide vs daily liraglutide on body weight in adults with overweight or obesity without diabetes: the STEP 8 randomized clinical trial. JAMA. 2022;327(2):138-50. doi: 10.1001/jama.2021.23619
534.	Rumbo-Rodríguez L, Zaragoza-Marti A, Sánchez-SanSegundo M, Ferrer-Cascales R, Laguna-Pérez A, Hurtado-Sánchez JA. Effectiveness of a two-year multicomponent intervention for the treatment of overweight and obesity in older people. Nutrients. 2022;14(22):4762. doi: 10.3390/nu14224762
535.	Runhaar J, Deroisy R, van Middelkoop M, Barretta F, Barbetta B, Oei EH, et al. The role of diet and exercise and of glucosamine sulfate in the prevention of knee osteoarthritis: further results from the PRevention of

	knee Osteoarthritis in Overweight Females (PROOF) study. Semin Arthritis Rheum. 2016;45(4, Supplement):S42-S8. doi: 10.1016/j.semarthrit.2015.11.001
536.	Rusu E, Jinga M, Enache G, Rusu F, Dragomir AD, Ancuta I, et al. Effects of lifestyle changes including specific dietary intervention and physical activity in the management of patients with chronic hepatitis C--a randomized trial. Nutr J. 2013;12:119. doi: 10.1186/1475-2891-12-119
537.	Ruusunen A, Voutilainen S, Karhunen L, Lehto SM, Tolmunen T, Keinänen-Kiukaanniemi S, et al. How does lifestyle intervention affect depressive symptoms? results from the Finnish Diabetes Prevention Study. Diabet Med. 2012;29(7):e126-e32. doi: 10.1111/j.1464-5491.2012.03602.x
538.	Saelens BE, Lozano P, Scholz K. A randomized clinical trial comparing delivery of behavioral pediatric obesity treatment using standard and enhanced motivational approaches. J Pediatr Psychol. 2013;38(9):954-64. doi: 10.1093/jpepsy/jst054
539.	Sahlman J, Seppä J, Herder C, Peltonen M, Peuhkurinen K, Gylling H, et al. Effect of weight loss on inflammation in patients with mild obstructive sleep apnea. Nutr Metab Cardiovasc Dis. 2012;22(7):583-90. doi: 10.1016/j.numecd.2010.10.007
540.	Saito T, Watanabe M, Nishida J, Izumi T, Omura M, Takagi T, et al. Lifestyle modification and prevention of type 2 diabetes in overweight Japanese with impaired fasting glucose levels: a randomized controlled trial. Arch Intern Med. 2011;171(15):1352-60. doi: 10.1001/archinternmed.2011.275
541.	Salas-Salvadó J, Díaz-López A, Ruiz-Canela M, Basora J, Fitó M, Corella D, et al. Effect of a lifestyle intervention program with energy-restricted Mediterranean diet and exercise on weight loss and cardiovascular risk factors: one-year results of the PREDIMED-Plus trial. Diabetes Care. 2019;42(5):777-88. doi: 10.2337/dc18-0836
542.	Salva A, Andrieu S, Fernandez E, Schiffrin EJ, Moulin J, Decarli B, et al. Health and nutrition promotion program for patients with dementia (NutriAlz): cluster randomized trial. J Nutr Health Aging. 2011;15(10):822-30. doi: 10.1007/s12603-011-0363-3
543.	Santa-Maria CA, Coughlin JW, Sharma D, Armanios M, Blackford AL, Schreyer C, et al. The effects of a remote-based weight loss program on adipocytokines, metabolic markers, and telomere length in breast cancer survivors: the POWER-Remote trial. Clin Cancer Res. 2020;26(12):3024-34. doi: 10.1158/1078-0432.CCR-19-2935
544.	Santamaria A, Giordano D, Corrado F, Pintaudi B, Interdonato ML, Di Vieste G, et al. One-year effects of myo-inositol supplementation in postmenopausal women with metabolic syndrome. Climacteric. 2012;15(5):490-5. doi: 10.3109/13697137.2011.631063
545.	Santanasto AJ, Newman AB, Strotmeyer ES, Boudreau RM, Goodpaster BH, Glynn NW. Effects of changes in regional body composition on physical function in older adults: a pilot randomized controlled trial. J Nutr Health Aging. 2015;19(9):913-21. doi: 10.1007/s12603-015-0523-y
546.	Santos I, Mata J, Silva MN, Sardinha LB, Teixeira PJ. Predicting long-term weight loss maintenance in previously overweight women: a signal detection approach. Obesity. 2015;23(5):957-64. doi: 10.1002/oby.21082
547.	Sarwer DB, Moore RH, Spitzer JC, Wadden TA, Raper SE, Williams NN. A pilot study investigating the efficacy of postoperative dietary counseling to improve outcomes after bariatric surgery. Surg Obes Relat Dis. 2012;8(5):561-8. doi: 10.1016/j.soard.2012.02.010
548.	Saslow LR, Daubenmier JJ, Moskowitz JT, Kim S, Murphy EJ, Phinney SD, et al. Twelve-month outcomes of a randomized trial of a moderate-carbohydrate versus very low-carbohydrate diet in overweight adults with type 2 diabetes mellitus or prediabetes. Nutr & Diabetes. 2017;7(12):304. doi: 10.1038/s41387-017-0006-9
549.	Sattin RW, Williams LB, Dias J, Garvin JT, Marion L, Joshua TV, et al. Community Trial of a Faith-Based Lifestyle Intervention to Prevent Diabetes Among African-Americans. J Community Health. 2016;41(1):87-96. doi: 10.1007/s10900-015-0071-8
550.	Savoye M, Nowicka P, Shaw M, Yu S, Dziura J, Chavent G, et al. Long-term results of an obesity program in an ethnically diverse pediatric population. Pediatrics. 2011;127(3):402-10. doi: 10.1542/peds.2010-0697
551.	Schauer PR, Bhatt DL, Kirwan JP, Wolski K, Aminian A, Brethauer SA, et al. Bariatric surgery versus intensive medical therapy for diabetes - 5-year outcomes. N Engl J Med. 2017;376(7):641-51. doi: 10.1056/NEJMoa1600869
552.	Schauer PR, Bhatt DL, Kirwan JP, Wolski K, Brethauer SA, Navaneethan SD, et al. Bariatric surgery versus intensive medical therapy for diabetes--3-year outcomes. N Engl J Med. 2014;370(21):2002-13. doi: 10.1056/NEJMoa1401329

553.	Schauer PR, Kashyap SR, Wolski K, Brethauer SA, Kirwan JP, Pothier CE, et al. Bariatric surgery versus intensive medical therapy in obese patients with diabetes. N Engl J Med. 2012;366(17):1567-76. doi: 10.1056/NEJMoa1200225
554.	Schiavon CA, Bersch-Ferreira AC, Santucci EV, Oliveira JD, Torreglosa CR, Bueno PT, et al. Effects of bariatric surgery in obese patients with hypertension: the GATEWAY randomized Trial (Gastric Bypass to Treat Obese Patients With Steady Hypertension). Circulation. 2018;137(11):1132-42. doi: 10.1161/CIRCULATIONAHA.117.032130
555.	Schiavon CA, Bhatt DL, Ikeoka D, Santucci EV, Santos RN, Damiani LP, et al. Three-year outcomes of bariatric surgery in patients with obesity and hypertension : a randomized clinical trial. Ann Intern Med. 2020;173(9):685-93. doi: 10.7326/M19-3781
556.	Schröder H, Cárdenas-Fuentes G, Martínez-González MA, Corella D, Vioque J, Romaguera D, et al. Effectiveness of the physical activity intervention program in the PREDIMED-Plus study: a randomized controlled trial. Int J Behav Nutr Phys Act. 2018;15:110. doi: 10.1186/s12966-018-0741-x
557.	Seimon RV, Wild-Taylor AL, Keating SE, McClintock S, Harper C, Gibson AA, et al. Effect of weight loss via severe vs moderate energy restriction on lean mass and body composition among postmenopausal women with obesity: the TEMPO Diet randomized clinical trial. JAMA Netw Open. 2019;2(10):e1913733. doi: 10.1001/jamanetworkopen.2019.13733
558.	Sellman D, Schroder R, Deering D, Elmslie J, Foulds J, Frampton C. Psychosocial enhancement of the Green Prescription for obesity recovery: a randomised controlled trial. N Z Med J. 2017;130(1450):44-54.
559.	Serra-Prat M, Terradellas M, Lorenzo I, Arús M, Burdoy E, Salietti A, et al. Effectiveness of a weight-loss intervention in preventing frailty and functional decline in community-dwelling obese older people. A randomized controlled trial. J Frailty Aging. 2022;11(1):91-9. doi: 10.14283/jfa.2021.38
560.	Shah K, Armamento-Villareal R, Parimi N, Chode S, Sinacore DR, Hilton TN, et al. Exercise training in obese older adults prevents increase in bone turnover and attenuates decrease in hip bone mineral density induced by weight loss despite decline in bone-active hormones. J Bone Miner Res. 2011;26(12):2851-9. doi: 10.1002/jbmr.475
561.	Shapiro JR, Koro T, Doran N, Thompson S, Sallis JF, Calfas K, et al. Text4Diet: a randomized controlled study using text messaging for weight loss behaviors. Prev Med. 2012;55(5):412-7. doi: 10.1016/j.ypmed.2012.08.011
562.	Siegrist M, Lammel C, Haller B, Christle J, Halle M. Effects of a physical education program on physical activity, fitness, and health in children: the JuvenTUM project. Scand J Med Sci Sports. 2013;23(3):323-30. doi: 10.1111/j.1600-0838.2011.01387.x
563.	Silva AM, Nunes CL, Jesus F, Francisco R, Matias CN, Cardoso M, et al. Effectiveness of a lifestyle weight-loss intervention targeting inactive former elite athletes: the Champ4Life randomised controlled trial. Br J Sports Med. 2022;56(7):394-402. doi: 10.1136/bjsports-2021-104212
564.	Silva MN, Markland D, Carraça EV, Vieira PN, Coutinho SR, Minderico CS, et al. Exercise autonomous motivation predicts 3-yr weight loss in women. Med Sci Sports Exerc. 2011;43(4):728-37. doi: 10.1249/MSS.0b013e3181f3818f
565.	Silva MN, Vieira PN, Coutinho SR, Minderico CS, Matos MG, Sardinha LB, et al. Using self-determination theory to promote physical activity and weight control: a randomized controlled trial in women. J Behav Med. 2010;33(2):110-22. doi: 10.1007/s10865-009-9239-y
566.	Simonson DC, Halperin F, Foster K, Vernon A, Goldfine AB. Clinical and patient-centered outcomes in obese patients with type 2 diabetes 3 years after randomization to Roux-en-Y gastric bypass surgery versus intensive lifestyle management: the SLIMM-T2D study. Diabetes Care. 2018;41(4):670-9. doi: 10.2337/dc17-0487
567.	Simonson DC, Vernon A, Foster K, Halperin F, Patti ME, Goldfine AB. Adjustable gastric band surgery or medical management in patients with type 2 diabetes and obesity: three-year results of a randomized trial. Surg Obes Relat Dis. 2019;15(12):2052-9. doi: 10.1016/j.soard.2019.03.038
568.	Simpson SA, Coulman E, Gallagher D, Jewell K, Cohen D, Newcombe RG, et al. Healthy eating and lifestyle in pregnancy (HELP): a cluster randomised trial to evaluate the effectiveness of a weight management intervention for pregnant women with obesity on weight at 12 months postpartum. Int J Obes. 2021;45(8):1728-39. doi: 10.1038/s41366-021-00835-0
569.	Simpson SA, McNamara R, Shaw C, Kelson M, Moriarty Y, Randell E, et al. A feasibility randomised controlled trial of a motivational interviewing-based intervention for weight loss maintenance in adults. Health Technol Assess. 2015;19(50). doi: 10.3310/hta19500

570.	Slater S, Lambkin D, Schumacher T, Williams A, Baillie J. Testing the effectiveness of a novel, evidence-based weight management and lifestyle modification programme in primary care: the Healthy Weight Initiative. J Prim Health Care. 2022;14(1):64-73. doi: 10.1071/HC21065
571.	Smith JD, Berkel C, Carroll AJ, Fu E, Grimm KJ, Mauricio AM, et al. Health behaviour outcomes of a family based intervention for paediatric obesity in primary care: a randomized type II hybrid effectiveness-implementation trial. Pediatr Obes. 2021;16(9):e12780. doi: 10.1111/ijpo.12780
572.	Sniehotta FF, Evans EH, Sainsbury K, Adamson A, Batterham A, Becker F, et al. Behavioural intervention for weight loss maintenance versus standard weight advice in adults with obesity: a randomised controlled trial in the UK (NULevel Trial). PLoS Med. 2019;16(5):e1002793. doi: 10.1371/journal.pmed.1002793
573.	Spence ND, Newton AS, Keaschuk RA, Ambler KA, Holt NL, Jetha MM, et al. Parents as agents of change in managing pediatric obesity: a randomized controlled trial comparing cognitive behavioral therapy versus psychoeducation interventions. Child Obes. 2023;19(2):71-87. doi: 10.1089/chi.2021.0194
574.	Spring B, Duncan JM, Janke EA, Kozak AT, McFadden HG, DeMott A, et al. Integrating technology into standard weight loss treatment: a randomized controlled trial. JAMA Intern Med. 2013;173(2):105-11. doi: 10.1001/jamainternmed.2013.1221
575.	Spring B, Pellegrini CA, Pfammatter A, Duncan JM, Pictor A, McFadden HG, et al. Effects of an abbreviated obesity intervention supported by mobile technology: the ENGAGED randomized clinical trial. Obesity. 2017;25(7):1191-8. doi: 10.1002/oby.21842
576.	Stark LJ, Clifford LM, Towner EK, Filigno SS, Zion C, Bolling C, et al. A pilot randomized controlled trial of a behavioral family-based intervention with and without home visits to decrease obesity in preschoolers. J Pediatr Psychol. 2014;39(9):1001-12. doi: 10.1093/jpepsy/jsu059
577.	Stark LJ, Filigno SS, Kichler JC, Bolling C, Ratcliff MB, Robson SM, et al. Maintenance following a randomized trial of a clinic and home-based behavioral intervention of obesity in preschoolers. J Pediatr. 2019;213:128-.e3. doi: 10.1016/j.jpeds.2019.05.004
578.	Stark LJ, Spear S, Boles R, Kuhl E, Ratcliff M, Scharf C, et al. A pilot randomized controlled trial of a clinic and home-based behavioral intervention to decrease obesity in preschoolers. Obesity. 2011;19(1):134-41. doi: 10.1038/oby.2010.87
579.	Steele RG, Aylward BS, Jensen CD, Cushing CC, Davis AM, Bovaird JA. Comparison of a family-based group intervention for youths with obesity to a brief individual family intervention: a practical clinical trial of positively fit. J Pediatr Psychol. 2012;37(1):53-63. doi: 10.1093/jpepsy/jsr057
580.	Stettler N, Wrotniak BH, Hill DL, Kumanyika SK, Xanthopoulos MS, Nihtianova S, et al. Prevention of excess weight gain in paediatric primary care: beverages only or multiple lifestyle factors. The Smart Step Study, a cluster-randomized clinical trial. Pediatr Obes. 2015;10(4):267-74. doi: 10.1111/ijpo.260
581.	Stewart TM, Bachand AR, Han H, Ryan DH, Bray GA, Williamson DA. Body image changes associated with participation in an intensive lifestyle weight loss intervention. Obesity. 2011;19(6):1290-5. doi: 10.1038/oby.2010.276
582.	Stookey JD, Evans J, Chan C, Tao-Lew L, Arana T, Arthur S. Healthy apple program to support child care centers to alter nutrition and physical activity practices and improve child weight: a cluster randomized trial. BMC Public Health. 2017;17:965. doi: 10.1186/s12889-017-4951-y
583.	Ströbl V, Knisel W, Landgraf U, Faller H. A combined planning and telephone aftercare intervention for obese patients: effects on physical activity and body weight after one year. J Rehabil Med. 2013;45(2):198-205. doi: 10.2340/16501977-1095
584.	Stumm G, Blaik A, Kropf S, Westphal S, Hantke TK, Luley C. Long-term follow-up of the telemonitoring weight-reduction program "Active Body Control". J Diabetes Res. 2016;2016:3798729. doi: 10.1155/2016/3798729
585.	Sullivan S, Swain JM, Woodman G, Antonetti M, De La Cruz-Muñoz N, Jonnalagadda SS, et al. Randomized sham-controlled trial evaluating efficacy and safety of endoscopic gastric plication for primary obesity: the ESSENTIAL trial. Obesity. 2017;25(2):294-301. doi: 10.1002/oby.21702
586.	Sundfør TM, Svendsen M, Tonstad S. Effect of intermittent versus continuous energy restriction on weight loss, maintenance and cardiometabolic risk: a randomized 1-year trial. Nutr Metab Cardiovasc Dis. 2018;28(7):698-706. doi: 10.1016/j.numecd.2018.03.009
587.	Svensson CK, Larsen JR, Vedtofte L, Jakobsen MSL, Jespersen HR, Jakobsen MI, et al. One-year follow-up on liraglutide treatment for prediabetes and overweight/obesity in clozapine- or olanzapine-treated patients. Acta Psychiatrica Scandinavica. 2019;139(1):26-36.

588.	Svetkey LP, Batch BC, Lin P-H, Intille SS, Corsino L, Tyson CC, et al. Cell phone intervention for you (CITY): a randomized, controlled trial of behavioral weight loss intervention for young adults using mobile technology. Obesity. 2015;23(11):2133-41. doi: 10.1002/oby.21226
589.	Taheri S, Zaghloul H, Chagoury O, Elhadad S, Ahmed SH, El Khatib N, et al. Effect of intensive lifestyle intervention on bodyweight and glycaemia in early type 2 diabetes (DIADEM-I): an open-label, parallel-group, randomised controlled trial. Lancet Diabetes Endocrinol. 2020;8(6):477-89. doi: 10.1016/S2213-8587(20)30117-0
590.	Tapsell LC, Batterham MJ, Thorne RL, O'Shea JE, Grafenauer SJ, Probst YC. Weight loss effects from vegetable intake: a 12-month randomised controlled trial. Eur J Clin Nutr. 2014;68(7):778-85. doi: 10.1038/ejcn.2014.39
591.	Tapsell LC, Lonergan M, Batterham MJ, Neale EP, Martin A, Thorne R, et al. Effect of interdisciplinary care on weight loss: a randomised controlled trial. BMJ Open. 2017;7(7):e014533. doi: 10.1136/bmjopen-2016-014533
592.	Tárraga Marcos ML, Rosich N, Panisello Royo JM, Gálvez Casas A, Serrano Selva JP, Rodríguez-Montes JA, et al. [Efficacy of motivational interventions in the treatment of overweight and obesity]. Nutr Hosp. 2014;30(4):741-8. doi: 10.3305/nh.2014.30.4.7704
593.	Tarro L, Llauradó E, Albaladejo R, Moriña D, Arija V, Solà R, et al. A primary-school-based study to reduce the prevalence of childhood obesity - the EdAl (Educació en Alimentació) study: a randomized controlled trial. Trials. 2014;15:58. doi: 10.1186/1745-6215-15-58
594.	Taveras EM, Gortmaker SL, Hohman KH, Horan CM, Kleinman KP, Mitchell K, et al. Randomized controlled trial to improve primary care to prevent and manage childhood obesity: the High Five for Kids study. Arch Pediatr Adolesc Med. 2011;165(8):714-22. doi: 10.1001/archpediatrics.2011.44
595.	Taveras EM, Marshall R, Kleinman KP, Gillman MW, Hacker K, Horan CM, et al. Comparative effectiveness of childhood obesity interventions in pediatric primary care: a cluster-randomized clinical trial. JAMA Pediatr. 2015;169(6):535-42. doi: 10.1001/jamapediatrics.2015.0182
596.	Taveras EM, Marshall R, Sharifi M, Avalon E, Fiechtner L, Horan C, et al. Comparative effectiveness of clinical-community childhood obesity interventions: a randomized clinical trial. JAMA Pediatr. 2017;171(8):e171325. doi: 10.1001/jamapediatrics.2017.1325
597.	Tay J, Zajac IT, Thompson CH, Luscombe-Marsh ND, Danthiir V, Noakes M, et al. A randomised-controlled trial of the effects of very low-carbohydrate and high-carbohydrate diets on cognitive performance in patients with type 2 diabetes. Br J Nutr. 2016;116(10):1745-53. doi: 10.1017/S0007114516004001
598.	Taylor RW, Cox A, Knight L, Brown DA, Meredith-Jones K, Haszard JJ, et al. A tailored family-based obesity intervention: a randomized trial. Pediatrics. 2015;136(2):282-9. doi: 10.1542/peds.2015-0595
599.	Teixeira PJ, Silva MN, Coutinho SR, Palmeira AL, Mata J, Vieira PN, et al. Mediators of weight loss and weight loss maintenance in middle-aged women. Obesity. 2010;18(4):725-35. doi: 10.1038/oby.2009.281
600.	Tejera C, Porca C, Rodriguez-Carnero G, Andújar P, Casanueva FF, Bellido D, et al. Reducing metabolic syndrome through a group educational intervention program in adults with obesity: IGOBE program. Nutrients. 2022;14(5):1066. doi: 10.3390/nu14051066
601.	ter Bogt NCW, Milder IEJ, Bemelmans WJE, Beltman FW, Broer J, Smit AJ, et al. Changes in lifestyle habits after counselling by nurse practitioners: 1-year results of the Groningen Overweight and Lifestyle study. Public Health Nutr. 2011;14(6):995-1000. doi: 10.1017/S1368980010003708
602.	The Diabetes Prevention Program Research Group. Long-term safety, tolerability, and weight loss associated with metformin in the Diabetes Prevention Program Outcomes Study. Diabetes Care. 2012;35(4):731-7. doi: 10.2337/dc11-1299
603.	The Look AHEAD Research Group. Cardiovascular effects of intensive lifestyle intervention in type 2 diabetes. N Engl J Med. 2013;369(2):145-54. doi: 10.1056/NEJMoa1212914
604.	Thomas JG, Bond DS, Raynor HA, Papandonatos GD, Wing RR. Comparison of smartphone-based behavioral obesity treatment with gold standard group treatment and control: a randomized trial. Obesity. 2019;27(4):572-80. doi: 10.1002/oby.22410
605.	Thomas JG, Raynor HA, Bond DS, Luke AK, Cardoso CC, Foster GD, et al. Weight loss in Weight Watchers Online with and without an activity tracking device compared to control: a randomized trial. Obesity. 2017;25(6):1014-21. doi: 10.1002/oby.21846
606.	Thompson CC, Abu Dayyeh BK, Kushner R, Sullivan S, Schorr AB, Amaro A, et al. Percutaneous gastrostomy device for the treatment of class II and class III obesity: results of a randomized controlled trial. Am J Gastroenterol. 2017;112(3):447-57. doi: 10.1038/ajg.2016.500

607.	Thorndike AN, McCurley JL, Gelsomin ED, Anderson E, Chang Y, Porneala B, et al. Automated behavioral workplace intervention to prevent weight gain and improve diet: the ChooseWell 365 randomized clinical trial. JAMA Netw Open. 2021;4(6):e2112528. doi: 10.1001/jamanetworkopen.2021.12528
608.	Topham GL, Washburn IJ, Hubbs-Tait L, Kennedy TS, Rutledge JM, Page MC, et al. The Families and Schools for Health Project: a longitudinal cluster randomized controlled trial targeting children with overweight and obesity. Int J Environ Res Public Health. 2021;18(16):8744. doi: 10.3390/ijerph18168744
609.	Tremblay A, Dutheil F, Drapeau V, Metz L, Lesour B, Chapier R, et al. Long-term effects of high-intensity resistance and endurance exercise on plasma leptin and ghrelin in overweight individuals: the RESOLVE Study. Appl Physiol Nutr Metab. 2019;44(11):1172-9. doi: 10.1139/apnm-2019-0019
610.	Trepanowski JF, Kroeger CM, Barnosky A, Klempel MC, Bhutani S, Hoddy KK, et al. Effect of alternate-day fasting on weight loss, weight maintenance, and cardioprotection among metabolically healthy obese adults: a randomized clinical trial. JAMA Intern Med. 2017;177(7):930-8. doi: 10.1001/jamainternmed.2017.0936
611.	Trief PM, Fisher L, Sandberg J, Cibula DA, Dimmock J, Hessler DM, et al. Health and psychosocial outcomes of a telephonic couples behavior change intervention in patients with poorly controlled type 2 diabetes: a randomized clinical trial. Diabetes Care. 2016;39(12):2165-73. doi: 10.2337/dc16-0035
612.	Tronieri JS, Fabricatore AN, Wadden TA, Auerbach P, Endahl L, Sugimoto D, et al. Effects of dietary self-monitoring, physical activity, liraglutide 3.0 mg, and placebo on weight loss in the SCALE IBT trial. Obes Facts. 2020;13(6):572-83. doi: 10.1159/000511130
613.	Tronieri JS, Wadden TA, Chao AM, Pearl RL, Alamuddin N, Berkowitz RI. Early weight loss in behavioral treatment predicts later rate of weight loss and response to pharmacotherapy. Ann Behav Med. 2019;53(3):290-5. doi: 10.1093/abm/kay036
614.	Tsaban G, Yaskolka Meir A, Zelicha H, Rinott E, Kaplan A, Shalev A, et al. Diet-induced fasting ghrelin elevation reflects the recovery of insulin sensitivity and visceral adiposity regression. J Clin Endocrinol Metab. 2022;107(2):336-45. doi: 10.1210/clinem/dgab681
615.	Tseng E, Dalcin AT, Jerome GJ, Gennusa JV, Goldsholl S, Cook C, et al. Effect of a behavioral weight loss intervention in people with serious mental illness and diabetes. Diabetes Care. 2019;42(5):804-9. doi: 10.2337/dc18-2201
616.	Tuomilehto H, Gylling H, Peltonen M, Martikainen T, Sahlman J, Kokkarinen J, et al. Sustained improvement in mild obstructive sleep apnea after a diet- and physical activity-based lifestyle intervention: postinterventional follow-up. Am J Clin Nutr. 2010;92(4):688-96. doi: 10.3945/ajcn.2010.29485
617.	Tur JJ, Escudero AJ, Alos MM, Salinas R, Terés E, Soriano JB, et al. One year weight loss in the TRAMOMTANA study. A randomized controlled trial. Clin Endocrinol. 2013;79(6):791-9. doi: 10.1111/cen.12109
618.	Turner-McGrievy GM, Wilcox S, Frongillo EA, Murphy EA, Hutto B, Wilson M, et al. Effect of a plant-based vs omnivorous soul food diet on weight and lipid levels among African American adults: a randomized clinical trial. JAMA Netw Open. 2023;6(1):e2250626. doi: 10.1001/jamanetworkopen.2022.50626
619.	Unick JL, Beavers D, Bond DS, Clark JM, Jakicic JM, Kitabchi AE, et al. The long-term effectiveness of a lifestyle intervention in severely obese individuals. Am J Med. 2013;126(3):236-42.E2. doi: 10.1016/j.amjmed.2012.10.010
620.	Unick JL, Lang W, Williams SE, Bond DS, Egan CM, Espeland MA, et al. Objectively-assessed physical activity and weight change in young adults: a randomized controlled trial. Int J Behav Nutr Phys Act. 2017;14:165. doi: 10.1186/s12966-017-0620-x
621.	Valero-Pérez M, Bermejo LM, López-Plaza B, García MA, Palma-Milla S, Gómez-Candela C. Regular consumption of Lipigo® promotes the reduction of body weight and improves the rebound effect of obese people undergo a comprehensive weight loss program. Nutrients. 2020;12(7):1960. doi: 10.3390/nu12071960
622.	van der Aa MP, Elst MAJ, van de Garde EMW, van Mil EGAH, Knibbe CAJ, van der Vorst MMJ. Long-term treatment with metformin in obese, insulin-resistant adolescents: results of a randomized double-blinded placebo-controlled trial. Nutr & Diabetes. 2016;6(8):e228. doi: 10.1038/nutd.2016.37
623.	van der Baan-Slootweg O, Benninga MA, Beelen A, van der Palen J, Tamminga-Smeulders C, Tijssen JGP, et al. Inpatient treatment of children and adolescents with severe obesity in the Netherlands: a randomized clinical trial. JAMA Pediatr. 2014;168(9):807-14. doi: 10.1001/jamapediatrics.2014.521
624.	van Elten TM, Karsten MDA, Geelen A, Gemke RJBJ, Groen H, Hoek A, et al. Preconception lifestyle intervention reduces long term energy intake in women with obesity and infertility: a randomised controlled trial. Int J Behav Nutr Phys Act. 2019;16:3. doi: 10.1186/s12966-018-0761-6

625.	van Gemert WA, Monninkhof EM, May AM, Peeters PH, Schuit AJ. Effect of exercise on insulin sensitivity in healthy postmenopausal women: the SHAPE study. Cancer Epidemiol Biomarkers Prev. 2015;24(1):81-7. doi: 10.1158/1055-9965.EPI-14-0722
626.	Van Name MA, Camp AW, Magenheimer EA, Li F, Dziura JD, Montosa A, et al. Effective translation of an intensive lifestyle intervention for Hispanic women with prediabetes in a community health center setting. Diabetes Care. 2016;39(4):525-31. doi: 10.2337/dc15-1899
627.	van Wier MF, Dekkers JC, Hendriksen IJM, Heymans MW, Ariëns GAM, Pronk NP, et al. Effectiveness of phone and e-mail lifestyle counseling for long term weight control among overweight employees. J Occup Environ Med. 2011;53(6):680-6. doi: 10.1097/JOM.0b013e31821f2bbb
628.	Verduci E, Banderali G, Di Profio E, Vizzuso S, Zuccotti G, Radaelli G. Effect of individual- versus collective-based nutritional-lifestyle intervention on the atherogenic index of plasma in children with obesity: a randomized trial. Nutr Metab. 2021;18:11. doi: 10.1186/s12986-020-00537-w
629.	Vermunt PWA, Milder IEJ, Wielaard F, de Vries JHM, Baan CA, van Oers JAM, et al. A lifestyle intervention to reduce type 2 diabetes risk in Dutch primary care: 2.5-year results of a randomized controlled trial. Diabet Med. 2012;29(8):e223-31. doi: 10.1111/j.1464-5491.2012.03648.x
630.	Vermunt PWA, Milder IEJ, Wielaard F, de Vries JHM, van Oers HAM, Westert GP. Lifestyle counseling for type 2 diabetes risk reduction in Dutch primary care: results of the APHRODITE study after 0.5 and 1.5 years. Diabetes Care. 2011;34(9):1919-25. doi: 10.2337/dc10-2293
631.	Verrastro O, Panunzi S, Castagneto-Gissey L, De Gaetano A, Lembo E, Capristo E, et al. Bariatric-metabolic surgery versus lifestyle intervention plus best medical care in non-alcoholic steatohepatitis (BRAVES): a multicentre, open-label, randomised trial. Lancet. 2023;401(10390):1786-97. doi: 10.1016/S0140-6736(23)00634-7
632.	Versteegden DPA, Van Himbeeck MJJ, Luyer MD, van Montfort G, de Zoete J-PJGM, Smulders JF, et al. A randomized clinical trial evaluating eHealth in bariatric surgery. Surg Endosc. 2023;37(10):7625-33. doi: 10.1007/s00464-023-10211-w
633.	Verweij LM, Proper KI, Weel ANH, Hulshof CTJ, van Mechelen W. Long-term effects of an occupational health guideline on employees' body weight-related outcomes, cardiovascular disease risk factors, and quality of life: results from a randomized controlled trial. Scand J Work Environ Health. 2013;39(3):284-94. doi: 10.5271/sjweh.3341
634.	Vesco KK, Leo MC, Karanja N, Gillman MW, McEvoy CT, King JC, et al. One-year postpartum outcomes following a weight management intervention in pregnant women with obesity. Obesity. 2016;24(10):2042-9. doi: 10.1002/oby.21597
635.	Viester L, Verhagen EALM, Bongers PM, van der Beek AJ. Effectiveness of a worksite intervention for male construction workers on dietary and physical activity behaviors, body mass index, and health outcomes: results of a randomized controlled trial. Am J Health Promot. 2018;32(3):795-805. doi: 10.1177/0890117117694450
636.	Villareal DT, Chode S, Parimi N, Sinacore DR, Hilton T, Armamento-Villareal R, et al. Weight loss, exercise, or both and physical function in obese older adults. N Engl J Med. 2011;364(13):1218-29. doi: 10.1056/NEJMoa1008234
637.	Vimalananda V, Damschroder L, Janney CA, Goodrich D, Kim HM, Holleman R, et al. Weight loss among women and men in the ASPIRE-VA behavioral weight loss intervention trial. Obesity. 2016;24(9):1884-91. doi: 10.1002/oby.21574
638.	Voils CI, Olsen MK, Gierisch JM, McVay MA, Grubber JM, Gaillard L, et al. Maintenance of weight loss after initiation of nutrition training: a randomized trial. Ann Intern Med. 2017;166(7):463-71. doi: 10.7326/M16-2160
639.	von Gruenigen V, Frasure H, Kavanagh MB, Janata J, Waggoner S, Rose P, et al. Survivors of uterine cancer empowered by exercise and healthy diet (SUCCEED): a randomized controlled trial. Gynecol Oncol. 2012;125(3):699-704. doi: 10.1016/j.ygyno.2012.03.042
640.	Vos RC, Huisman SD, Houdijk ECAM, Pijl H, Wit JM. The effect of family-based multidisciplinary cognitive behavioral treatment on health-related quality of life in childhood obesity. Qual Life Res. 2012;21(9):1587-94. doi: 10.1007/s11136-011-0079-1
641.	Wadden TA, Bailey TS, Billings LK, Davies M, Frias JP, Koroleva A, et al. Effect of subcutaneous semaglutide vs placebo as an adjunct to intensive behavioral therapy on body weight in adults with overweight or obesity: the STEP 3 randomized clinical trial. JAMA. 2021;325(14):1403-13. doi: 10.1001/jama.2021.1831

642.	Wadden TA, Chao AM, Bahnson JL, Bantle JP, Clark JM, Gaussoin SA, et al. End-of-trial health outcomes in Look AHEAD participants who elected to have bariatric surgery. Obesity. 2019;27(4):581-90. doi: 10.1002/oby.22411
643.	Wadden TA, Chao AM, Machineni S, Kushner R, Ard J, Srivastava G, et al. Tirzepatide after intensive lifestyle intervention in adults with overweight or obesity: the SURMOUNT-3 phase 3 trial. Nat Med. 2023;29(11):2909-18. doi: 10.1038/s41591-023-02597-w
644.	Wadden TA, Foreyt JP, Foster GD, Hill JO, Klein S, O'Neil PM, et al. Weight loss with naltrexone SR/bupropion SR combination therapy as an adjunct to behavior modification: the COR-BMOD trial. Obesity. 2011;19(1):110-20. doi: 10.1038/oby.2010.147
645.	Wadden TA, Hollander P, Klein S, Niswender K, Woo V, Hale PM, et al. Weight maintenance and additional weight loss with liraglutide after low-calorie-diet-induced weight loss: the SCALE Maintenance randomized study. Int J Obes. 2013;37(11):1443-51. doi: 10.1038/ijo.2013.120
646.	Wadden TA, Neiberg RH, Wing RR, Clark JM, Delahanty LM, Hill JO, et al. Four-year weight losses in the Look AHEAD study: factors associated with long-term success. Obesity. 2011;19(10):1987-98. doi: 10.1038/oby.2011.230
647.	Wadden TA, Tronieri JS, Sugimoto D, Lund MT, Auerbach P, Jensen C, et al. Liraglutide 3.0 mg and intensive behavioral therapy (IBT) for obesity in primary care: the SCALE IBT randomized controlled trial. Obesity. 2020;28(3):529-36. doi: 10.1002/oby.22726
648.	Wadden TA, Walsh OA, Berkowitz RI, Chao AM, Alamuddin N, Gruber K, et al. Intensive behavioral therapy for obesity combined with liraglutide 3.0 mg: a randomized controlled trial. Obesity. 2019;27(1):75-86. doi: 10.1002/oby.22359
649.	Wake M, Lycett K, Clifford SA, Sabin MA, Gunn J, Gibbons K, et al. Shared care obesity management in 3-10 year old children: 12 month outcomes of HopSCOTCH randomised trial. BMJ. 2013;346:f3092. doi: 10.1136/bmj.f3092
650.	Walburg FS, van Meijel B, Hoekstra T, Kol J, Pape LM, de Joode JW, et al. Effectiveness of a lifestyle intervention for people with a severe mental illness in Dutch outpatient mental health care: a randomized clinical trial. JAMA Psychiatry. 2023;80(9):886-94. doi: 10.1001/jamapsychiatry.2023.1566
651.	Walc A, Latimer-Cheung AE, Day AG, Brennan AM, Hill JO, Ross R. A small change approach on adiposity, lean mass and bone mineral density in adults with overweight and obesity: a randomized controlled trial. Clin Obes. 2023;13(4):e12587. doi: 10.1111/cob.12587
652.	Waling M, Lind T, Hernell O, Larsson C. A one-year intervention has modest effects on energy and macronutrient intakes of overweight and obese Swedish children. J Nutr. 2010;140(10):1793-8. doi: 10.3945/jn.110.125435
653.	Wani K, Alfawaz H, Alnaami AM, Sabico S, Khattak MNK, Al-Attas O, et al. Effects of a 12-month intensive lifestyle monitoring program in predominantly overweight/obese Arab adults with prediabetes. Nutrients. 2020;12(2):464. doi: 10.3390/nu12020464
654.	Warnakulasuriya LS, Fernando MMA, Adikaram AVN, Thawfeek ARM, Anurasiri W-ML, Silva RR, et al. Metformin in the management of childhood obesity: a randomized control trial. Child Obes. 2018;14(8):553-65. doi: 10.1089/chi.2018.0043
655.	Warschburger P, Kroeller K, Haerting J, Unverzagt S, van Egmond-Fröhlich A. Empowering Parents of Obese Children (EPOC): a randomized controlled trial on additional long-term weight effects of parent training. Appetite. 2016;103:148-56. doi: 10.1016/j.appet.2016.04.007
656.	Warschburger P, Zitzmann J. Does an age-specific treatment program augment the efficacy of a cognitive-behavioral weight loss program in adolescence and young adulthood? Results from a controlled study. Nutrients. 2019;11(9):2053. doi: 10.3390/nu11092053
657.	Washburn RA, Szabo-Reed AN, Gorczyca AM, Sullivan DK, Honas JJ, Mayo MS, et al. A randomized trial evaluating exercise for the prevention of weight regain. Obesity. 2021;29(1):62-70. doi: 10.1002/oby.23022
658.	Watson S, Woodside JV, Ware LJ, Hunter SJ, McGrath A, Cardwell CR, et al. Effect of a web-based behavior change program on weight loss and cardiovascular risk factors in overweight and obese adults at high risk of developing cardiovascular disease: randomized controlled trial. J Med Internet Res. 2015;17(7):e177. doi: 10.2196/jmir.3828
659.	Weghuber D, Barrett T, Barrientos-Perez M, Gies I, Hesse D, Jeppesen OK, et al. Once-Weekly Semaglutide in Adolescents with Obesity. New England Journal of Medicine. 2022;387(24):2245-57.
660.	Wekker V, Huvinen E, van Dammen L, Rono K, Painter RC, Zwinderman AH, et al. Long-term effects of a preconception lifestyle intervention on cardiometabolic health of overweight and obese women. Eur J Pub Health. 2019;29(2):308-14. doi: 10.1093/eurpub/cky222

661.	Werkman A, Hulshof PJM, Stafleu A, Kremers SPJ, Kok FJ, Schouten EG, et al. Effect of an individually tailored one-year energy balance programme on body weight, body composition and lifestyle in recent retirees: a cluster randomised controlled trial. BMC Public Health. 2010;10:110. doi: 10.1186/1471-2458-10-110
662.	West DS, Gorin AA, Subak LL, Foster G, Bragg C, Hecht J, et al. A motivation-focused weight loss maintenance program is an effective alternative to a skill-based approach. Int J Obes. 2011;35(2):259-69. doi: 10.1038/ijo.2010.138
663.	West DS, Harvey JR, Krukowski RA, Prewitt TE, Priest J, Ashikaga T. Do individual, online motivational interviewing chat sessions enhance weight loss in a group-based, online weight control program? Obesity. 2016;24(11):2334-40. doi: 10.1002/oby.21645
664.	Wharton S, Batterham RL, Bhatta M, Buscemi S, Christensen LN, Frias JP, et al. Two-year effect of semaglutide 2.4 mg on control of eating in adults with overweight/obesity: STEP 5. Obesity. 2023;31(3):703-15.
665.	Wharton S, Yin P, Burrows M, Gould E, Blavignac J, Christensen RAG, et al. Extended-release naltrexone/bupropion is safe and effective among subjects with type 2 diabetes already taking incretin agents: a post-hoc analysis of the LIGHT trial. Int J Obes. 2021;45(8):1687-95.
666.	White DK, Neogi T, Rejeski WJ, Walkup MP, Lewis CE, Nevitt MC, et al. Can an intensive diet and exercise program prevent knee pain among overweight adults at high risk? Arthritis Care Res. 2015;67(7):965-71. doi: 10.1002/acr.22544
667.	Wild B, Hünnemeyer K, Sauer H, Hain B, Mack I, Schellberg D, et al. A 1-year videoconferencing-based psychoeducational group intervention following bariatric surgery: results of a randomized controlled study. Surg Obes Relat Dis. 2015;11(6):1349-60. doi: 10.1016/j.soard.2015.05.018
668.	Wild B, Hünnemeyer K, Sauer H, Schellberg D, Müller-Stich BP, Königsrainer A, et al. Sustained effects of a psychoeducational group intervention following bariatric surgery: follow-up of the randomized controlled BaSE study. Surg Obes Relat Dis. 2017;13(9):1612-8. doi: 10.1016/j.soard.2017.03.034
669.	Wilding JPH, Batterham RL, Calanna S, Davies M, Van Gaal LF, Lingvay I, et al. Once-Weekly Semaglutide in Adults with Overweight or Obesity. New England Journal of Medicine. 2021;384(11):989-1002. doi: 10.1056/NEJMoa2032183
670.	Wilding JPH, Batterham RL, Davies M, Van Gaal LF, Kandler K, Konakli K, et al. Weight regain and cardiometabolic effects after withdrawal of semaglutide: The STEP 1 trial extension. Diabetes, Obesity & Metabolism. 2022;24(8):1553-64.
671.	Williams CF, Bustamante EE, Waller JL, Davis CL. Exercise effects on quality of life, mood, and self-worth in overweight children: the SMART randomized controlled trial. Transl Behav Med. 2019;9(3):451-9. doi: 10.1093/tbm/ibz015
672.	Wilson MG, DeJoy DM, Vandenberg R, Padilla H, Davis M. FUEL Your Life: a translation of the Diabetes Prevention Program to worksites. Am J Health Promot. 2016;30(3):188-97. doi: 10.4278/ajhp.130411-QUAN-169
673.	Wing RR, Rosen RC, Fava JL, Bahnson J, Brancati F, Gendrano INC, III, et al. Effects of weight loss intervention on erectile function in older men with type 2 diabetes in the Look AHEAD trial. J Sex Med. 2010;7(1, Pt 1):156-65. doi: 10.1111/j.1743-6109.2009.01458.x
674.	Wing RR, West DS, Grady D, Creasman JM, Richter HE, Myers D, et al. Effect of weight loss on urinary incontinence in overweight and obese women: results at 12 and 18 months. J Urol. 2010;184(3):1005-10. doi: 10.1016/j.juro.2010.05.031
675.	Winters-Stone KM, Dieckmann N, Maddalozzo GF, Bennett JA, Ryan CW, Beer TM. Resistance exercise reduces body fat and insulin during androgen-deprivation therapy for prostate cancer. Oncol Nurs Forum. 2015;42(4):348-56. doi: 10.1188/15.ONF.348-356
676.	Wylie-Rosett J, Groisman-Perelstein AE, Diamantis PM, Jimenez CC, Shankar V, Conlon BA, et al. Embedding weight management into safety-net pediatric primary care: randomized controlled trial. Int J Behav Nutr Phys Act. 2018;15:12. doi: 10.1186/s12966-017-0639-z
677.	Xiang AH, Trigo E, Martinez M, Katkhouda N, Beale E, Wang X, et al. Impact of gastric banding versus metformin on β-cell function in adults with impaired glucose tolerance or mild type 2 diabetes. Diabetes Care. 2018;41(12):2544-51. doi: 10.2337/dc18-1662
678.	Yackobovitch-Gavan M, Wolf Linhard D, Nagelberg N, Poraz I, Shalitin S, Phillip M, et al. Intervention for childhood obesity based on parents only or parents and child compared with follow-up alone. Pediatr Obes. 2018;13(11):647-55. doi: 10.1111/ijpo.12263

679.	Yadav V, Marracci G, Kim E, Spain R, Cameron M, Overs S, et al. Low-fat, plant-based diet in multiple sclerosis: a randomized controlled trial. Mult Scler Relat Disord. 2016;9:80-90. doi: 10.1016/j.msard.2016.07.001
680.	Yaskolka Meir A, Rinott E, Tsaban G, Zelicha H, Kaplan A, Rosen P, et al. Effect of green-Mediterranean diet on intrahepatic fat: the DIRECT PLUS randomised controlled trial. Gut. 2021;70(11):2085-95. doi: 10.1136/gutjnl-2020-323106
681.	Yates T, Davies MJ, Sehmi S, Gorely T, Khunti K. The Pre-diabetes Risk Education and Physical Activity Recommendation and Encouragement (PREPARE) programme study: are improvements in glucose regulation sustained at 2 years? Diabet Med. 2011;28(10):1268-71. doi: 10.1111/j.1464-5491.2011.03357.x
682.	Yavari A, Najafipoor F, Aliasgarzadeh A, Niafar M, Mobasseri M. Effect of aerobic exercise, resistance training or combined training on glycaemic control and cardiovascular risk factors in patients with type 2 diabetes. Biol Sport. 2012;29(2):135-43.
683.	Yin X, Yan L, Lu Y, Jiang Q, Pu Y, Sun Q. Correction of hypovitaminosis D does not improve the metabolic syndrome risk profile in a Chinese population: a randomized controlled trial for 1 year. Asia Pac J Clin Nutr. 2016;25(1):71-7. doi: 10.6133/apjcn.2016.25.1.06
684.	Yin Z, Perry J, Duan X, He M, Johnson R, Feng Y, et al. Cultural adaptation of an evidence-based lifestyle intervention for diabetes prevention in Chinese women at risk for diabetes: results of a randomized trial. Int Health. 2018;10(5):391-400. doi: 10.1093/inthealth/ihx072
685.	Zamorano AS, Wilson EM, Liu J, Leon A, Kuroki LM, Thaker PH, et al. Text-message-based behavioral weight loss for endometrial cancer survivors with obesity: a randomized controlled trial. Gynecol Oncol. 2021;162(3):770-7. doi: 10.1016/j.ygyno.2021.06.007
686.	Zelicha H, Kloting N, Kaplan A, Yaskolka Meir A, Rinott E, Tsaban G, et al. The effect of high-polyphenol Mediterranean diet on visceral adiposity: the DIRECT PLUS randomized controlled trial. BMC Med. 2022;20:327. doi: 10.1186/s12916-022-02525-8
687.	Zhang H-J, He J, Pan L-L, Ma Z-M, Han C-K, Chen C-S, et al. Effects of moderate and vigorous exercise on nonalcoholic fatty liver disease: a randomized clinical trial. JAMA Intern Med. 2016;176(8):1074-82. doi: 10.1001/jamainternmed.2016.3202
688.	Zhou K, Wolski K, Malin SK, Aminian A, Schauer PR, Bhatt DL, et al. Impact of weight loss trajectory following randomization to bariatric surgery on long-term diabetes glycemic and cardiometabolic parameters. Endocr Pract. 2019;25(6):572-9. doi: 10.4158/EP-2018-0522

Meta-analysis results

The following section presents the results of the meta-analyses. Meta-analyses were performed for each population and subgroup population treated with a weight management intervention. The meta-analysis result for each treatment and population group combination has been summarised into associated tables, which were used to inform the Evidence-to-Decision frameworks. The associated forest plots are presented beneath each table. Forest plots that present additional data not used in the GRADE process to develop the Guideline recommendations can be found in Appendix C.

In-document links to meta-analysis findings are presented in Box 1.

Box 1: Meta-analysis findings by population and treatments

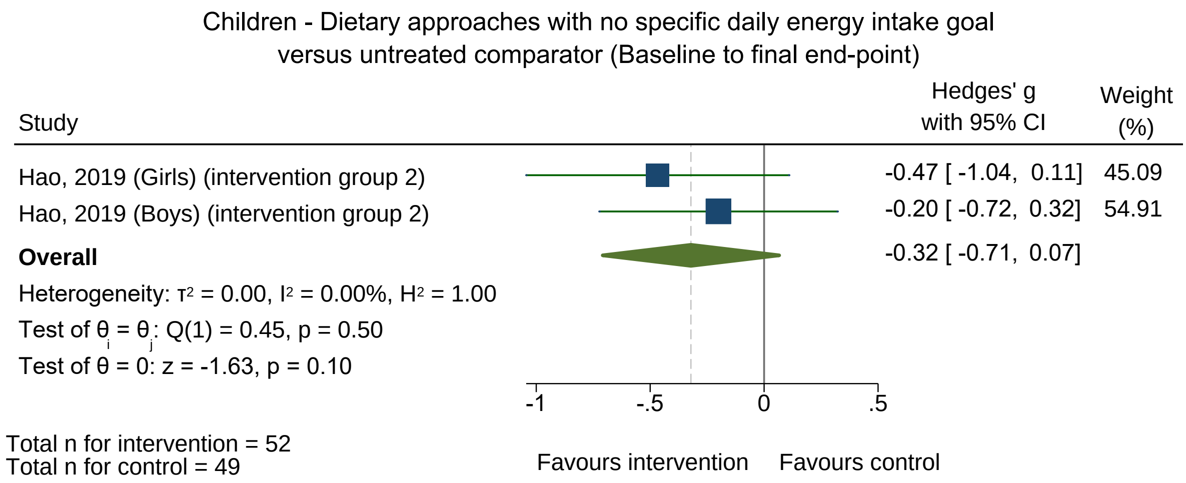
Table 11: Meta-analysis findings for children living with overweight or obesity treated with a behavioural weight management intervention included in the Evidence-to-Decision frameworks*

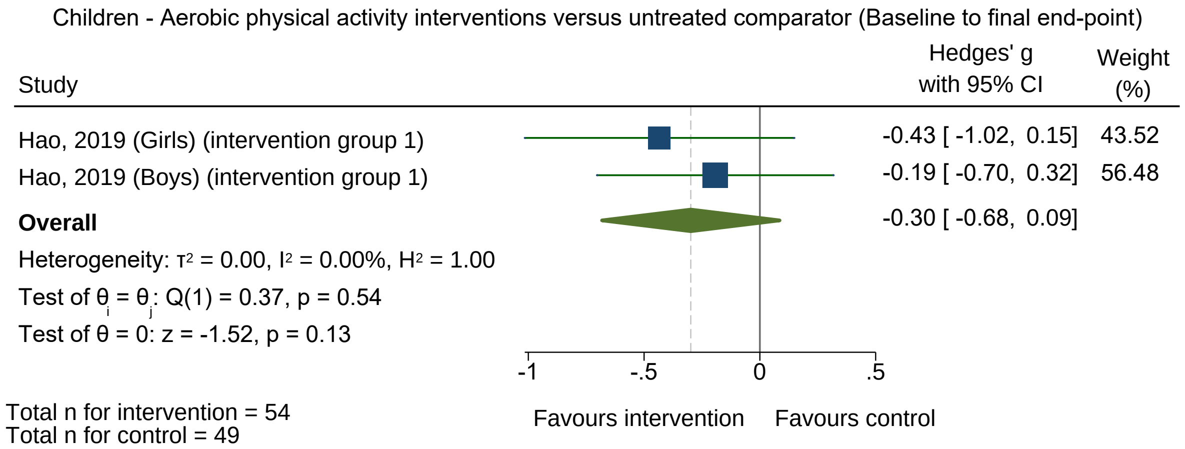
Main analysis	Intervention vs. untreated comparator (Baseline to 12 months)			Intervention vs. any comparator (Baseline to 12 months)			Intervention vs. untreated comparator (Baseline to end point)			Intervention vs. any comparator (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Single treatment type interventions												
Dietary approaches with no specific daily energy intake goal							-0.32 (-0.71 to 0.07)	0.10	Small to moderate			
Aerobic exercise							-0.30 (-0.68 to 0.09)	0.13	Small to moderate			
Multimodal treatment type interventions												
Nutrition and physical activity							-0.47 (-0.87 to -0.07)	0.02	**Small to moderate**	-	-	-
Nutrition, physical activity, and family-centred	-0.15 (-0.30 to 0.00)	0.12	Small	-	-	-				-	-	-
Multimodal including four or more behavioural interventions	-0.13 (-0.21 to -0.05)	<0.01	**Small**	-	-	-	-	-	-	-	-	-

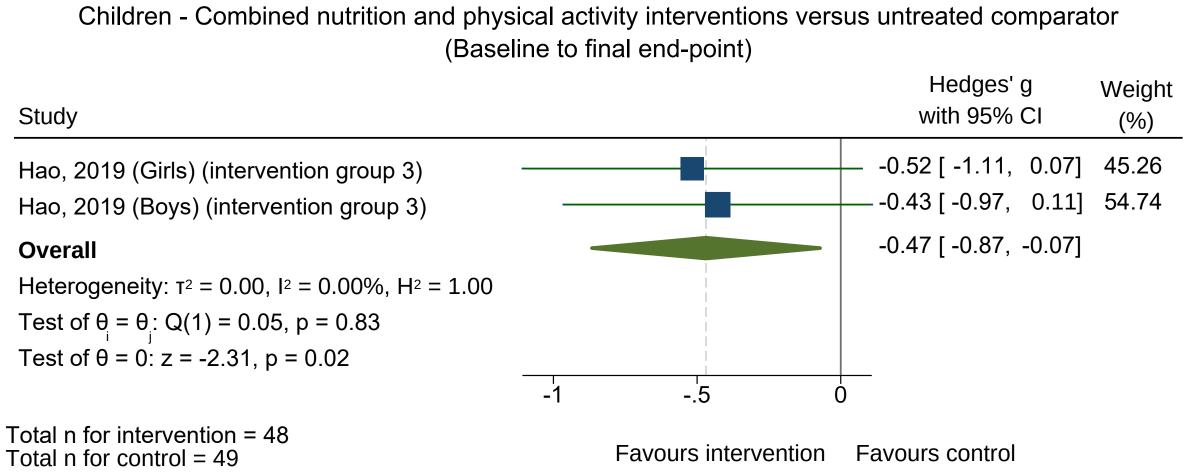
* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.

† Statistically significant (p<0.05) findings are shown in bold text.

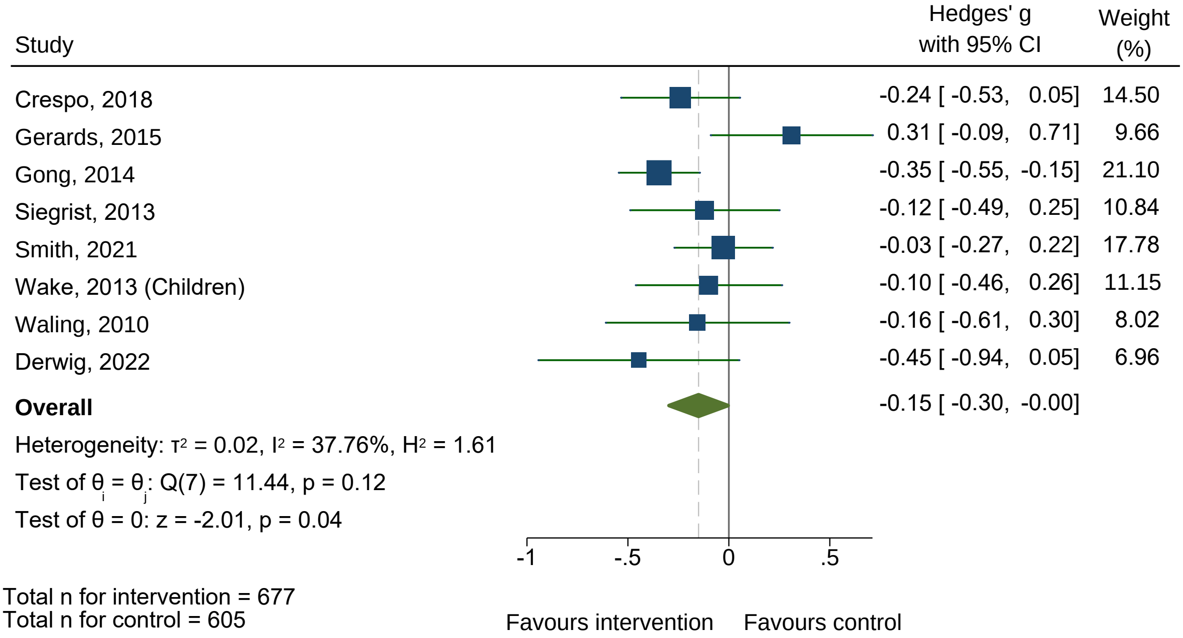
'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.


Children - Dietary approaches with no specific daily energy intake goal
versus untreated comparator (Baseline to final end-point)
Study
Hedges' g
with 95% CI
Weight
(%)
Hao, 2019 (Girls) (intervention group 2)
-0.47 [-1.04, 0.11]
45.09
Hao, 2019 (Boys) (intervention group 2)
-0.20 [-0.72, 0.32]
54.91
Overall
-0.32 [-0.71, 0.07]
Heterogeneity: τ² = 0.00, I² = 0.00%, H² = 1.00
Test of θi = θj: Q(1) = 0.45, p = 0.50
Test of θ = 0: z = -1.63, p = 0.10
-1
-.5
0
.5
Total n for intervention = 52
Total n for control = 49
Favours intervention
Favours control


Children - Aerobic physical activity interventions versus untreated comparator (Baseline to final end-point)
Study
Hedges' g
with 95% CI
Weight
(%)
Hao, 2019 (Girls) (intervention group 1)
-0.43 [-1.02, 0.15]
43.52
Hao, 2019 (Boys) (intervention group 1)
-0.19 [-0.70, 0.32]
56.48
Overall
-0.30 [-0.68, 0.09]
Heterogeneity: τ² = 0.00, I² = 0.00%, H² = 1.00
Test of θi = θj: Q(1) = 0.37, p = 0.54
Test of θ = 0: z = -1.52, p = 0.13
-1
-.5
0
.5
Total n for intervention = 54
Total n for control = 49
Favours intervention
Favours control


Children - Combined nutrition and physical activity interventions versus untreated comparator
(Baseline to final end-point)
Study
Hedges' g
with 95% CI
Weight
(%)
Hao, 2019 (Girls) (intervention group 3)
-0.52 [-1.11, 0.07]
45.26
Hao, 2019 (Boys) (intervention group 3)
-0.43 [-0.97, 0.11]
54.74
Overall
-0.47 [-0.87, -0.07]
Heterogeneity: τ² = 0.00, I² = 0.00%, H² = 1.00
Test of θi = θj: Q(1) = 0.05, p = 0.83
Test of θ = 0: z = -2.31, p = 0.02
-1
-.5
0
Total n for intervention = 48
Total n for control = 49
Favours intervention
Favours control

Children - Combined nutrition, physical activity, and family-centered interventions
versus untreated comparator (baseline to 12 months)



Children - Combination of 4 or more lifestyle interventions
versus untreated comparator (baseline to 12 months)

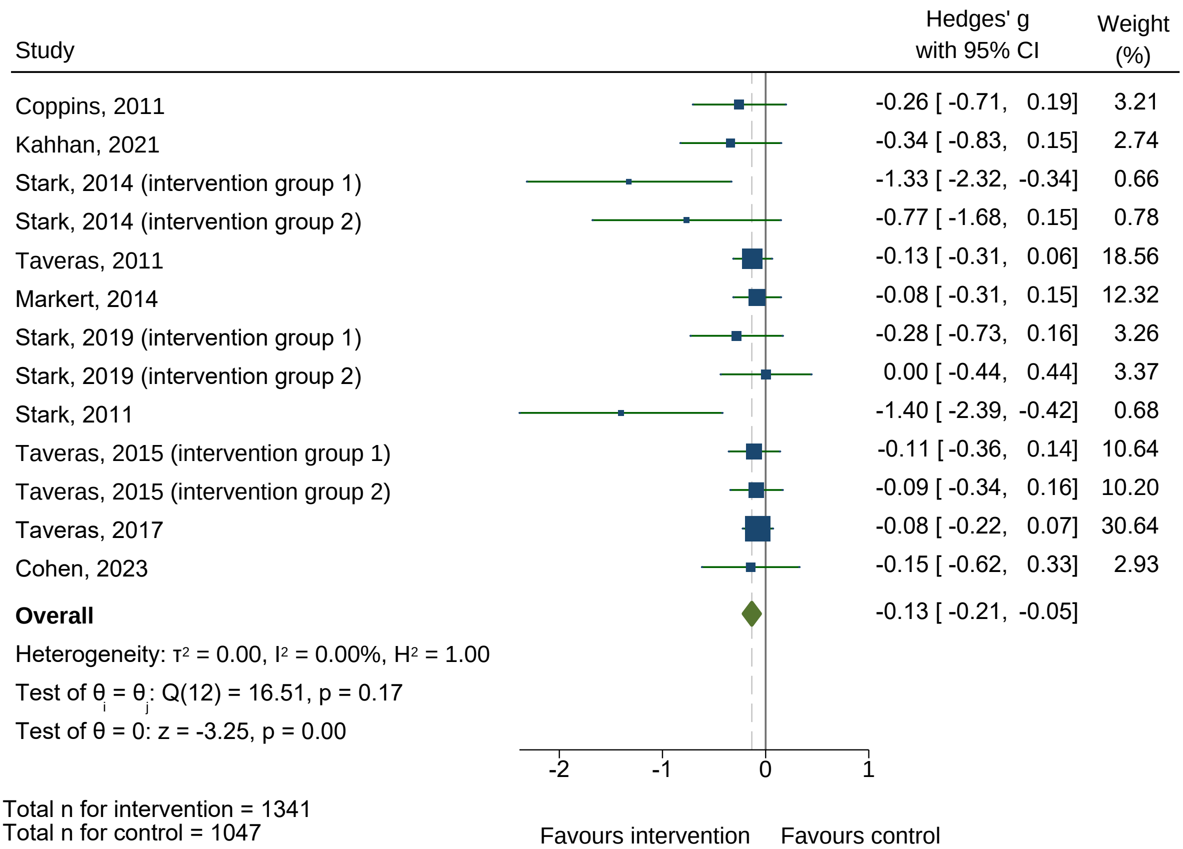


Table 12: Meta-analysis findings for adolescents living with overweight or obesity treated with a behavioural weight management intervention included in the Evidence-to-Decision frameworks*

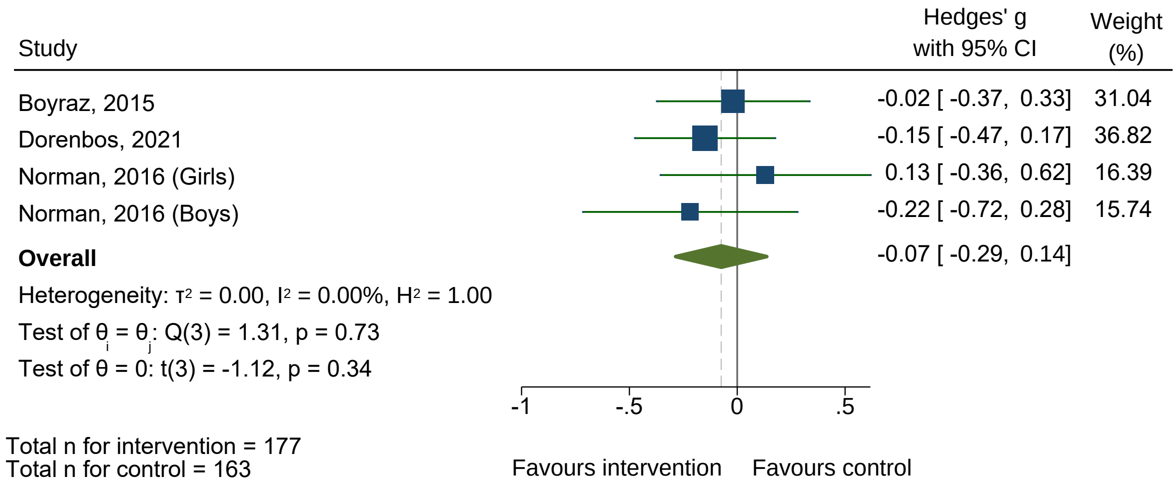
Main analysis	Intervention vs. untreated comparator (Baseline to 12 months)			Intervention vs. any comparator (Baseline to 12 months)			Intervention vs. untreated comparator (Baseline to end point)			Intervention vs. any comparator (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Multimodal treatment type interventions												
Nutrition and physical activity				-0.07 (-0.29 to 0.14)	0.34	Small						
Nutrition, physical activity and psychological				-0.20 (-0.48 to 0.08)	0.16	Small						
Nutrition, physical activity and family-centred	-0.54 (-1.18 to 0.11)	0.07	Moderate to large	-	-	-				-	-	-
Multimodal including four or more behavioural interventions	-0.42 (-0.73 to -0.12)	<0.01	**Small to moderate**†	-	-	-	-	-	-	-	-	-

* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.

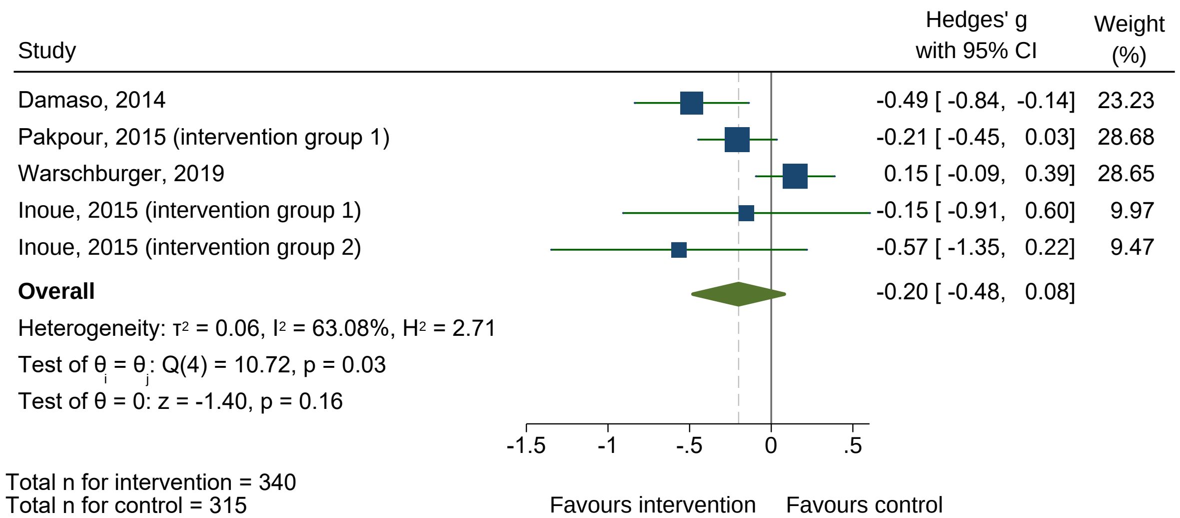
† Statistically significant (p<0.05) findings are shown in bold text

'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.

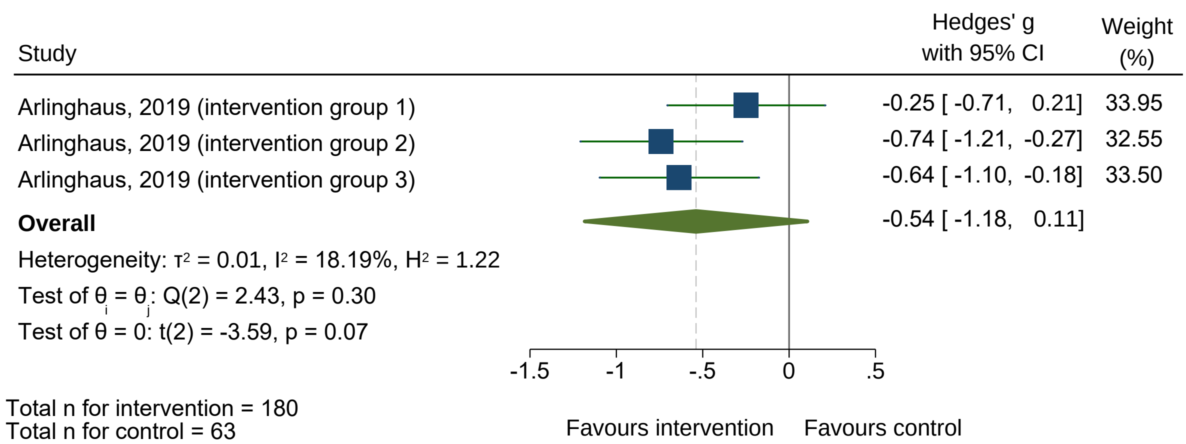
Adolescents - Combined nutrition and physical activity interventions versus any comparator (baseline to 12 months)

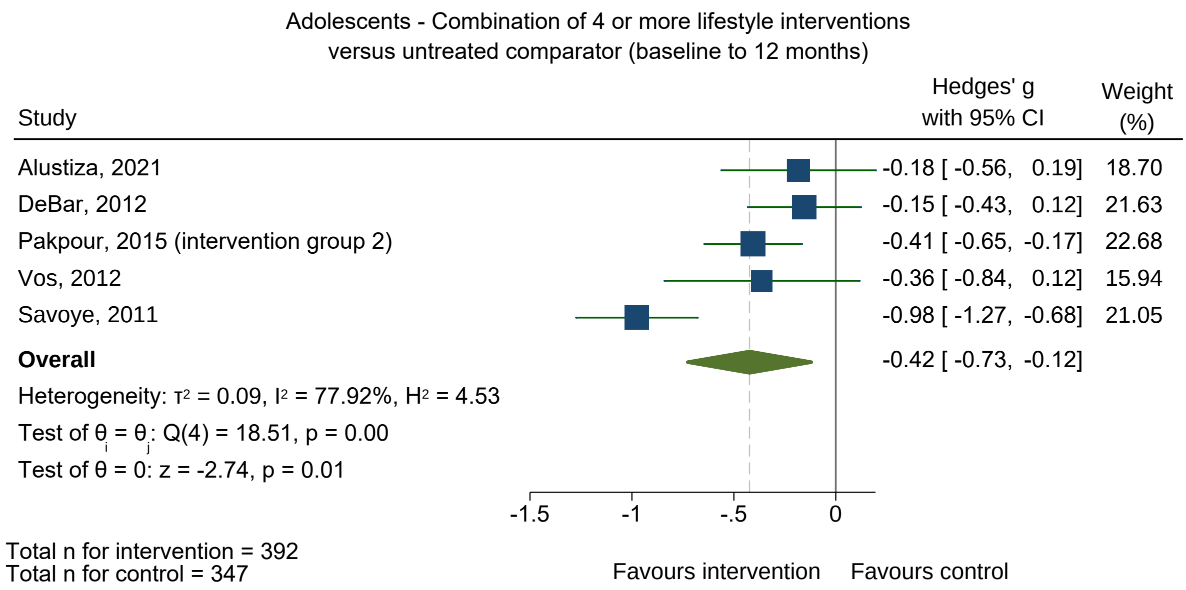


Adolescents - Combined nutrition, physical activity and psychological treatment interventions versus any comparator (baseline to 12 months)



Adolescents - Combined nutrition, physical activity and family-centred interventions versus untreated comparator (baseline to 12 months)





Adolescents - Combination of 4 or more lifestyle interventions
versus untreated comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Alustiza, 2021 -0.18 [-0.56, 0.19] 18.70
DeBar, 2012 -0.15 [-0.43, 0.12] 21.63
Pakpour, 2015 (intervention group 2) -0.41 [-0.65, -0.17] 22.68
Vos, 2012 -0.36 [-0.84, 0.12] 15.94
Savoye, 2011 -0.98 [-1.27, -0.68] 21.05
Overall -0.42 [-0.73, -0.12]
Heterogeneity: τ² = 0.09, I² = 77.92%, H² = 4.53
Test of θi = θj: Q(4) = 18.51, p = 0.00
Test of θ = 0: z = -2.74, p = 0.01
-1.5
-1
-.5
0
Total n for intervention = 392
Total n for control = 347
Favours intervention
Favours control

Table 13: Meta-analysis findings for adolescents living with overweight or obesity treated with a pharmacological weight management intervention included in the Evidence-to-Decision frameworks*

Main analysis	Pharmacological intervention vs. any comparator (Baseline to 12 months)			Pharmacological intervention vs. any comparator (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Pharmacological interventions						
Anorectic and Anticonvulsant drug class				-1.17 (-1.48 to -0.86)	<0.01	**Very large**
Phentermine 7.5mg plus Topiramate 46.0mg per day						
Phentermine 15.0mg plus Topiramate 92.0mg per day						

* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.
† Statistically significant (p<0.05) findings are shown in bold text
'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.

Adolescents - Pharmacological treatment with anorectic and anticonvulsant drug class medications versus any comparator (baseline to final end-point)

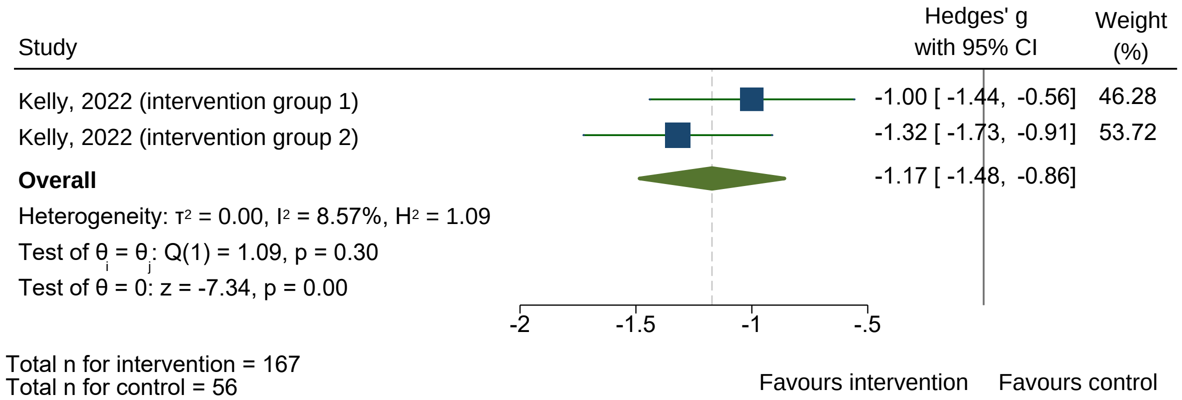


Table 14: Meta-analysis findings for adolescents living with overweight or obesity treated with a surgical weight management intervention included in the Evidence-to-Decision frameworks*

Main analysis	Bariatric surgery vs. medical treatment (Baseline to 12 months)			Bariatric surgery vs. medical treatment (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Surgical interventions						
Bariatric surgery versus medical treatment				-2.27 (-2.79, -1.76)	<0.01	**Very large†**
Laparoscopic adjustable gastric banding						
Laparoscopic Roux-en-Y gastric bypass or laparoscopic vertical sleeve gastrectomy						

* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.
† Statistically significant (p<0.05) findings are shown in bold text
'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.

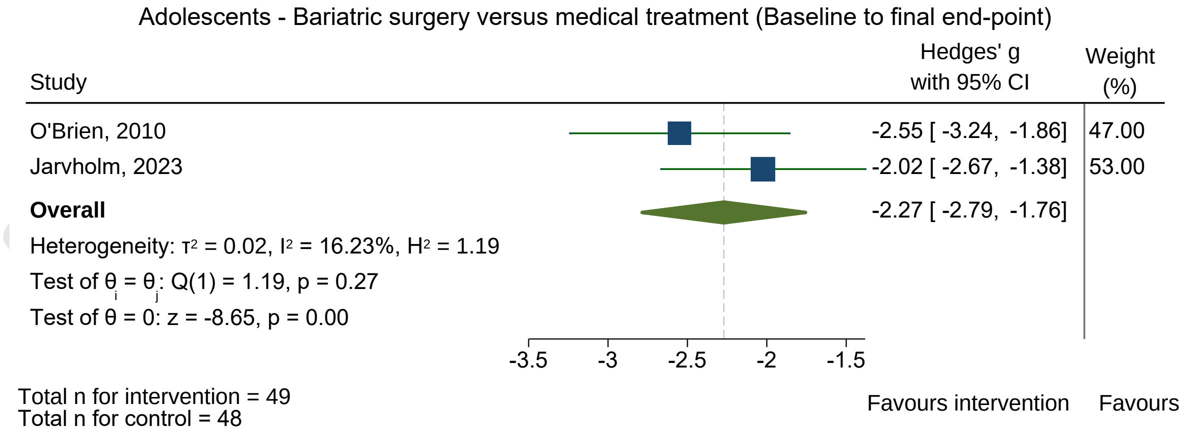


Table 15: Meta-analysis findings for young and middle-aged adults living with overweight or obesity treated with a behavioural weight management intervention included in the Evidence-to-Decision frameworks*

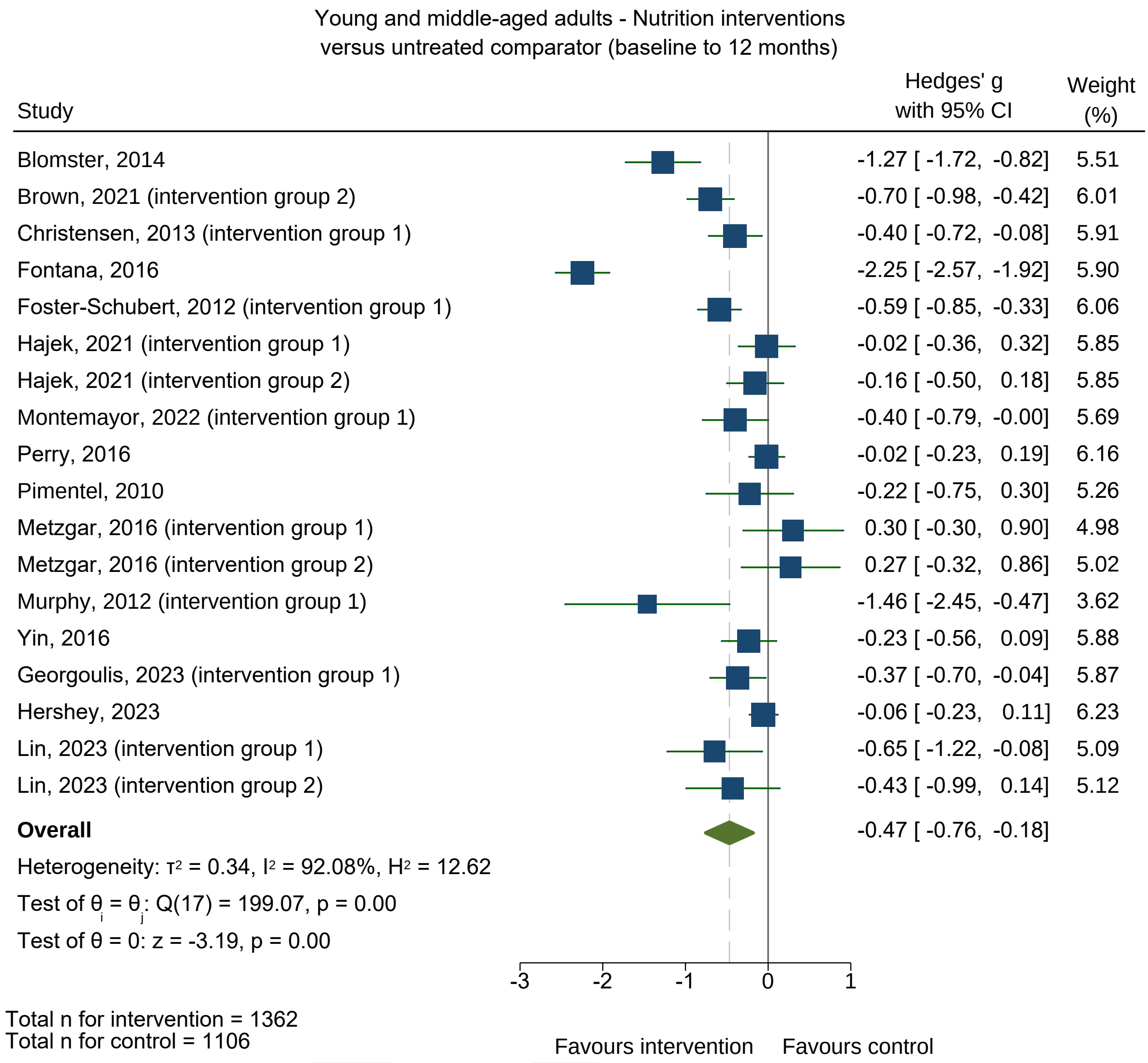
Main analysis	**Intervention vs. untreated comparator (Baseline to 12 months)**			**Intervention vs. any comparator (Baseline to 12 months)**			**Intervention vs. untreated comparator (Baseline to end point)**			**Intervention vs. any comparator (Baseline to end point)**		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Single treatment type interventions												
Nutrition	-0.47 (-0.76 to -0.18)	<0.01	**Small to moderate**	-	-	-	-	-	-	-	-	-
Dietary approaches with no specific daily energy intake goal	-0.16 (-0.30 to -0.03)	0.02	**Small**	-	-	-	-	-	-	-	-	-
Nutrition intervention with a daily energy intake goal	-0.87 (-1.72 to -0.027)	0.04	**Large**	-	-	-				-	-	-
Nutrition interventions with a daily energy intake goal followed by a dietary approach with no specific daily energy intake goal	-0.77 (-1.84 to 0.31)	0.09	Moderate to large	-	-	-						
Physical activity	-0.26 (-0.43 to -0.09)	<0.01	**Small to moderate**	-	-	-	-	-	-	-	-	-
Aerobic exercise	-0.41 (-0.57 to -0.25)	<0.01	**Small to moderate**	-	-	-	-	-	-	-	-	-
Strengthening activities	0.18 (-0.10 to 0.47)	0.21	Small	-	-	-						
Aerobic and strengthening activities	-0.03 (-0.12 to 0.05)	0.30	Small	-	-	-	-	-	-	-	-	-
Multimodal treatment type interventions												

Nutrition and physical activity with or without sedentary behaviour	-0.35 (-0.42 to -0.27)	<0.01	**Small to moderate**	-	-	-	-	-	-	-	-	-
Nutrition and physical activity	-0.35 (-0.43 to -0.27)	<0.01	**Small to moderate**	-	-	-	-	-	-	-	-	-
Nutrition, physical activity, and sedentary behaviour	-0.31 (-0.61 to -0.02)	0.04	**Small to moderate**	-	-	-						
Nutrition, physical activity and psychological	-0.45 (-0.68 to -0.23)	<0.01	**Small to moderate**	-	-	-				-	-	-
Nutrition, physical activity and family-centred	-0.18 (-0.33 to -0.02)	0.02	**Small**	-	-	-				-	-	-
Nutrition, physical activity, and sleep	-0.46 (-1.45 to 0.53)	0.18	Small to moderate	-	-	-						
Multimodal including four or more behavioural interventions	-0.16 (-0.30 to -0.02)	0.03	**Small**	-	-	-	-	-	-	-	-	-

* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.

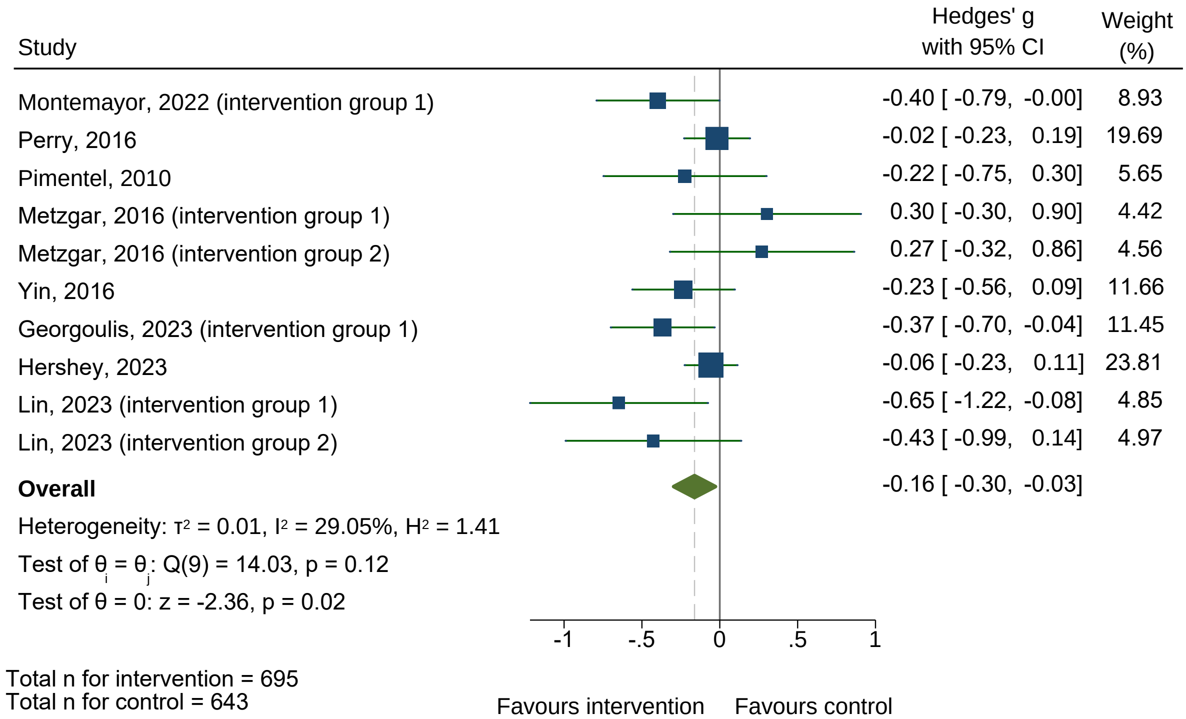
† Statistically significant (p<0.05) findings are shown in bold text

'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.

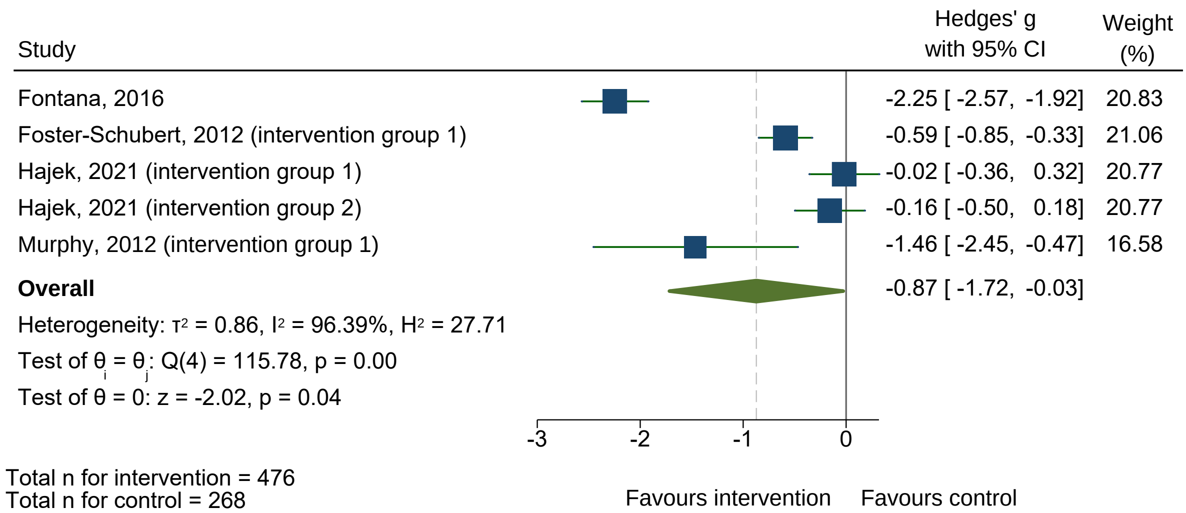


Young and middle-aged adults - Nutrition interventions
versus untreated comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Blomster, 2014 -1.27 [-1.72, -0.82] 5.51
Brown, 2021 (intervention group 2) -0.70 [-0.98, -0.42] 6.01
Christensen, 2013 (intervention group 1) -0.40 [-0.72, -0.08] 5.91
Fontana, 2016 -2.25 [-2.57, -1.92] 5.90
Foster-Schubert, 2012 (intervention group 1) -0.59 [-0.85, -0.33] 6.06
Hajek, 2021 (intervention group 1) -0.02 [-0.36, 0.32] 5.85
Hajek, 2021 (intervention group 2) -0.16 [-0.50, 0.18] 5.85
Montemayor, 2022 (intervention group 1) -0.40 [-0.79, -0.00] 5.69
Perry, 2016 -0.02 [-0.23, 0.19] 6.16
Pimentel, 2010 -0.22 [-0.75, 0.30] 5.26
Metzgar, 2016 (intervention group 1) 0.30 [-0.30, 0.90] 4.98
Metzgar, 2016 (intervention group 2) 0.27 [-0.32, 0.86] 5.02
Murphy, 2012 (intervention group 1) -1.46 [-2.45, -0.47] 3.62
Yin, 2016 -0.23 [-0.56, 0.09] 5.88
Georgoulis, 2023 (intervention group 1) -0.37 [-0.70, -0.04] 5.87
Hershey, 2023 -0.06 [-0.23, 0.11] 6.23
Lin, 2023 (intervention group 1) -0.65 [-1.22, -0.08] 5.09
Lin, 2023 (intervention group 2) -0.43 [-0.99, 0.14] 5.12
Overall -0.47 [-0.76, -0.18]
Heterogeneity: τ^2 = 0.34, I^2 = 92.08%, H^2 = 12.62
Test of $\theta_i = \theta_j$: Q(17) = 199.07, p = 0.00
Test of θ = 0: z = -3.19, p = 0.00
-3 -2 -1 0 1
Total n for intervention = 1362
Total n for control = 1106
Favours intervention
Favours control

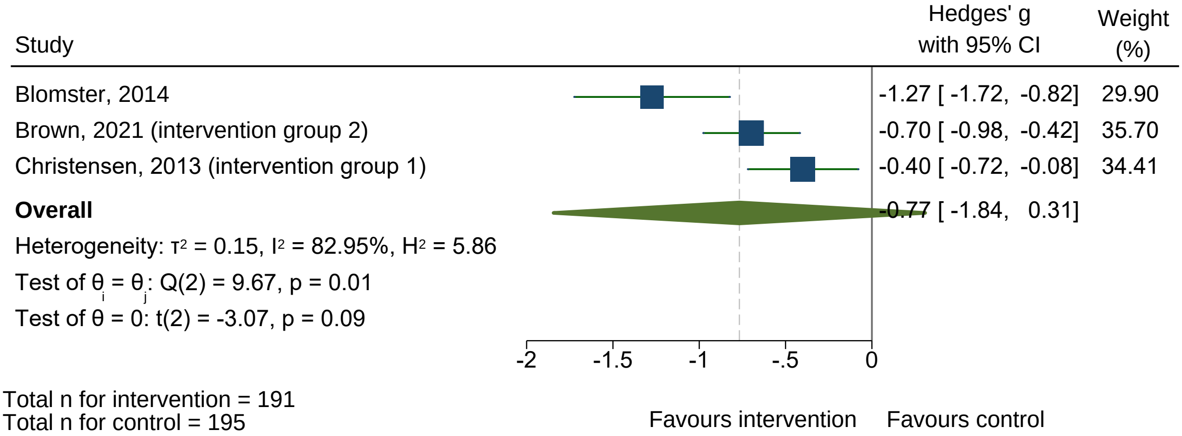
Young and middle-aged adults - Nutrition interventions with no specific daily energy intake goal versus untreated comparator (baseline to 12 months)



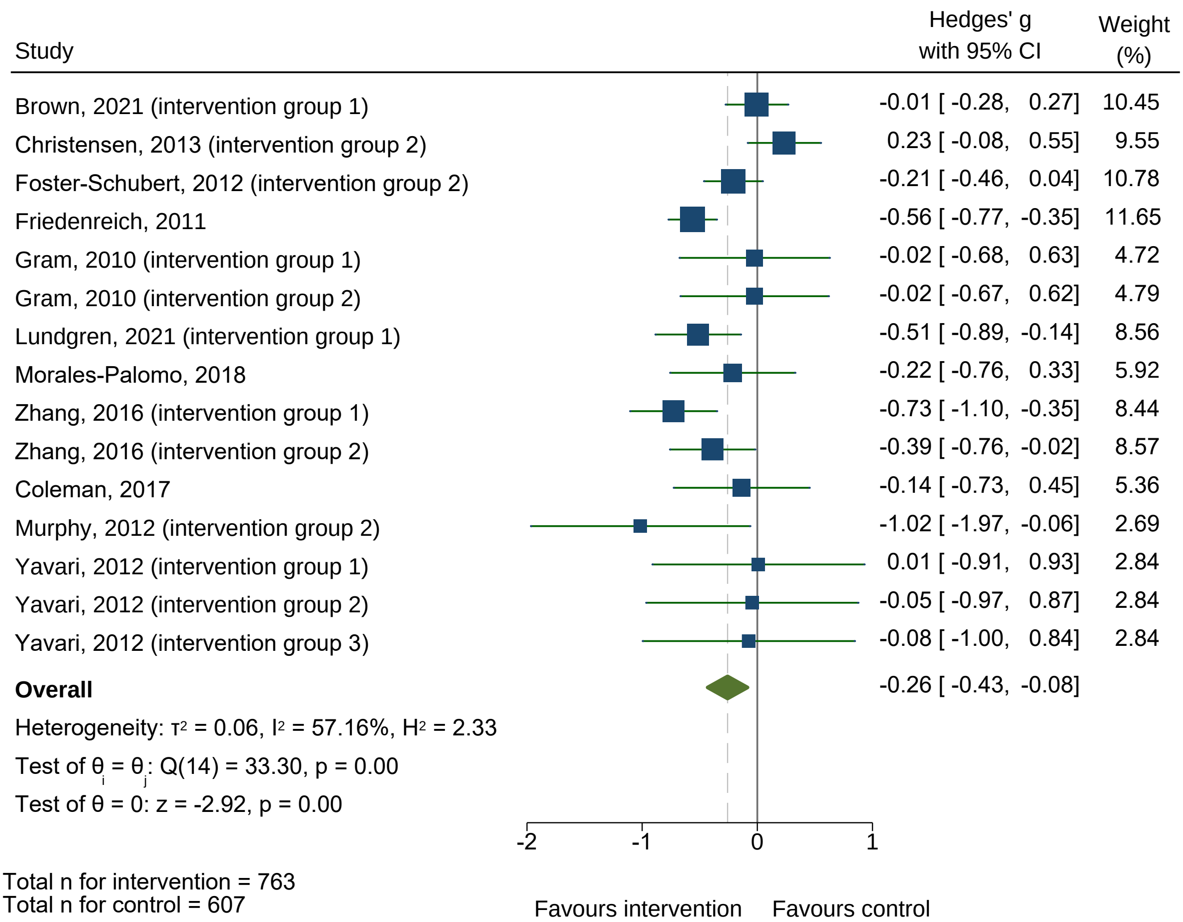
Young and middle-aged adults - Nutrition interventions with a daily energy intake goal versus untreated comparator (baseline to 12 months)

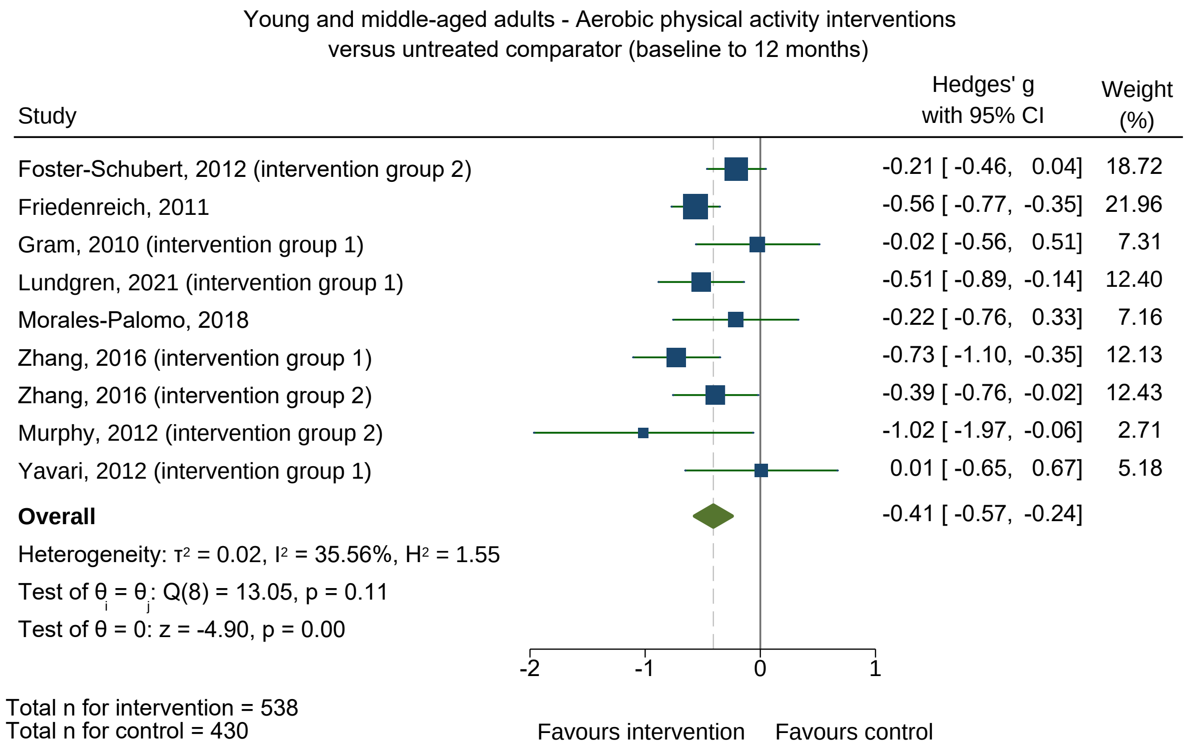


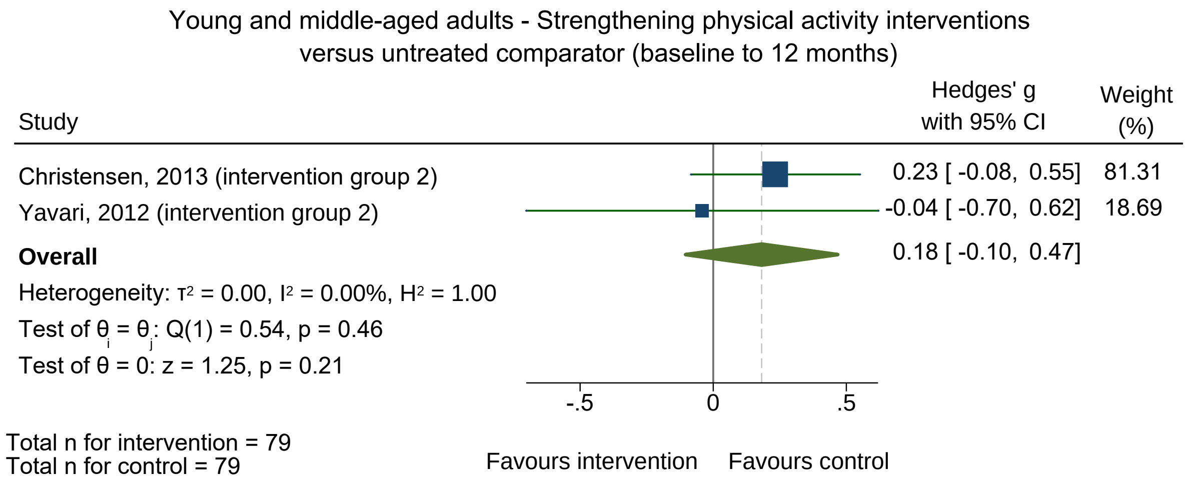
Young and middle-aged adults - Nutrition intervention with a daily energy intake goal followed by a dietary approach with no specific daily energy intake goal versus untreated comparator (baseline to 12 months)

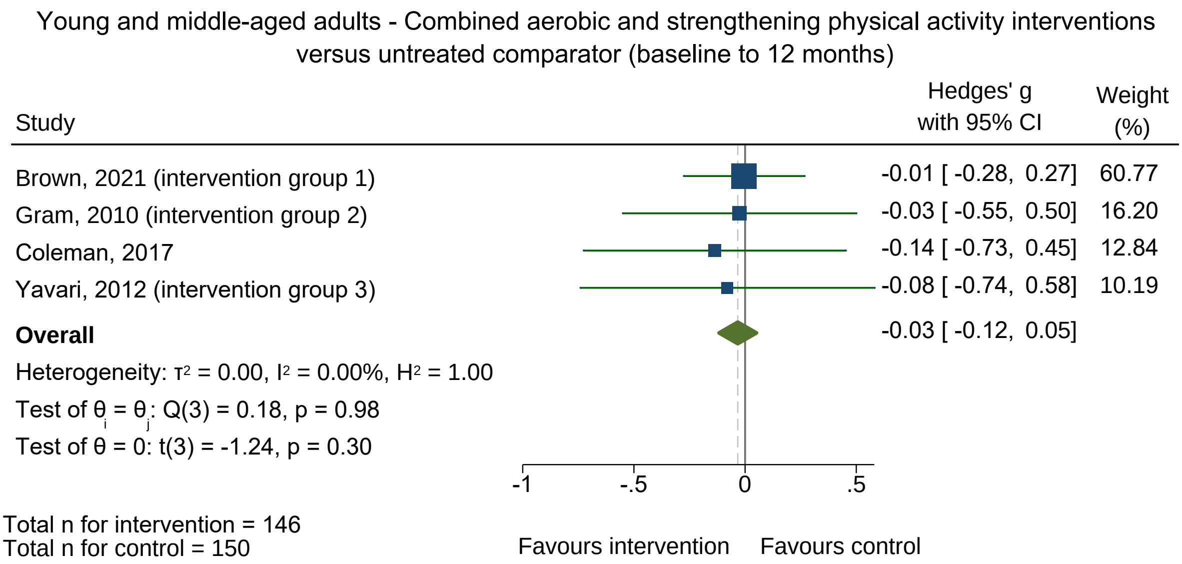


Young and middle-aged adults - Physical activity interventions versus untreated comparator (baseline to 12 months)

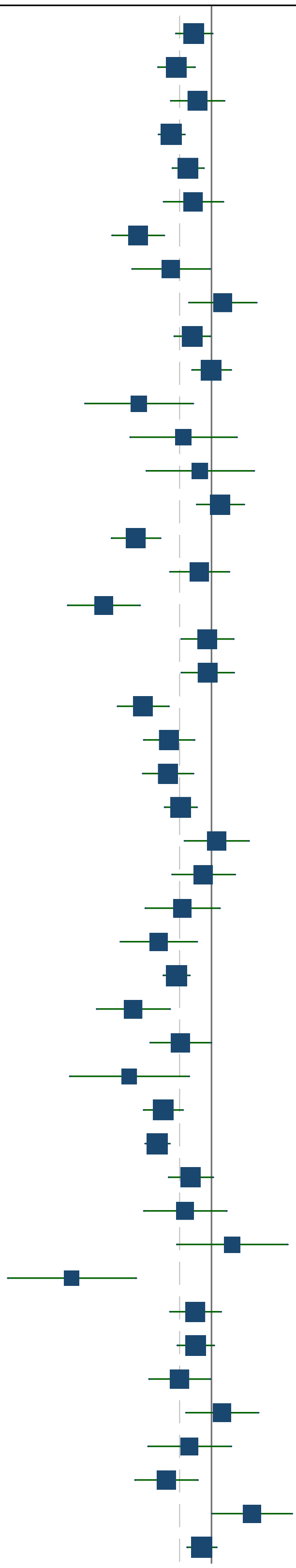



Young and middle-aged adults - Aerobic physical activity interventions
versus untreated comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Foster-Schubert, 2012 (intervention group 2) -0.21 [-0.46, 0.04] 18.72
Friedenreich, 2011 -0.56 [-0.77, -0.35] 21.96
Gram, 2010 (intervention group 1) -0.02 [-0.56, 0.51] 7.31
Lundgren, 2021 (intervention group 1) -0.51 [-0.89, -0.14] 12.40
Morales-Palomo, 2018 -0.22 [-0.76, 0.33] 7.16
Zhang, 2016 (intervention group 1) -0.73 [-1.10, -0.35] 12.13
Zhang, 2016 (intervention group 2) -0.39 [-0.76, -0.02] 12.43
Murphy, 2012 (intervention group 2) -1.02 [-1.97, -0.06] 2.71
Yavari, 2012 (intervention group 1) 0.01 [-0.65, 0.67] 5.18
Overall -0.41 [-0.57, -0.24]
Heterogeneity: τ² = 0.02, I² = 35.56%, H² = 1.55
Test of θi = θj: Q(8) = 13.05, p = 0.11
Test of θ = 0: z = -4.90, p = 0.00
-2
-1
0
1
Total n for intervention = 538
Total n for control = 430
Favours intervention
Favours control


Young and middle-aged adults - Strengthening physical activity interventions
versus untreated comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Christensen, 2013 (intervention group 2) 0.23 [-0.08, 0.55] 81.31
Yavari, 2012 (intervention group 2) -0.04 [-0.70, 0.62] 18.69
Overall 0.18 [-0.10, 0.47]
Heterogeneity: τ² = 0.00, I² = 0.00%, H² = 1.00
Test of θi = θj: Q(1) = 0.54, p = 0.46
Test of θ = 0: z = 1.25, p = 0.21
-.5
0
.5
Total n for intervention = 79
Total n for control = 79
Favours intervention
Favours control


Young and middle-aged adults - Combined aerobic and strengthening physical activity interventions versus untreated comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Brown, 2021 (intervention group 1) -0.01 [-0.28, 0.27] 60.77
Gram, 2010 (intervention group 2) -0.03 [-0.55, 0.50] 16.20
Coleman, 2017 -0.14 [-0.73, 0.45] 12.84
Yavari, 2012 (intervention group 3) -0.08 [-0.74, 0.58] 10.19
Overall -0.03 [-0.12, 0.05]
Heterogeneity: τ² = 0.00, I² = 0.00%, H² = 1.00
Test of θi = θj: Q(3) = 0.18, p = 0.98
Test of θ = 0: t(3) = -1.24, p = 0.30
-1
-.5
0
.5
Total n for intervention = 146
Total n for control = 150
Favours intervention
Favours control

Young and middle-aged adults - Combined nutrition and physical activity (with or without sedentary behaviour) interventions versus untreated comparator (Baseline to 12 months)



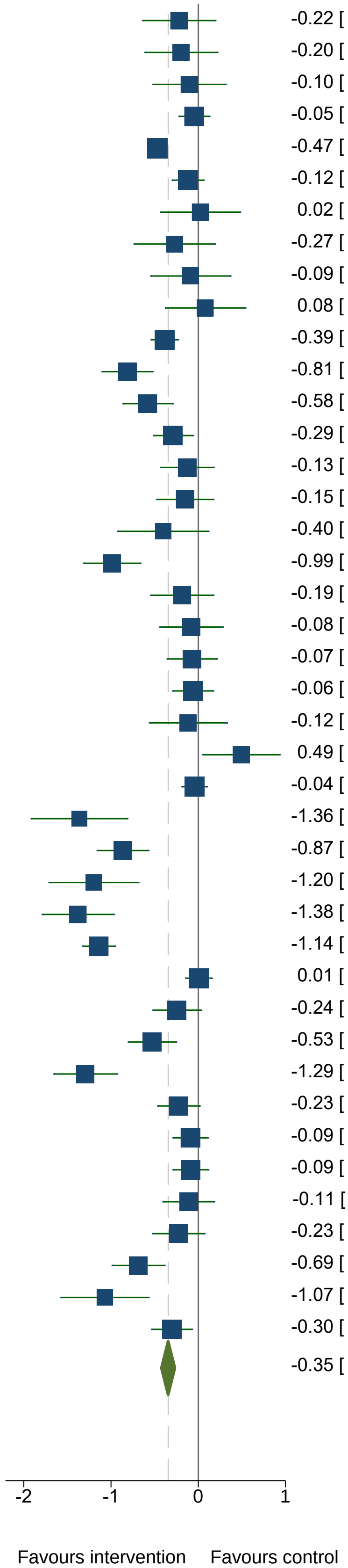
Study	Hedges' g with 95% CI	Weight (%)
Ahern, 2017 (intervention group 1)	-0.19 [-0.39, 0.01]	1.31
Ahern, 2017 (intervention group 2)	-0.38 [-0.58, -0.18]	1.31
Amer, 2020	-0.15 [-0.44, 0.14]	1.19
Andersen, 2021	-0.43 [-0.58, -0.29]	1.37
Anderson, 2021	-0.25 [-0.42, -0.09]	1.35
Bowen, 2018	-0.20 [-0.52, 0.13]	1.15
Brown, 2021 (intervention group 3)	-0.80 [-1.08, -0.52]	1.21
Cadmus-Bertram, 2016	-0.44 [-0.86, -0.02]	1.00
Conroy, 2015	0.12 [-0.25, 0.49]	1.08
de Vos, 2014	-0.21 [-0.40, -0.02]	1.32
Debussche, 2012	-0.00 [-0.21, 0.21]	1.30
Demark-Wahnefried, 2014 (Mothers) (intervention group 1)	-0.79 [-1.37, -0.20]	0.78
Demark-Wahnefried, 2014 (Daughters) (intervention group 1)	-0.30 [-0.88, 0.27]	0.79
Duncan, 2020 (intervention group 2)	-0.12 [-0.71, 0.46]	0.78
Fjeldsoe, 2019	0.10 [-0.16, 0.35]	1.24
Foster-Schubert, 2012 (intervention group 3)	-0.82 [-1.08, -0.56]	1.23
Gessler, 2021	-0.13 [-0.45, 0.19]	1.15
Gilcharan Singh, 2020 (intervention group 2)	-1.17 [-1.56, -0.78]	1.05
Glasgow, 2012 (intervention group 1)	-0.05 [-0.33, 0.24]	1.20
Glasgow, 2012 (intervention group 2)	-0.04 [-0.33, 0.24]	1.20
Goodwin, 2014	-0.74 [-1.02, -0.47]	1.21
Harvie, 2019 (intervention group 1)	-0.46 [-0.74, -0.19]	1.22
Harvie, 2019 (intervention group 2)	-0.47 [-0.75, -0.20]	1.22
Hoerster, 2022	-0.33 [-0.51, -0.16]	1.34
Jakicic, 2011 (intervention group 1)	0.05 [-0.29, 0.40]	1.11
Jakicic, 2011 (intervention group 2)	-0.09 [-0.43, 0.25]	1.12
Jansson, 2013	-0.32 [-0.72, 0.09]	1.03
Janus, 2012	-0.57 [-0.99, -0.16]	1.01
Jebb, 2011	-0.38 [-0.52, -0.24]	1.37
Johansen, 2017	-0.85 [-1.25, -0.45]	1.04
Juul, 2016	-0.34 [-0.67, -0.01]	1.14
Kalarchian, 2012	-0.89 [-1.54, -0.24]	0.71
Katula, 2013	-0.52 [-0.74, -0.31]	1.30
Katzmarzyk, 2020	-0.59 [-0.72, -0.45]	1.38
Kegler, 2016	-0.22 [-0.46, 0.02]	1.26
Kempf, 2019 (intervention group 1)	-0.29 [-0.73, 0.16]	0.96
Kennedy, 2015	0.22 [-0.38, 0.82]	0.76
Lopez-Padros, 2020	-1.52 [-2.21, -0.82]	0.66
Lutes, 2017a	-0.18 [-0.45, 0.10]	1.21
Ma, 2015	-0.17 [-0.37, 0.03]	1.31
Miguel Soca, 2012	-0.35 [-0.68, -0.01]	1.13
Montemayor, 2022 (intervention group 2)	0.12 [-0.28, 0.51]	1.04
Morgan, 2011	-0.24 [-0.69, 0.21]	0.96
Nakade, 2012	-0.49 [-0.83, -0.15]	1.12
Parker, 2022	0.44 [0.01, 0.87]	0.99
Paskett, 2018	-0.11 [-0.26, 0.05]	1.36

Patel, 2021 (intervention group 1)	-0.22 [-0.64, 0.19]	1.01
Patel, 2021 (intervention group 2)	-0.20 [-0.61, 0.22]	1.01
Patel, 2021 (intervention group 3)	-0.10 [-0.52, 0.31]	1.01
Patrick, 2011	-0.05 [-0.22, 0.13]	1.34
Redmon, 2010	-0.47 [-0.53, -0.41]	1.43
Reid, 2014	-0.12 [-0.30, 0.06]	1.33
Risica, 2013 (intervention group 1)	0.02 [-0.43, 0.48]	0.95
Risica, 2013 (intervention group 2)	-0.27 [-0.74, 0.19]	0.94
Risica, 2013 (intervention group 3)	-0.09 [-0.54, 0.37]	0.95
Risica, 2013 (intervention group 4)	0.08 [-0.38, 0.54]	0.95
Rock, 2015	-0.39 [-0.54, -0.23]	1.36
Rock, 2010 (intervention group 1)	-0.81 [-1.10, -0.52]	1.19
Rock, 2010 (intervention group 2)	-0.58 [-0.86, -0.29]	1.20
Ross, 2022	-0.29 [-0.51, -0.06]	1.28
Shapiro, 2012	-0.13 [-0.43, 0.18]	1.18
Slater, 2022	-0.15 [-0.48, 0.17]	1.14
Stumm, 2016	-0.40 [-0.92, 0.11]	0.87
Taheri, 2020	-0.99 [-1.31, -0.66]	1.14
Thomas, 2017 (intervention group 1)	-0.19 [-0.55, 0.17]	1.09
Thomas, 2017 (intervention group 2)	-0.08 [-0.44, 0.28]	1.09
Trief, 2016 (intervention group 1)	-0.07 [-0.36, 0.21]	1.20
Viester, 2018	-0.06 [-0.29, 0.17]	1.27
Watson, 2015	-0.12 [-0.56, 0.33]	0.97
Zamorano, 2021	0.49 [0.05, 0.93]	0.98
Lugones-Sanchez, 2022	-0.04 [-0.19, 0.10]	1.37
Mangieri, 2019	-1.36 [-1.91, -0.81]	0.83
Marrero, 2016	-0.87 [-1.16, -0.57]	1.19
Sahlman, 2012	-1.20 [-1.71, -0.69]	0.88
Silva, 2022	-1.38 [-1.79, -0.97]	1.02
Tejera, 2022	-1.14 [-1.33, -0.95]	1.33
Thorndike, 2021	0.01 [-0.14, 0.15]	1.37
Unick, 2017 (intervention group 1)	-0.24 [-0.52, 0.03]	1.22
Unick, 2017 (intervention group 2)	-0.53 [-0.80, -0.25]	1.22
Van Name, 2016	-1.29 [-1.65, -0.93]	1.09
Wani, 2020	-0.23 [-0.47, 0.02]	1.26
Werkman, 2010	-0.09 [-0.29, 0.11]	1.31
Wilson, 2016	-0.09 [-0.29, 0.11]	1.31
Almeida, 2023 (intervention group 1)	-0.11 [-0.40, 0.18]	1.19
Almeida, 2023 (intervention group 2)	-0.23 [-0.52, 0.07]	1.19
Cassidy, 2023	-0.69 [-0.99, -0.39]	1.18
O'Brien, 2017 (intervention group 1)	-1.07 [-1.57, -0.57]	0.89
Walc, 2023	-0.30 [-0.54, -0.07]	1.27
Overall	-0.35 [-0.42, -0.27]	

Heterogeneity: $\tau^2 = 0.11$, $I^2 = 87.43\%$, $H^2 = 7.96$

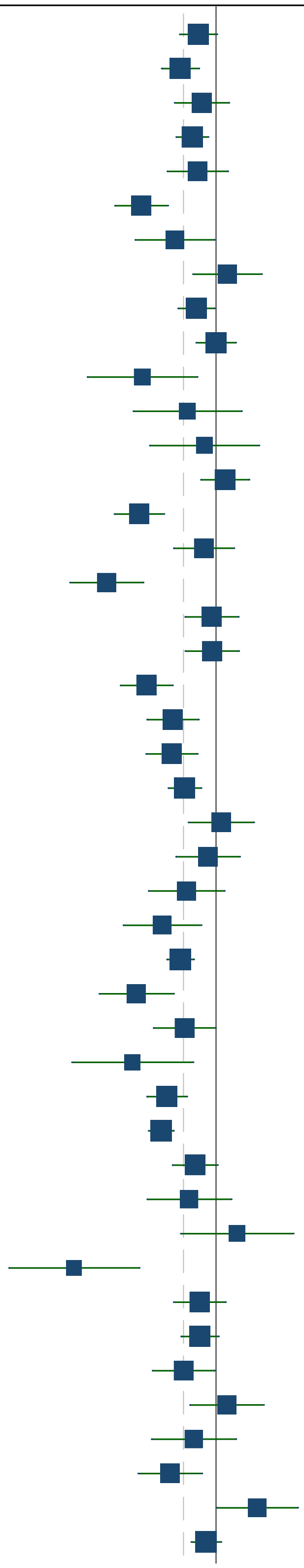
Test of $\theta_i = \theta_j$: $Q(87) = 508.73$, $p = 0.00$

Test of $\theta = 0$: $z = -8.86$, $p = 0.00$



Total n for intervention = 13298
Total n for control = 10747

Young and middle-aged adults - Combined nutrition and physical activity interventions versus untreated comparator (Baseline to 12 months)



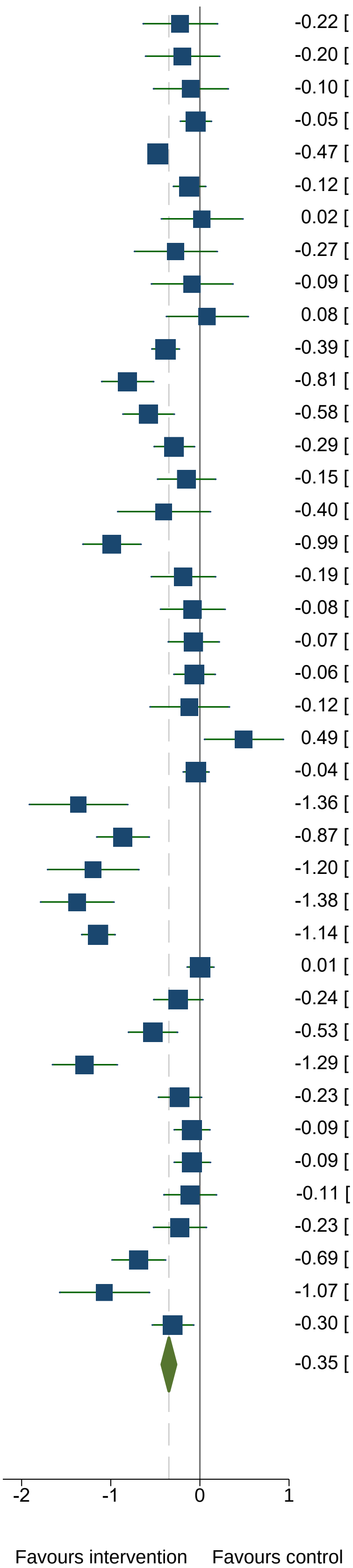
Study	Hedges' g with 95% CI	Weight (%)
Ahern, 2017 (intervention group 1)	-0.19 [-0.39, 0.01]	1.34
Ahern, 2017 (intervention group 2)	-0.38 [-0.58, -0.18]	1.34
Amer, 2020	-0.15 [-0.44, 0.14]	1.22
Anderson, 2021	-0.25 [-0.42, -0.09]	1.38
Bowen, 2018	-0.20 [-0.52, 0.13]	1.18
Brown, 2021 (intervention group 3)	-0.80 [-1.08, -0.52]	1.24
Cadmus-Bertram, 2016	-0.44 [-0.86, -0.02]	1.03
Conroy, 2015	0.12 [-0.25, 0.49]	1.11
de Vos, 2014	-0.21 [-0.40, -0.02]	1.35
Debussche, 2012	-0.00 [-0.21, 0.21]	1.33
Demark-Wahnefried, 2014 (Mothers) (intervention group 1)	-0.79 [-1.37, -0.20]	0.81
Demark-Wahnefried, 2014 (Daughters) (intervention group 1)	-0.30 [-0.88, 0.27]	0.82
Duncan, 2020 (intervention group 2)	-0.12 [-0.71, 0.46]	0.81
Fjeldsoe, 2019	0.10 [-0.16, 0.35]	1.27
Foster-Schubert, 2012 (intervention group 3)	-0.82 [-1.08, -0.56]	1.26
Gessler, 2021	-0.13 [-0.45, 0.19]	1.18
Gilcharan Singh, 2020 (intervention group 2)	-1.17 [-1.56, -0.78]	1.08
Glasgow, 2012 (intervention group 1)	-0.05 [-0.33, 0.24]	1.23
Glasgow, 2012 (intervention group 2)	-0.04 [-0.33, 0.24]	1.23
Goodwin, 2014	-0.74 [-1.02, -0.47]	1.24
Harvie, 2019 (intervention group 1)	-0.46 [-0.74, -0.19]	1.25
Harvie, 2019 (intervention group 2)	-0.47 [-0.75, -0.20]	1.25
Hoerster, 2022	-0.33 [-0.51, -0.16]	1.37
Jakicic, 2011 (intervention group 1)	0.05 [-0.29, 0.40]	1.14
Jakicic, 2011 (intervention group 2)	-0.09 [-0.43, 0.25]	1.15
Jansson, 2013	-0.32 [-0.72, 0.09]	1.06
Janus, 2012	-0.57 [-0.99, -0.16]	1.04
Jebb, 2011	-0.38 [-0.52, -0.24]	1.40
Johansen, 2017	-0.85 [-1.25, -0.45]	1.07
Juul, 2016	-0.34 [-0.67, -0.01]	1.17
Kalarchian, 2012	-0.89 [-1.54, -0.24]	0.74
Katula, 2013	-0.52 [-0.74, -0.31]	1.33
Katzmarzyk, 2020	-0.59 [-0.72, -0.45]	1.41
Kegler, 2016	-0.22 [-0.46, 0.02]	1.29
Kempf, 2019 (intervention group 1)	-0.29 [-0.73, 0.16]	0.99
Kennedy, 2015	0.22 [-0.38, 0.82]	0.79
Lopez-Padros, 2020	-1.52 [-2.21, -0.82]	0.68
Lutes, 2017a	-0.18 [-0.45, 0.10]	1.24
Ma, 2015	-0.17 [-0.37, 0.03]	1.34
Miguel Soca, 2012	-0.35 [-0.68, -0.01]	1.16
Montemayor, 2022 (intervention group 2)	0.12 [-0.28, 0.51]	1.07
Morgan, 2011	-0.24 [-0.69, 0.21]	0.99
Nakade, 2012	-0.49 [-0.83, -0.15]	1.15
Parker, 2022	0.44 [0.01, 0.87]	1.01
Paskett, 2018	-0.11 [-0.26, 0.05]	1.39

Patel, 2021 (intervention group 1)	-0.22 [-0.64, 0.19]	1.04
Patel, 2021 (intervention group 2)	-0.20 [-0.61, 0.22]	1.04
Patel, 2021 (intervention group 3)	-0.10 [-0.52, 0.31]	1.04
Patrick, 2011	-0.05 [-0.22, 0.13]	1.37
Redmon, 2010	-0.47 [-0.53, -0.41]	1.46
Reid, 2014	-0.12 [-0.30, 0.06]	1.36
Risica, 2013 (intervention group 1)	0.02 [-0.43, 0.48]	0.98
Risica, 2013 (intervention group 2)	-0.27 [-0.74, 0.19]	0.97
Risica, 2013 (intervention group 3)	-0.09 [-0.54, 0.37]	0.98
Risica, 2013 (intervention group 4)	0.08 [-0.38, 0.54]	0.98
Rock, 2015	-0.39 [-0.54, -0.23]	1.39
Rock, 2010 (intervention group 1)	-0.81 [-1.10, -0.52]	1.22
Rock, 2010 (intervention group 2)	-0.58 [-0.86, -0.29]	1.23
Ross, 2022	-0.29 [-0.51, -0.06]	1.31
Slater, 2022	-0.15 [-0.48, 0.17]	1.17
Stumm, 2016	-0.40 [-0.92, 0.11]	0.90
Taheri, 2020	-0.99 [-1.31, -0.66]	1.17
Thomas, 2017 (intervention group 1)	-0.19 [-0.55, 0.17]	1.12
Thomas, 2017 (intervention group 2)	-0.08 [-0.44, 0.28]	1.12
Trief, 2016 (intervention group 1)	-0.07 [-0.36, 0.21]	1.23
Viester, 2018	-0.06 [-0.29, 0.17]	1.30
Watson, 2015	-0.12 [-0.56, 0.33]	1.00
Zamorano, 2021	0.49 [0.05, 0.93]	1.00
Lugones-Sanchez, 2022	-0.04 [-0.19, 0.10]	1.40
Mangieri, 2019	-1.36 [-1.91, -0.81]	0.85
Marrero, 2016	-0.87 [-1.16, -0.57]	1.22
Sahlman, 2012	-1.20 [-1.71, -0.69]	0.91
Silva, 2022	-1.38 [-1.79, -0.97]	1.05
Tejera, 2022	-1.14 [-1.33, -0.95]	1.36
Thorndike, 2021	0.01 [-0.14, 0.15]	1.40
Unick, 2017 (intervention group 1)	-0.24 [-0.52, 0.03]	1.25
Unick, 2017 (intervention group 2)	-0.53 [-0.80, -0.25]	1.25
Van Name, 2016	-1.29 [-1.65, -0.93]	1.12
Wani, 2020	-0.23 [-0.47, 0.02]	1.29
Werkman, 2010	-0.09 [-0.29, 0.11]	1.34
Wilson, 2016	-0.09 [-0.29, 0.11]	1.34
Almeida, 2023 (intervention group 1)	-0.11 [-0.40, 0.18]	1.22
Almeida, 2023 (intervention group 2)	-0.23 [-0.52, 0.07]	1.22
Cassidy, 2023	-0.69 [-0.99, -0.39]	1.21
O'Brien, 2017 (intervention group 1)	-1.07 [-1.57, -0.57]	0.92
Walc, 2023	-0.30 [-0.54, -0.07]	1.30
Overall	-0.35 [-0.43, -0.27]	

Heterogeneity: $\tau^2 = 0.11$, $I^2 = 87.55\%$, $H^2 = 8.03$

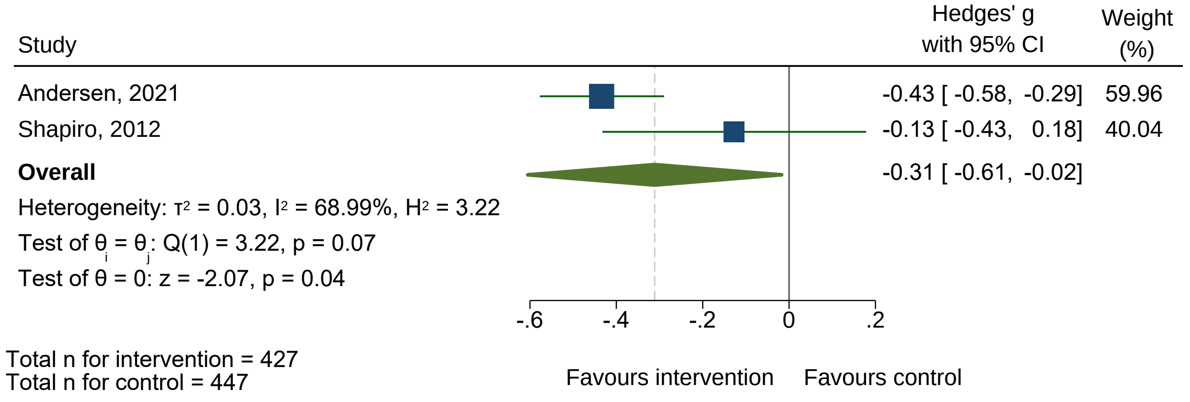
Test of $\theta_i = \theta_j$: Q(85) = 505.18, p = 0.00

Test of $\theta = 0$: z = -8.68, p = 0.00

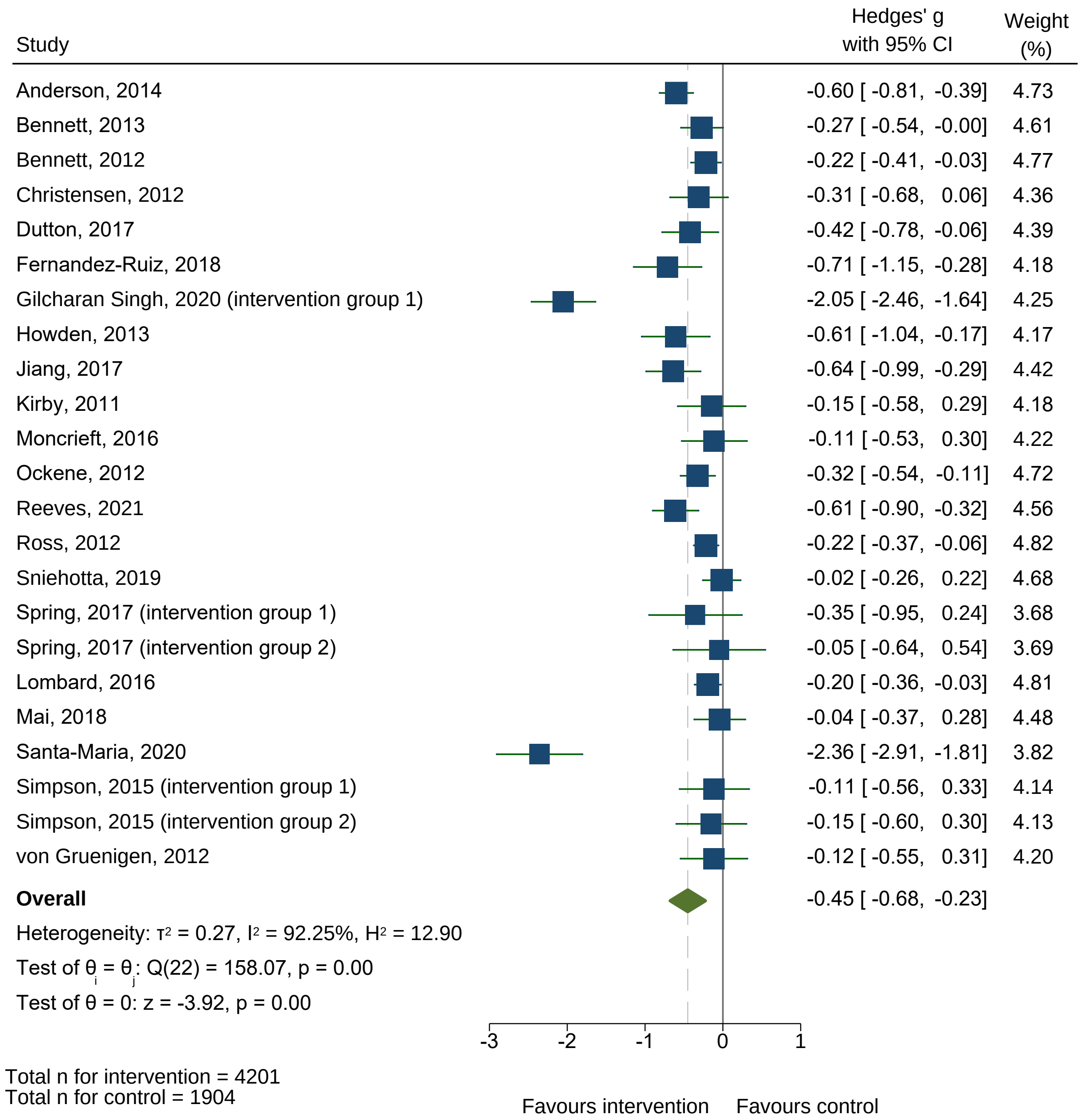


Total n for intervention = 12871
Total n for control = 10300

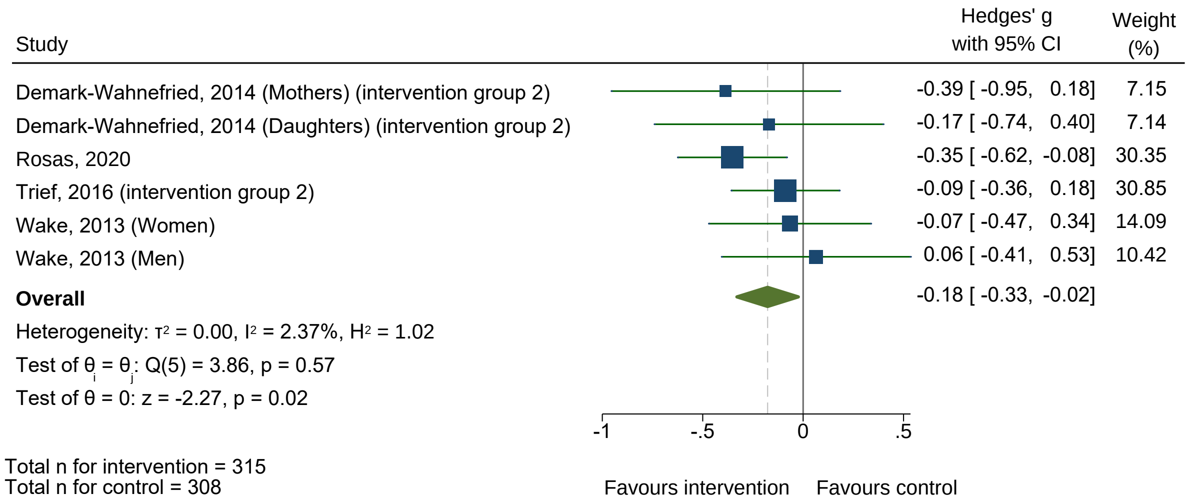
Young and middle-aged adults - Combined nutrition, physical activity and sedentary behaviour interventions versus untreated comparator (baseline to 12 months)



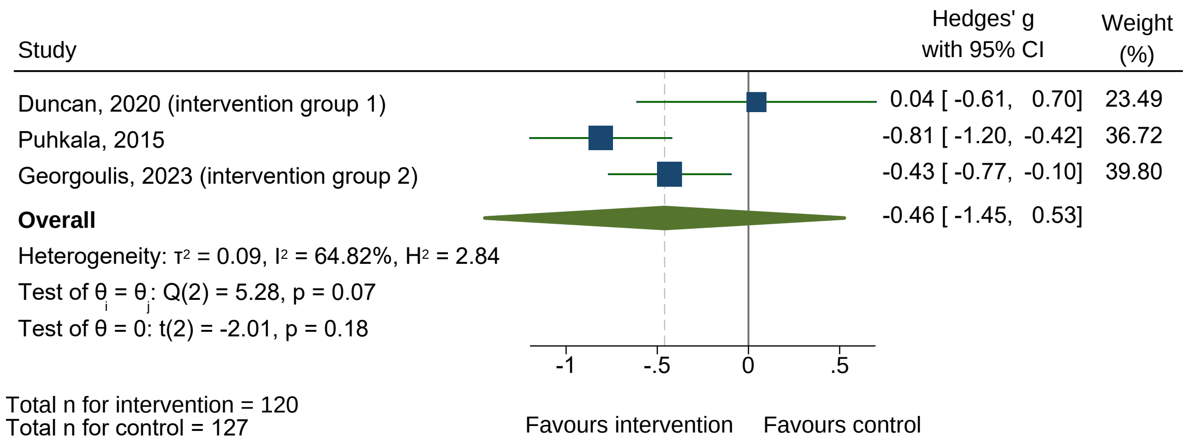
Young and middle-aged adults - Combined nutrition, physical activity and psychological treatment interventions versus untreated comparator (baseline to 12 months)



Young and middle-aged adults - Combined nutrition, physical activity, and family-centred interventions versus untreated comparator (baseline to 12 months)



Young and middle-aged adults - Combined nutrition, physical activity, and sleep interventions versus untreated comparator (baseline to 12 months)



Young and middle-aged adults - Combination of 4 or more lifestyle interventions versus untreated comparator (baseline to 12 months)

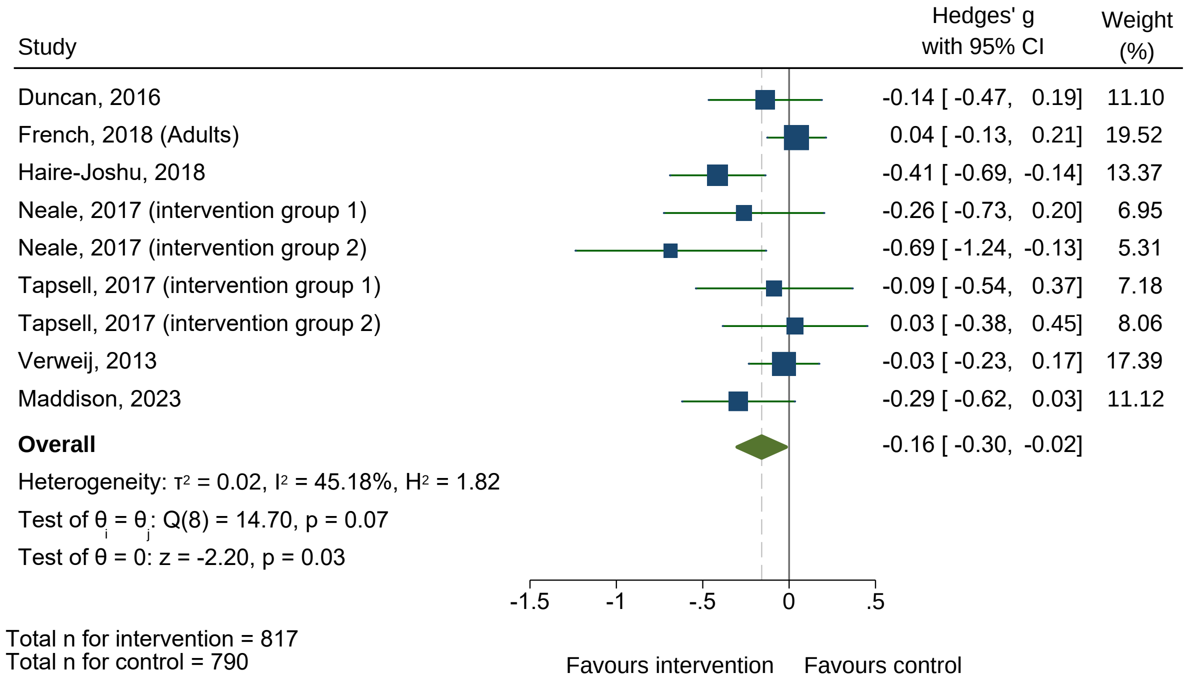


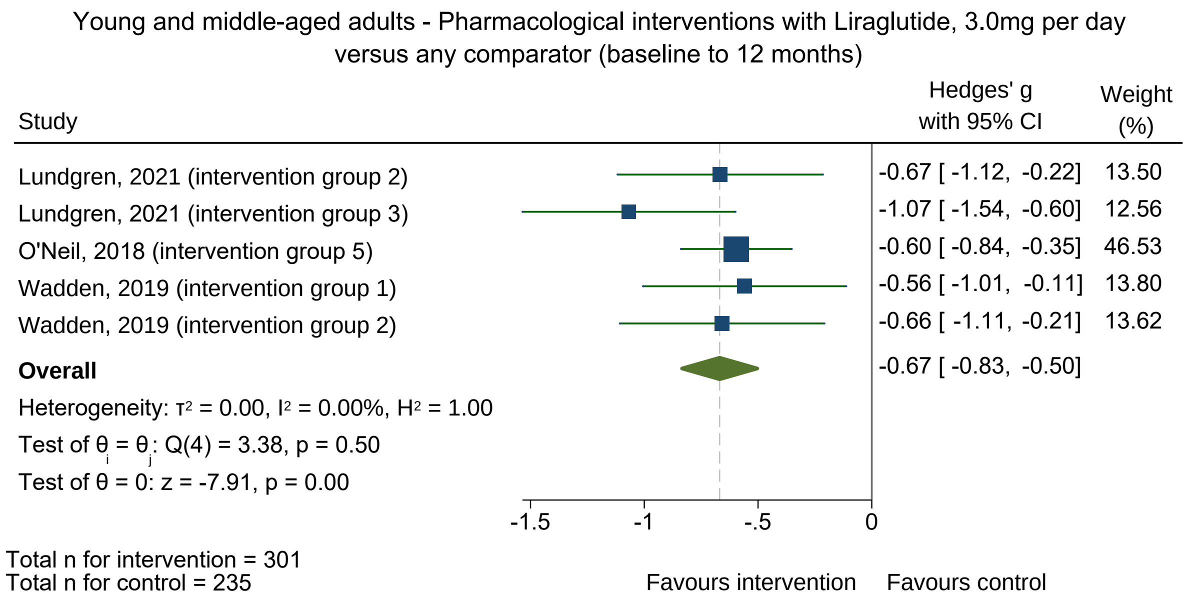
Table 16: Meta-analysis findings for young and middle-aged adults living with overweight or obesity treated with a pharmacological weight management intervention included in the Evidence-to-Decision frameworks*

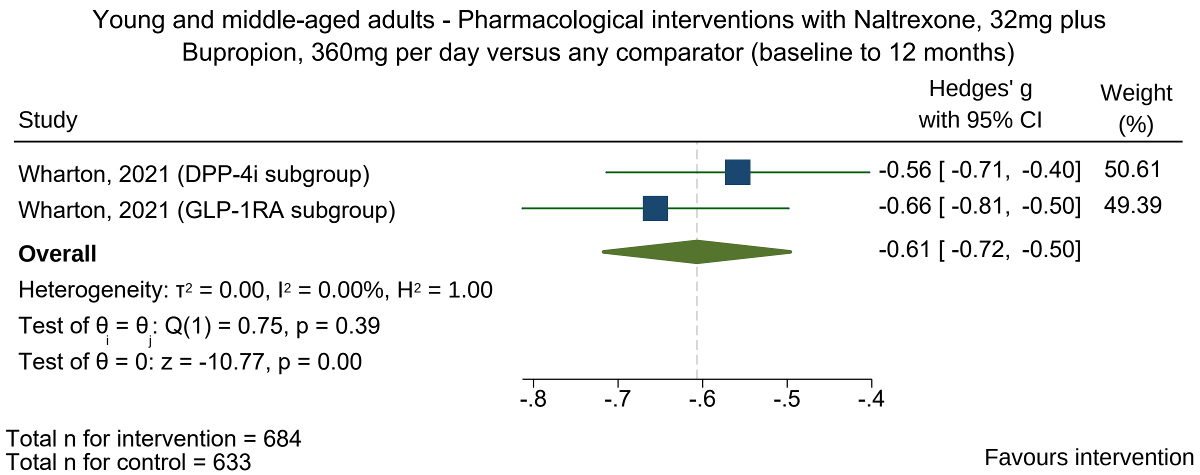
Main analysis	Intervention vs. any comparator (Baseline to 12 months)			Intervention vs. any comparator (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Pharmacological interventions						
Liraglutide 3.0mg per day	-0.67 (-0.83 to -0.50)	<0.01	**Moderate to large**	-	-	-
Naltrexone 32mg plus Bupropion 360mg per day	-0.61 (-0.72 to -0.50)	<0.01	**Moderate to large**			
Anorectic and Anticonvulsant drug class				-0.90 (-1.05 to -0.74)	<0.01	**Large**
Phentermine 7.5mg plus Topiramate 46.0mg per day						
Phentermine 15.0mg plus Topiramate 92.0mg per day						
Semaglutide 2.4mg per week				-0.79 (-1.47 to -0.10)	0.04	**Moderate to large**
GIP receptor and GLP-1 receptor agonists drug class				-1.23 (-1.52 to -0.93)	<0.01	**Very large**
Tirzepatide 5mg per week						
Tirzepatide 10mg per week				-1.02 (-1.17 to -0.87)	<0.01	**Very large**
Tirzepatide 15mg per week				-1.44 (-2.43 to -0.44)	0.02	**Very large**

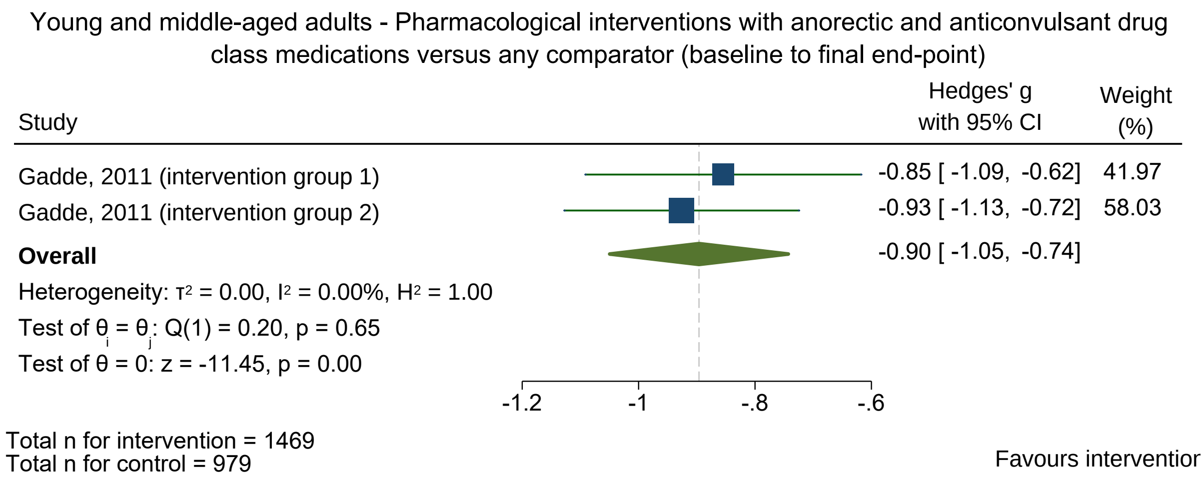
* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.

† Statistically significant (p<0.05) findings are shown in bold text

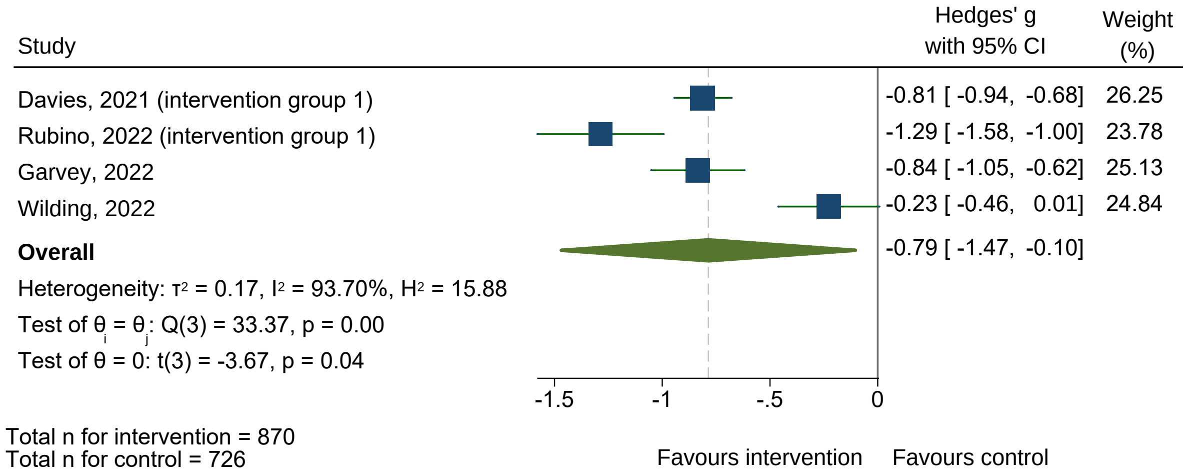
'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.


Young and middle-aged adults - Pharmacological interventions with Liraglutide, 3.0mg per day versus any comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Lundgren, 2021 (intervention group 2) -0.67 [-1.12, -0.22] 13.50
Lundgren, 2021 (intervention group 3) -1.07 [-1.54, -0.60] 12.56
O'Neil, 2018 (intervention group 5) -0.60 [-0.84, -0.35] 46.53
Wadden, 2019 (intervention group 1) -0.56 [-1.01, -0.11] 13.80
Wadden, 2019 (intervention group 2) -0.66 [-1.11, -0.21] 13.62
Overall -0.67 [-0.83, -0.50]
Heterogeneity: τ² = 0.00, I² = 0.00%, H² = 1.00
Test of θi = θj: Q(4) = 3.38, p = 0.50
Test of θ = 0: z = -7.91, p = 0.00
-1.5 -1 -.5 0
Total n for intervention = 301
Total n for control = 235
Favours intervention
Favours control

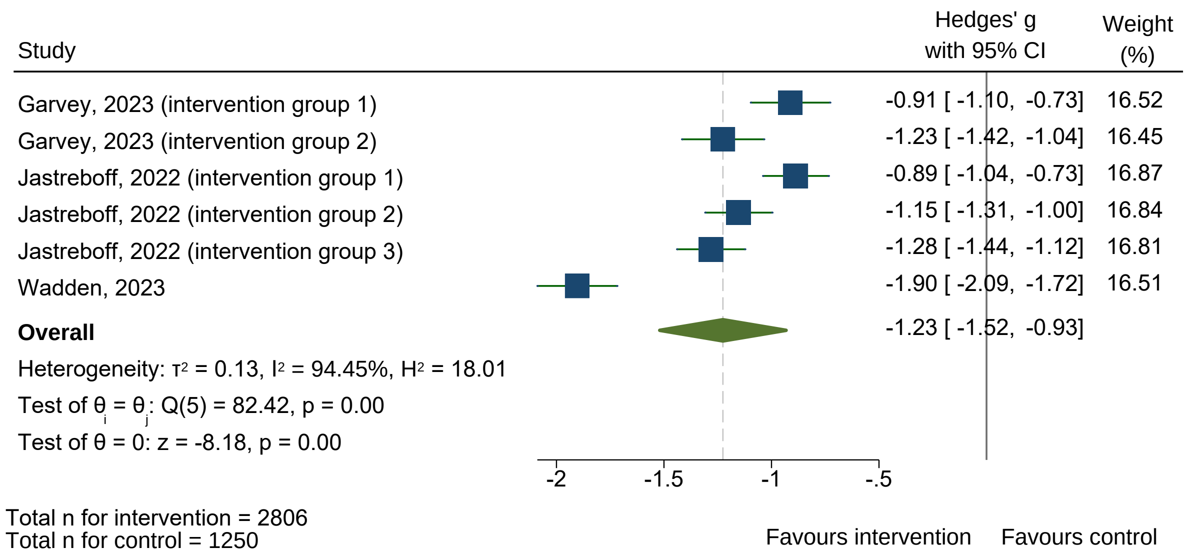

Young and middle-aged adults - Pharmacological interventions with Naltrexone, 32mg plus Bupropion, 360mg per day versus any comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Wharton, 2021 (DPP-4i subgroup) -0.56 [-0.71, -0.40] 50.61
Wharton, 2021 (GLP-1RA subgroup) -0.66 [-0.81, -0.50] 49.39
Overall -0.61 [-0.72, -0.50]
Heterogeneity: τ² = 0.00, I² = 0.00%, H² = 1.00
Test of θi = θj: Q(1) = 0.75, p = 0.39
Test of θ = 0: z = -10.77, p = 0.00
-.8 -.7 -.6 -.5 -.4
Total n for intervention = 684
Total n for control = 633
Favours intervention


Young and middle-aged adults - Pharmacological interventions with anorectic and anticonvulsant drug class medications versus any comparator (baseline to final end-point)
Study
Hedges' g with 95% CI
Weight (%)
Gadde, 2011 (intervention group 1) -0.85 [-1.09, -0.62] 41.97
Gadde, 2011 (intervention group 2) -0.93 [-1.13, -0.72] 58.03
Overall -0.90 [-1.05, -0.74]
Heterogeneity: τ² = 0.00, I² = 0.00%, H² = 1.00
Test of θi = θj: Q(1) = 0.20, p = 0.65
Test of θ = 0: z = -11.45, p = 0.00
-1.2 -1 -.8 -.6
Total n for intervention = 1469
Total n for control = 979
Favours interventior

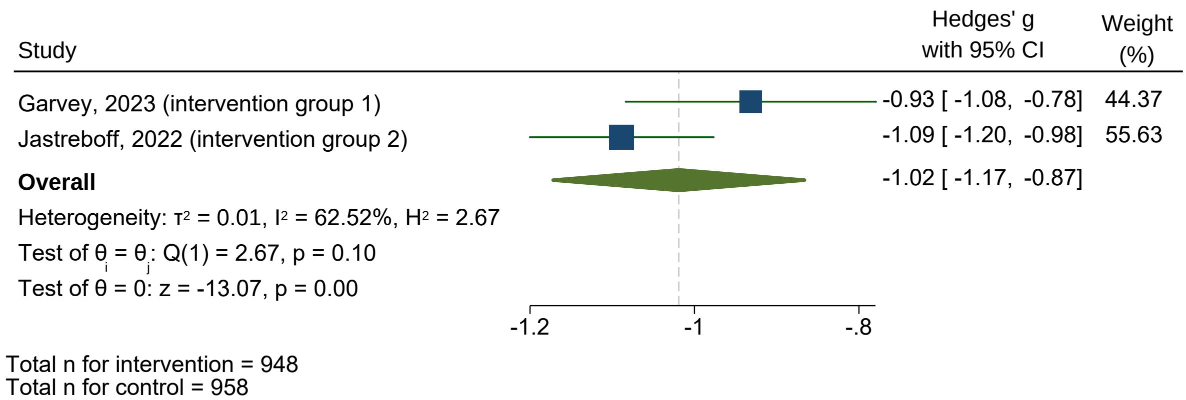
Young and middle-aged adults - Pharmacological intervention with Semaglutide, 2.4mg per week (sc) versus any comparator (baseline to final end-point)

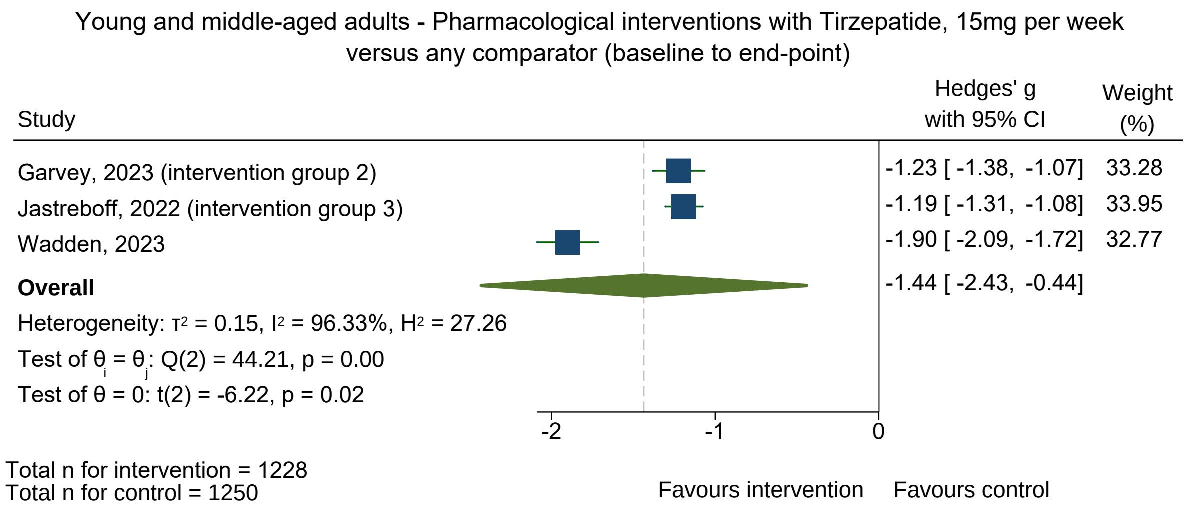


Young and middle-aged adults - Pharmacological interventions with glucose-dependent insulinotropic polypeptide (GIP) receptor and glucagon-like peptide-1 (GLP-1) receptor agonists drug class medications versus any comparator (baseline to final end-point)



Young and middle-aged adults - Pharmacological interventions with Tirzepatide, 10mg per week versus any comparator (baseline to end-point)





Young and middle-aged adults - Pharmacological interventions with Tirzepatide, 15mg per week
versus any comparator (baseline to end-point)
Study
Hedges' g
with 95% CI
Weight
(%)
Garvey, 2023 (intervention group 2)
-1.23 [-1.38, -1.07] 33.28
Jastreboff, 2022 (intervention group 3)
-1.19 [-1.31, -1.08] 33.95
Wadden, 2023
-1.90 [-2.09, -1.72] 32.77
Overall
-1.44 [-2.43, -0.44]
Heterogeneity: τ2 = 0.15, I2 = 96.33%, H2 = 27.26
Test of θi = θj: Q(2) = 44.21, p = 0.00
Test of θ = 0: t(2) = -6.22, p = 0.02
-2
-1
0
Total n for intervention = 1228
Total n for control = 1250
Favours intervention
Favours control

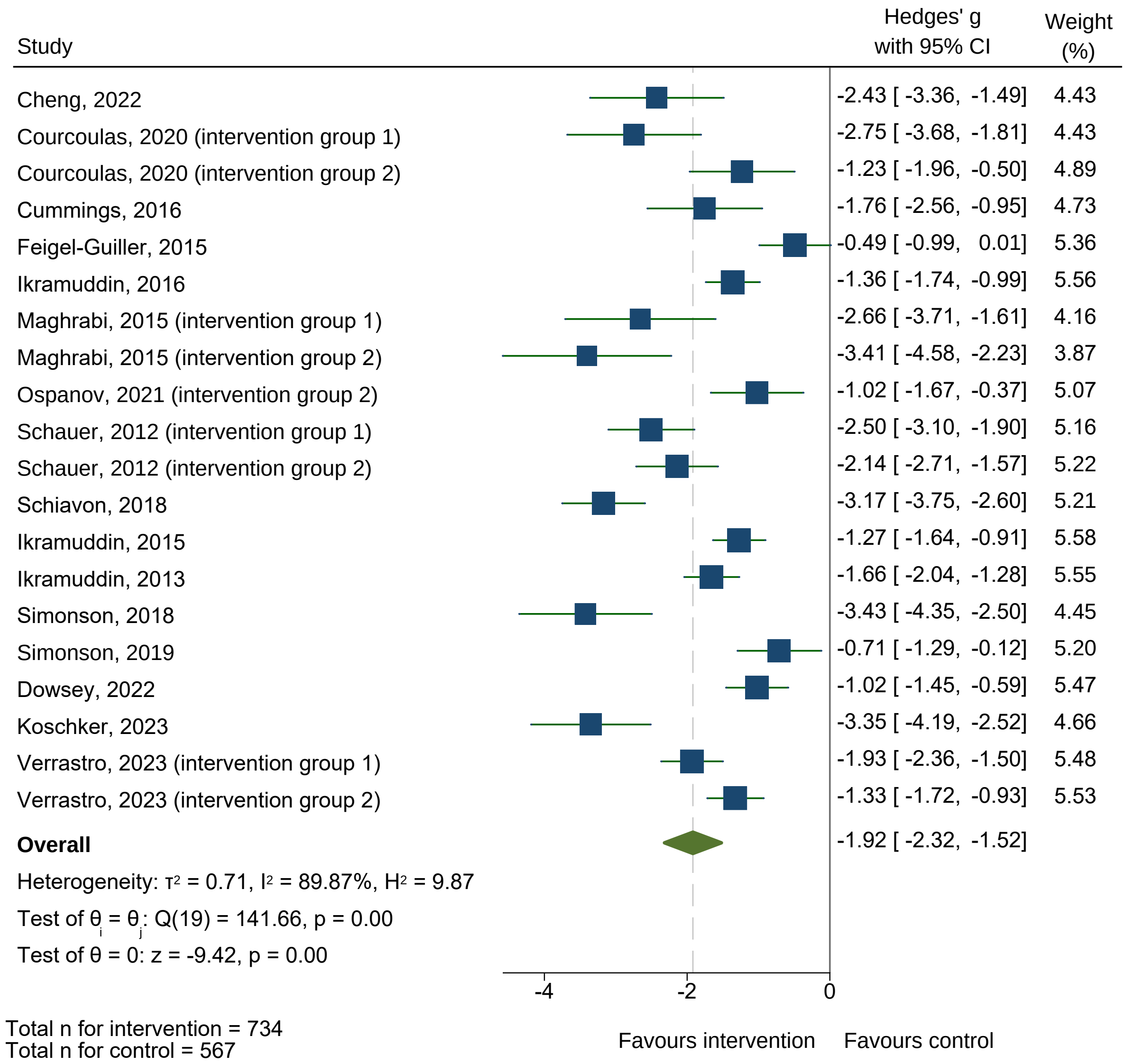
Table 17: Meta-analysis findings for young and middle-aged adults living with overweight or obesity treated with a surgical weight management intervention included in the Evidence-to-Decision frameworks*

Main analysis	Surgical intervention vs. medical treatment (Baseline to 12 months)			Surgical intervention vs. medical treatment (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Surgical interventions						
Bariatric surgery versus medical treatment	-1.92 (-2.32 to -1.52)	<0.01	**Very large**	-	-	-
Laparoscopic adjustable gastric banding	-1.33 (-2.30 to -0.36)	0.01	**Very large**	-	-	-
Roux-en-Y Gastric Bypass	-2.20 (-2.63 to -1.76)	<0.01	**Very large**	-	-	-
Sleeve Gastrectomy	-2.18 (-4.82 to 0.46)	0.07	Very large	-	-	-
Stapled laparoscopic mini-gastric bypass-one anastomosis gastric bypass						
Endoscopic surgery versus medical treatment	-0.88 (-1.27 to -0.49)	<0.01	**Large**			
Duodenal-jejunal bypass liner	-0.55 (-1.19 to 0.09)	0.07	Moderate to large			
g-CathEZ delivery catheter with snowshoe suture anchors	-0.55 (-0.77 to -0.33)	<0.01	**Moderate to large**			
Endoscopic sleeve gastroplasty						
Percutaneous gastrostomy device						
Intragastric balloon therapy						

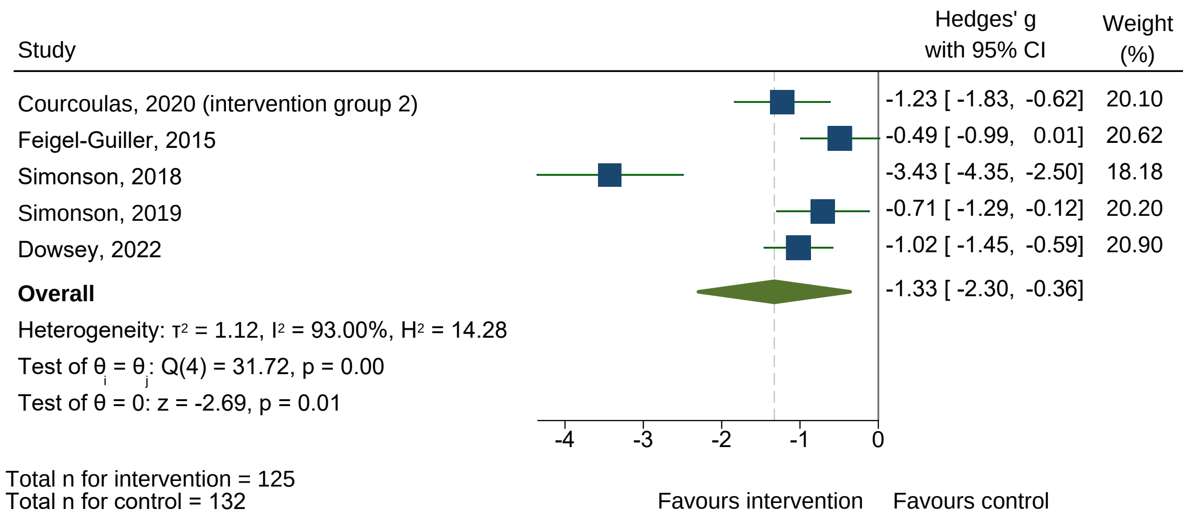
	Bariatric surgery plus adjunct therapy vs. bariatric surgery plus usual care/placebo (Baseline to 12 months)			**Bariatric surgery plus adjunct therapy vs. bariatric surgery plus usual care/placebo (Baseline to end point)**		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Bariatric surgery plus adjunct therapy versus bariatric surgery plus usual care/placebo	0.04 (-0.10 to 0.19)	0.53	Small	-	-	-
Biliopancreatic diversion with duodenal switch or sleeve gastrectomy						
Laparoscopic Roux-en-Y gastric bypass or sleeve gastrectomy	-0.16 (-0.98 to 0.66)	0.70	Small			
Laparoscopic Roux-en-Y gastric bypass						
Roux-en-Y Gastric Bypass				-	-	-
Roux-en-Y gastric bypass or sleeve gastrectomy	0.14 (-0.79 to 1.08)	0.57	Small	-	-	-

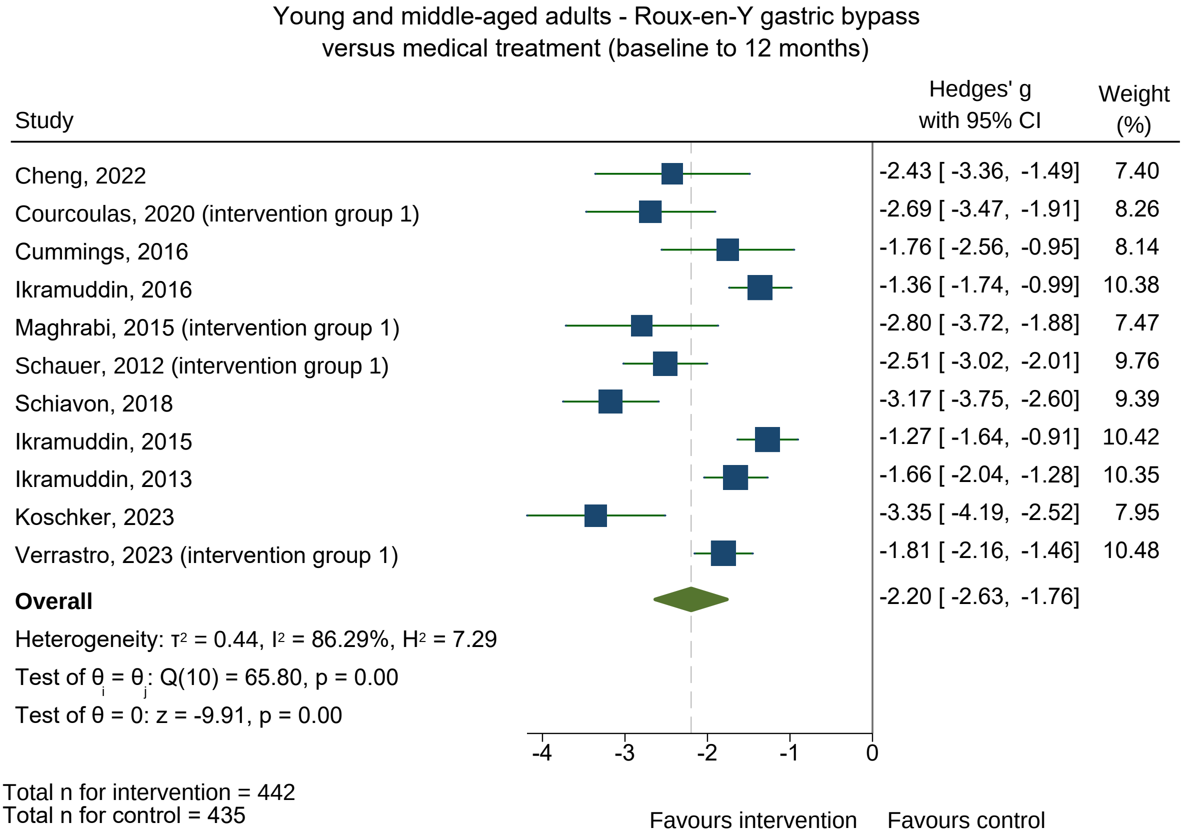
* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.
† Statistically significant (p<0.05) findings are shown in bold text
'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.

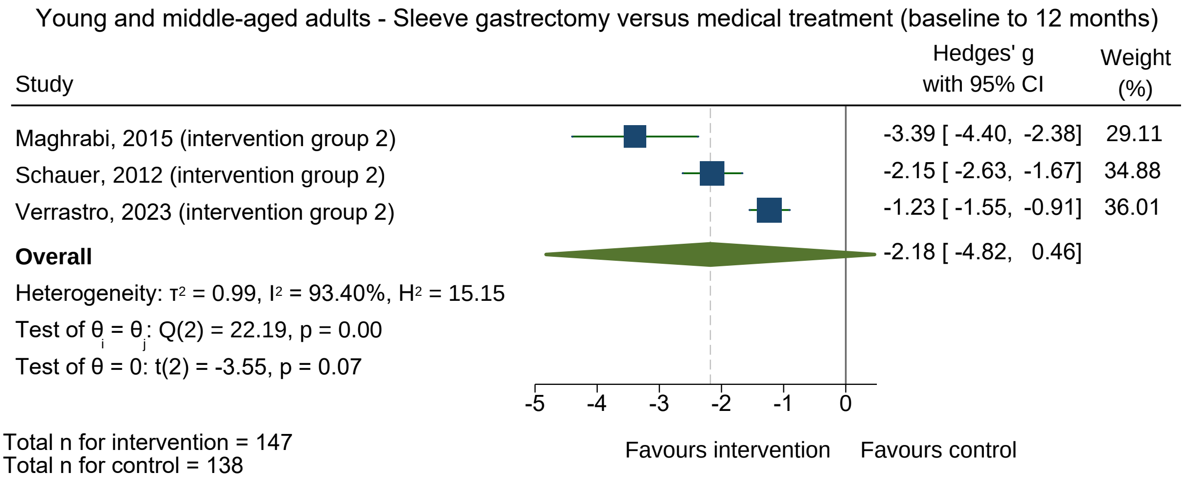
Young and middle-aged adults - Bariatric surgery versus medical treatment (Baseline to 12 months)



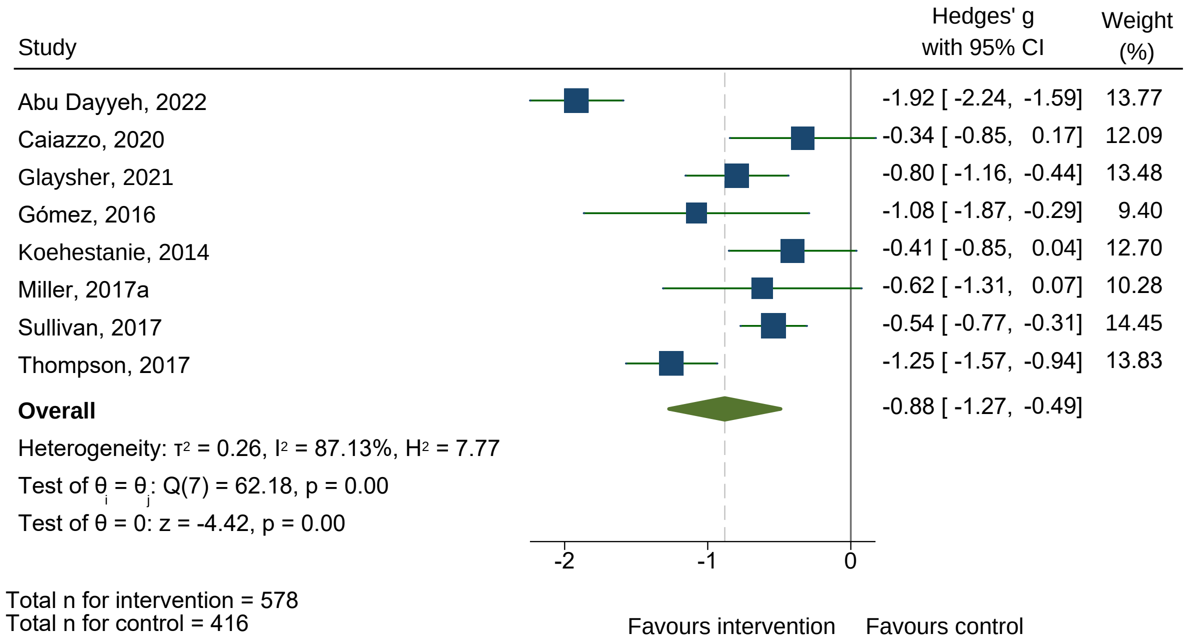
Young and middle-aged adults - Laparoscopic adjustable gastric banding versus medical treatment (baseline to 12 months)



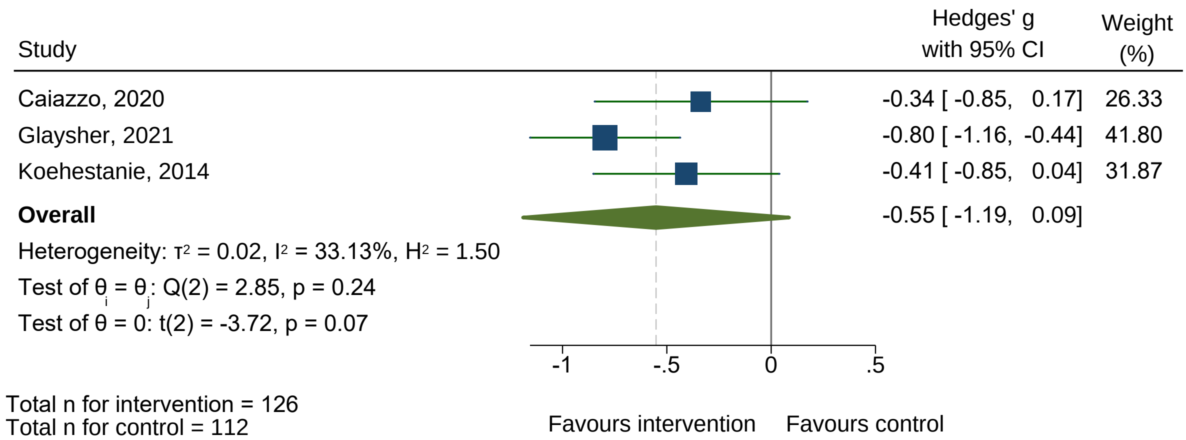

Young and middle-aged adults - Roux-en-Y gastric bypass
versus medical treatment (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Cheng, 2022 -2.43 [-3.36, -1.49] 7.40
Courcoulas, 2020 (intervention group 1) -2.69 [-3.47, -1.91] 8.26
Cummings, 2016 -1.76 [-2.56, -0.95] 8.14
Ikramuddin, 2016 -1.36 [-1.74, -0.99] 10.38
Maghrabi, 2015 (intervention group 1) -2.80 [-3.72, -1.88] 7.47
Schauer, 2012 (intervention group 1) -2.51 [-3.02, -2.01] 9.76
Schiavon, 2018 -3.17 [-3.75, -2.60] 9.39
Ikramuddin, 2015 -1.27 [-1.64, -0.91] 10.42
Ikramuddin, 2013 -1.66 [-2.04, -1.28] 10.35
Koschker, 2023 -3.35 [-4.19, -2.52] 7.95
Verrastro, 2023 (intervention group 1) -1.81 [-2.16, -1.46] 10.48
Overall -2.20 [-2.63, -1.76]
Heterogeneity: τ² = 0.44, I² = 86.29%, H² = 7.29
Test of θi = θj: Q(10) = 65.80, p = 0.00
Test of θ = 0: z = -9.91, p = 0.00
-4 -3 -2 -1 0
Total n for intervention = 442
Total n for control = 435
Favours intervention
Favours control


Young and middle-aged adults - Sleeve gastrectomy versus medical treatment (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Maghrabi, 2015 (intervention group 2) -3.39 [-4.40, -2.38] 29.11
Schauer, 2012 (intervention group 2) -2.15 [-2.63, -1.67] 34.88
Verrastro, 2023 (intervention group 2) -1.23 [-1.55, -0.91] 36.01
Overall -2.18 [-4.82, 0.46]
Heterogeneity: τ² = 0.99, I² = 93.40%, H² = 15.15
Test of θi = θj: Q(2) = 22.19, p = 0.00
Test of θ = 0: t(2) = -3.55, p = 0.07
-5 -4 -3 -2 -1 0
Total n for intervention = 147
Total n for control = 138
Favours intervention
Favours control

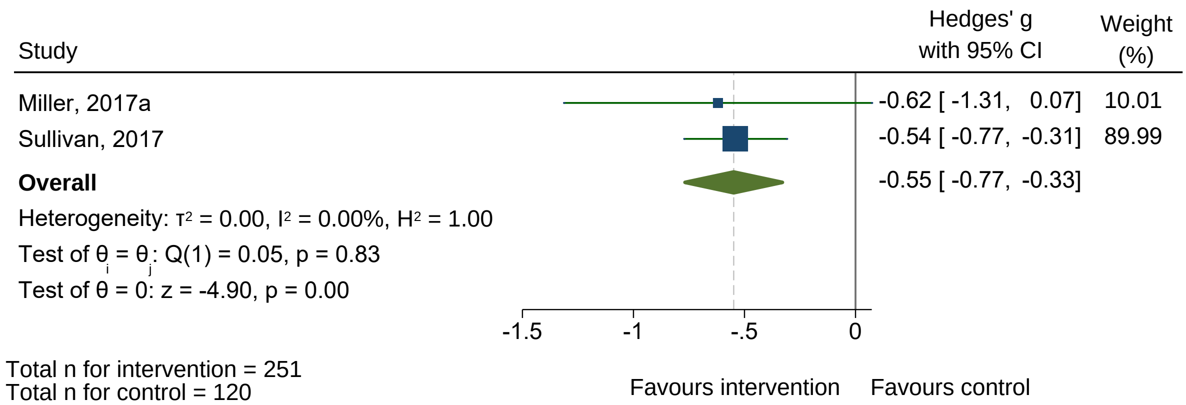
Young and middle-aged adults - Endoscopic surgery intervention versus medical treatment (baseline to 12 months)



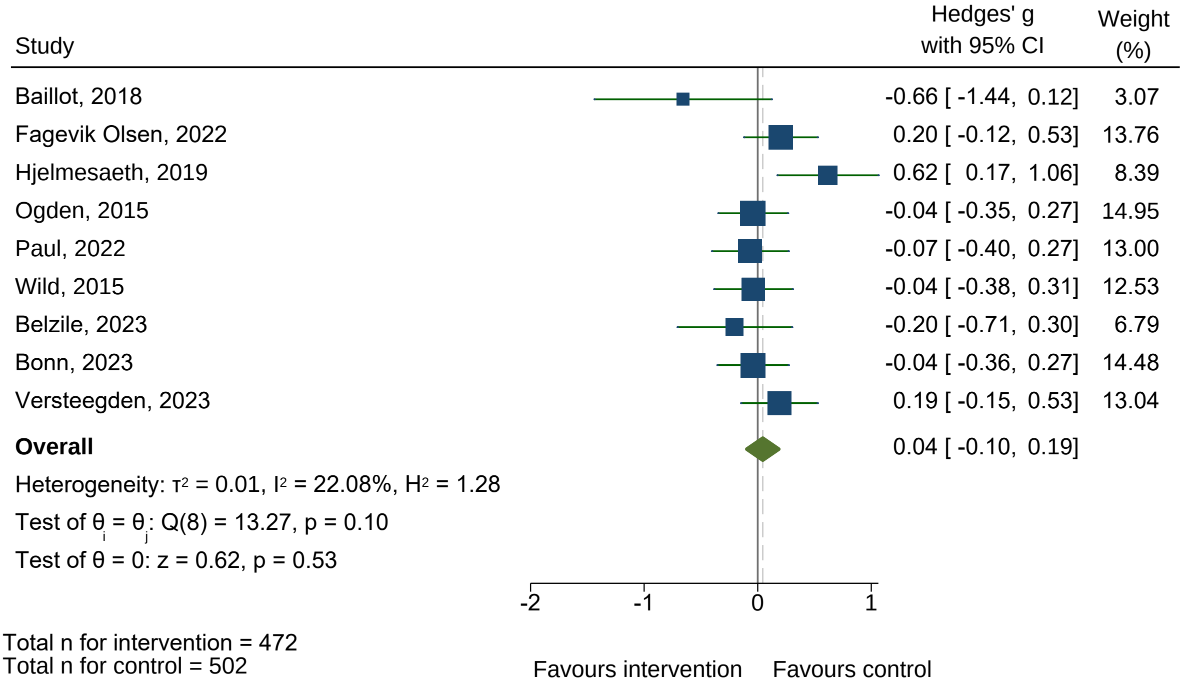
Young and middle-aged adults - Duodenal-jejunal bypass liner versus medical treatment (baseline to 12 months)



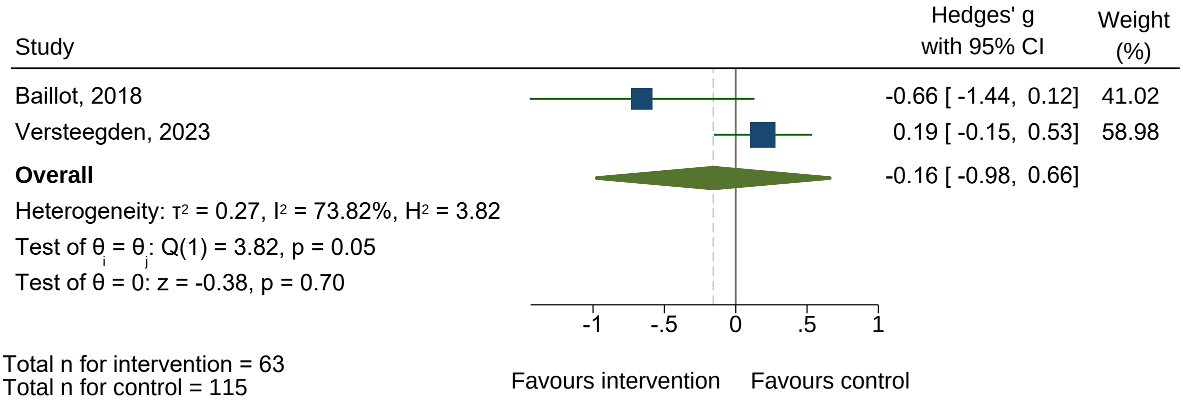
Young and middle-aged adults - g-CathEZ delivery catheter with snowshoe suture anchors versus medical treatment (baseline to 12 months)



Young and middle-aged adults - Bariatric surgery plus adjunct therapy intervention versus bariatric surgery plus usual care/placebo (baseline to 12 months)



Young and middle-aged adults - Laparoscopic Roux-en-Y gastric bypass or sleeve gastrectomy plus adjunct versus bariatric surgery plus usual care/placebo (baseline to 12 months)



Young and middle-aged adults - Roux-en-Y gastric bypass or sleeve gastrectomy plus adjunct therapy versus bariatric surgery plus usual care/placebo (baseline to 12 months)

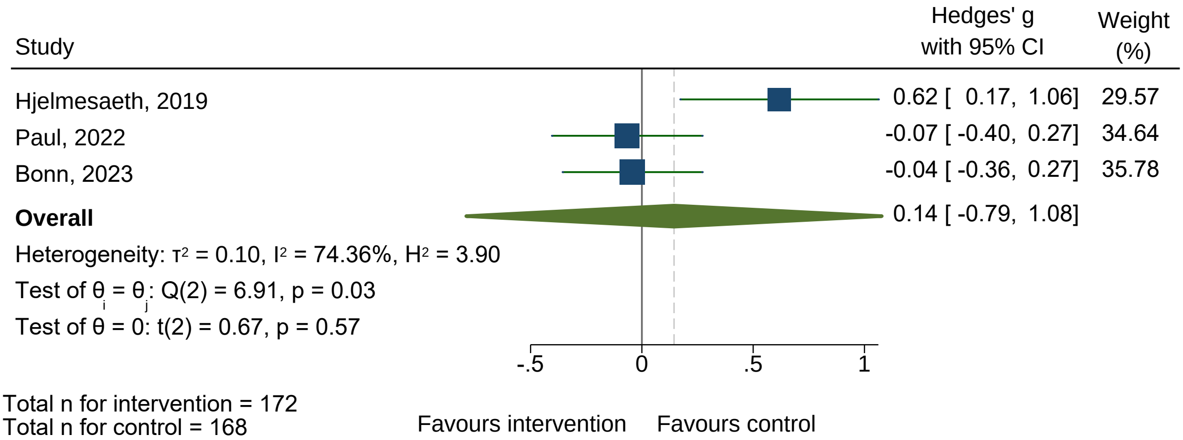


Table 18: Meta-analysis findings for older adults living with overweight or obesity treated with a behavioural weight management intervention included in the Evidence-to-Decision frameworks*

Main analysis	Intervention vs. untreated comparator (Baseline to 12 months)			Intervention vs. any comparator (Baseline to 12 months)			Intervention vs. untreated comparator (Baseline to end point)			Intervention vs. any comparator (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Single treatment type interventions												
Nutrition				-0.61 (-3.37 to 2.16)	0.45	Moderate to large				-	-	-
Dietary approaches with no specific daily energy intake goal				0.01 (-0.03 to 0.06)	0.63	Small				-	-	-
Nutrition intervention with a daily energy intake goal												
Physical activity	-0.65 (-2.25 to 0.95)	0.22	Moderate to large	-	-	-	-	-	-	-	-	-
Strengthening and aerobic exercise	-0.27 (-0.61 to 0.08)	0.13	Small to moderate	-	-	-						
Strengthening activities				-	-	-						
Aerobic exercise							-	-	-	-	-	-
Multimodal treatment type interventions												
Nutrition and physical activity	-0.65 (-2.12 to 0.82)	0.26	Moderate to large	-	-	-				-	-	-
Nutrition, physical activity, and sedentary behaviour										-	-	-

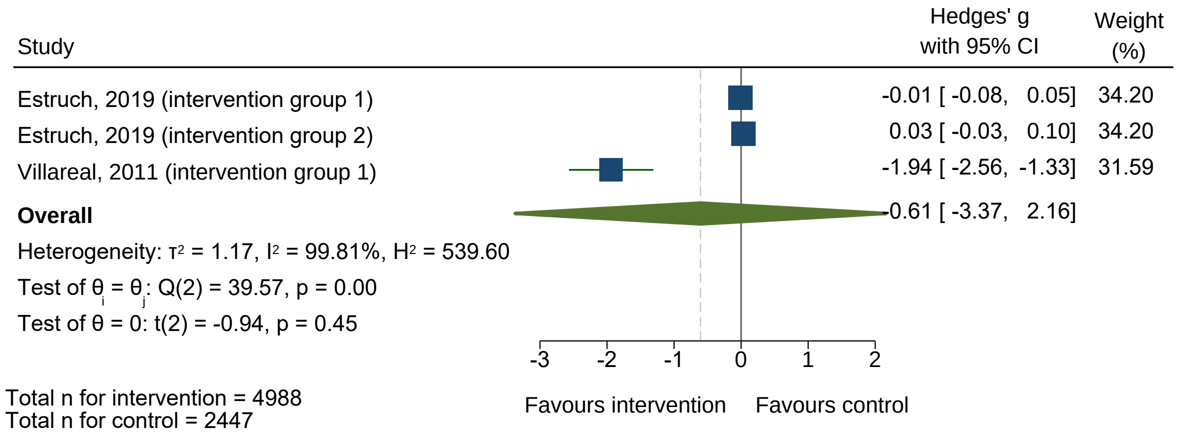
Nutrition, physical activity and psychological	-0.22 (-0.49 to 0.06)	0.13	Small to moderate	-	-	-						

* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.

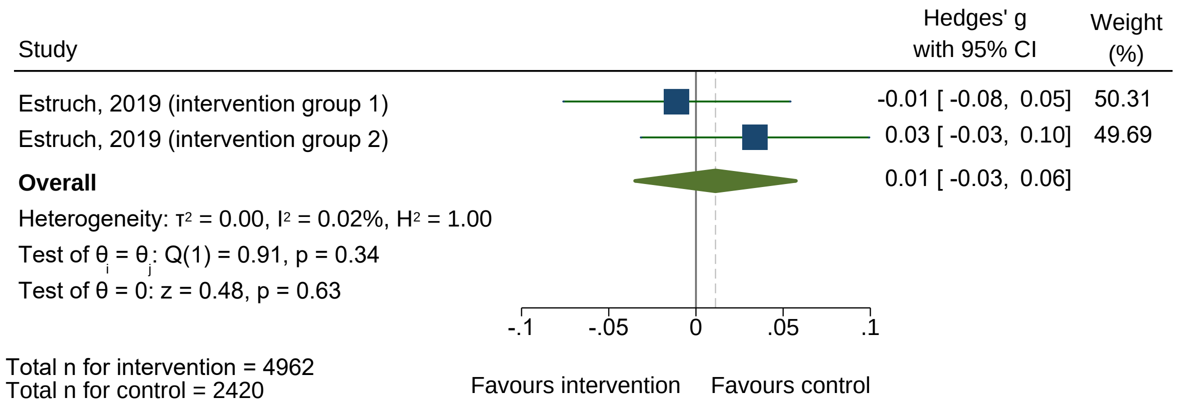
† Statistically significant (p<0.05) findings are shown in bold text

'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.

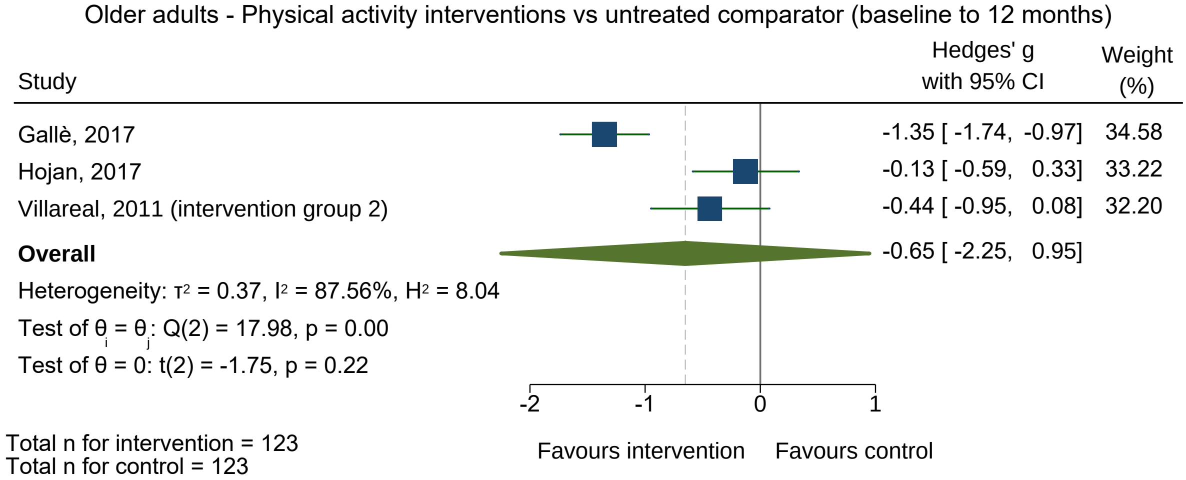
Older adults - Nutrition intervention vs any comparator (Baseline to 12 months)

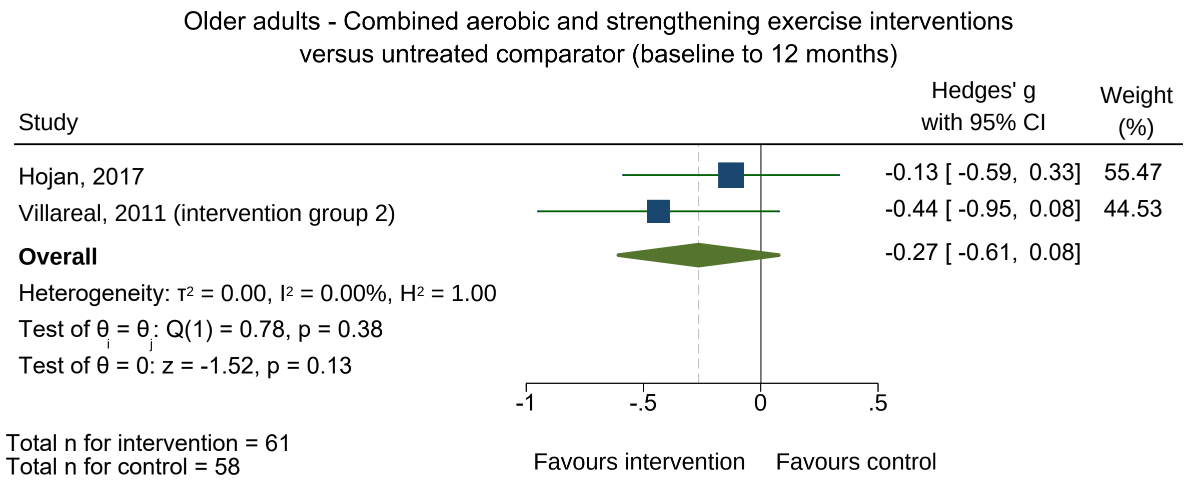


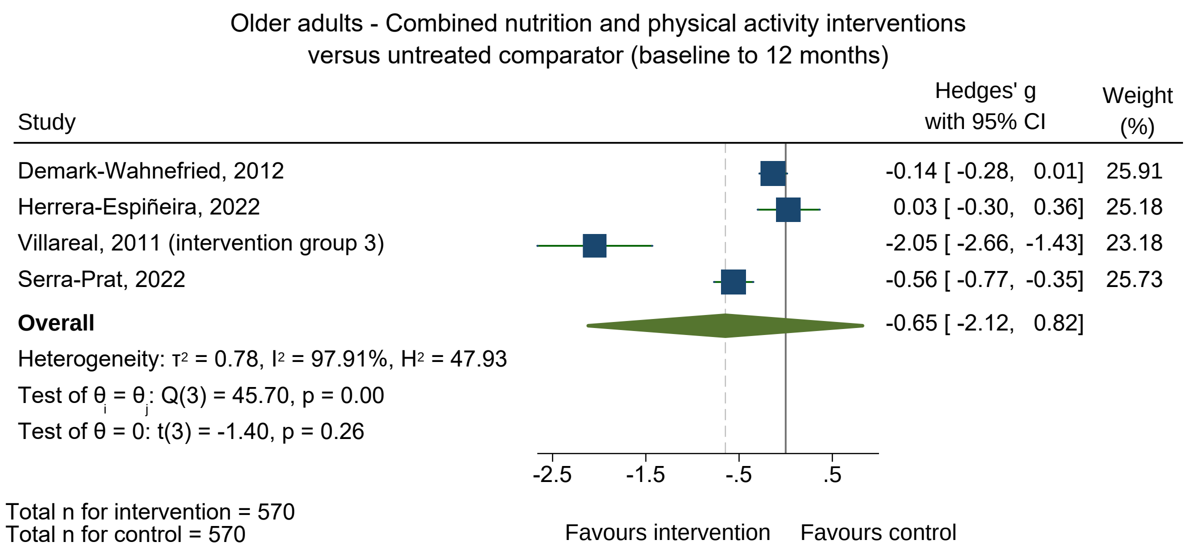
Older adults - Dietary approaches with no specific daily energy intake goal vs any comparator (Baseline to 12 months)



Older adults - Physical activity interventions vs untreated comparator (baseline to 12 months)




Older adults - Combined aerobic and strengthening exercise interventions
versus untreated comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Hojan, 2017
-0.13 [-0.59, 0.33] 55.47
Villareal, 2011 (intervention group 2)
-0.44 [-0.95, 0.08] 44.53
Overall
-0.27 [-0.61, 0.08]
Heterogeneity: τ2 = 0.00, I2 = 0.00%, H2 = 1.00
Test of θi = θj: Q(1) = 0.78, p = 0.38
Test of θ = 0: z = -1.52, p = 0.13
-1
-.5
0
.5
Total n for intervention = 61
Total n for control = 58
Favours intervention
Favours control


Older adults - Combined nutrition and physical activity interventions
versus untreated comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Demark-Wahnefried, 2012
-0.14 [-0.28, 0.01] 25.91
Herrera-Espiñeira, 2022
0.03 [-0.30, 0.36] 25.18
Villareal, 2011 (intervention group 3)
-2.05 [-2.66, -1.43] 23.18
Serra-Prat, 2022
-0.56 [-0.77, -0.35] 25.73
Overall
-0.65 [-2.12, 0.82]
Heterogeneity: τ2 = 0.78, I2 = 97.91%, H2 = 47.93
Test of θi = θj: Q(3) = 45.70, p = 0.00
Test of θ = 0: t(3) = -1.40, p = 0.26
-2.5
-1.5
-.5
.5
Total n for intervention = 570
Total n for control = 570
Favours intervention
Favours control

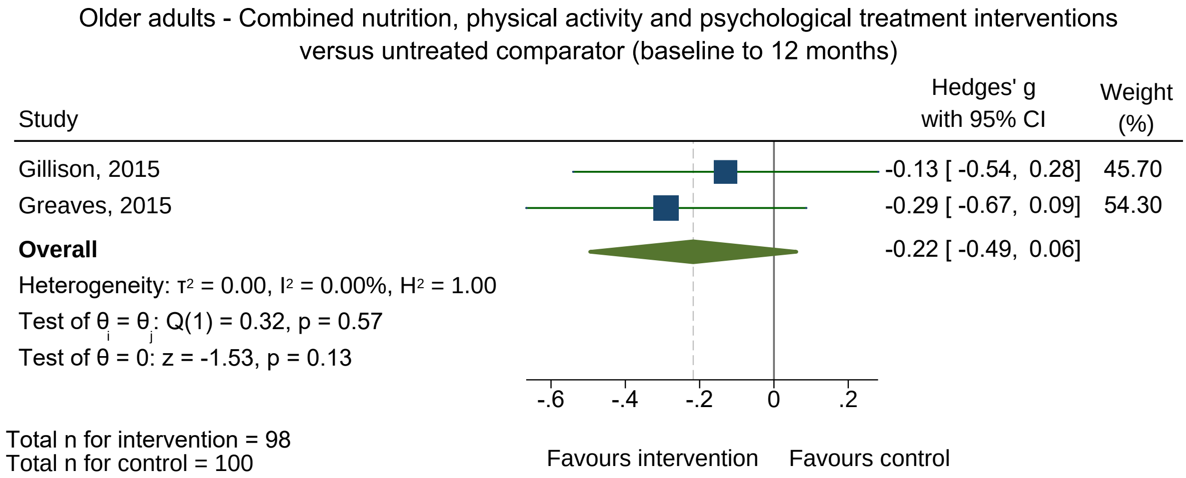

Older adults - Combined nutrition, physical activity and psychological treatment interventions
versus untreated comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Gillison, 2015
-0.13 [-0.54, 0.28] 45.70
Greaves, 2015
-0.29 [-0.67, 0.09] 54.30
Overall
-0.22 [-0.49, 0.06]
Heterogeneity: τ2 = 0.00, I2 = 0.00%, H2 = 1.00
Test of θi = θj: Q(1) = 0.32, p = 0.57
Test of θ = 0: z = -1.53, p = 0.13
-.6
-.4
-.2
0
.2
Total n for intervention = 98
Total n for control = 100
Favours intervention
Favours control

Table 19: Meta-analysis findings for people with disability with overweight or obesity treated with a behavioural weight management intervention included in the Evidence-to-Decision frameworks*

Main analysis	Intervention vs. untreated comparator (Baseline to 12 months)			Intervention vs. any comparator (Baseline to 12 months)			Intervention vs. untreated comparator (Baseline to end point)			Intervention vs. any comparator (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Multimodal Interventions												
Nutrition, physical activity and family-centred				-0.68 (-2.12 to 0.76)	0.18	Moderate to large				-	-	-

* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.
'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.

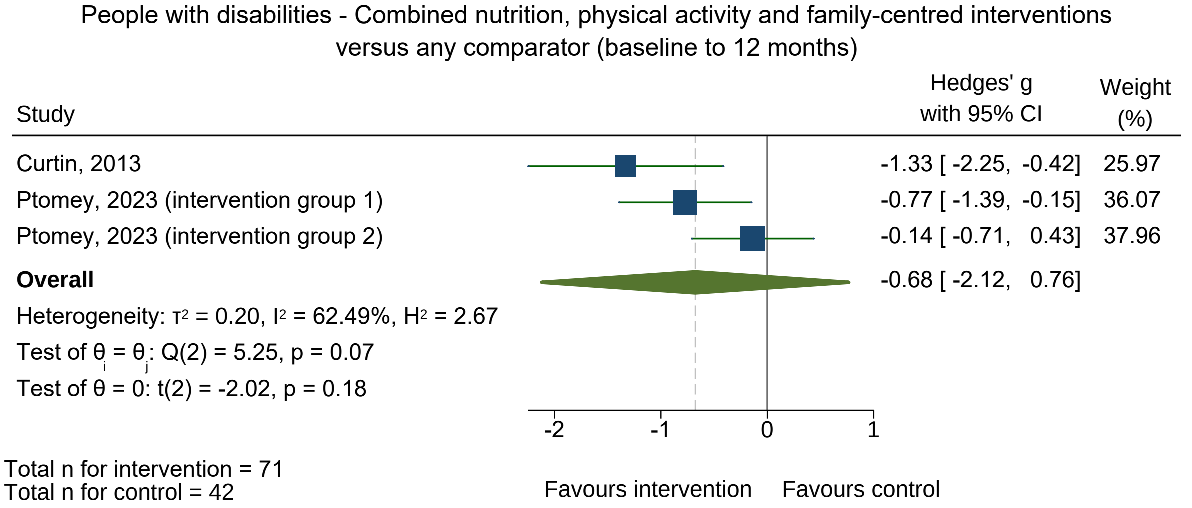


Table 20: Meta-analysis findings for people with an eating disorder with overweight or obesity treated with a behavioural weight management intervention included in the Evidence-to-Decision frameworks*

Main analysis	Intervention vs. untreated comparator (Baseline to 12 months)			Intervention vs. any comparator (Baseline to 12 months)			Intervention vs. untreated comparator (Baseline to end point)			Intervention vs. any comparator (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Multimodal Interventions												
Nutrition, physical activity and psychological				-0.25 (-0.74 to 0.23)	0.31	Small to moderate						

* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.
'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.

People with eating disorders - Combined nutrition, physical activity and psychological interventions versus any comparator (baseline to 12 months)

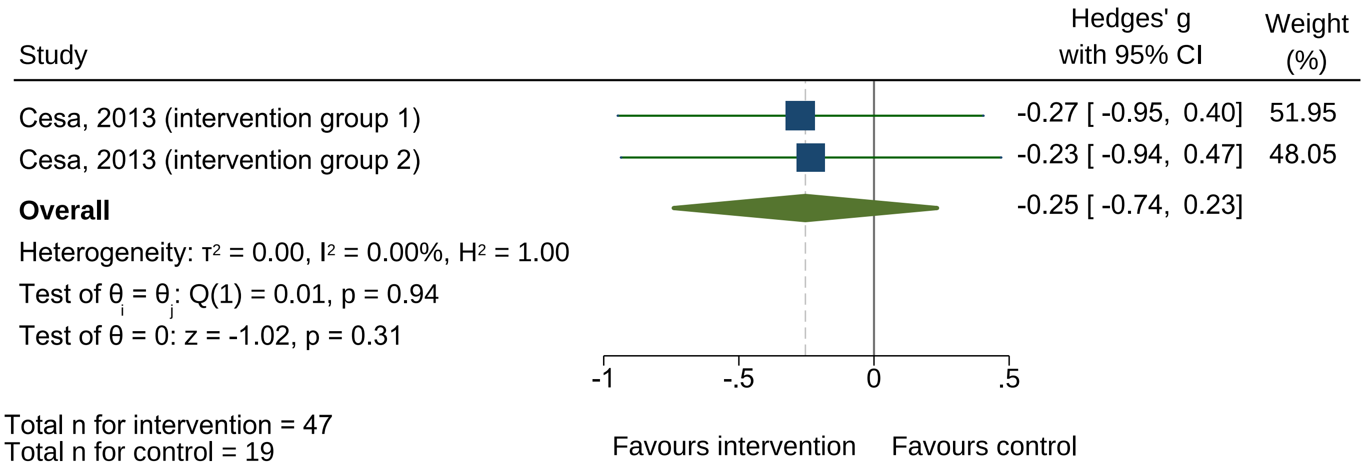


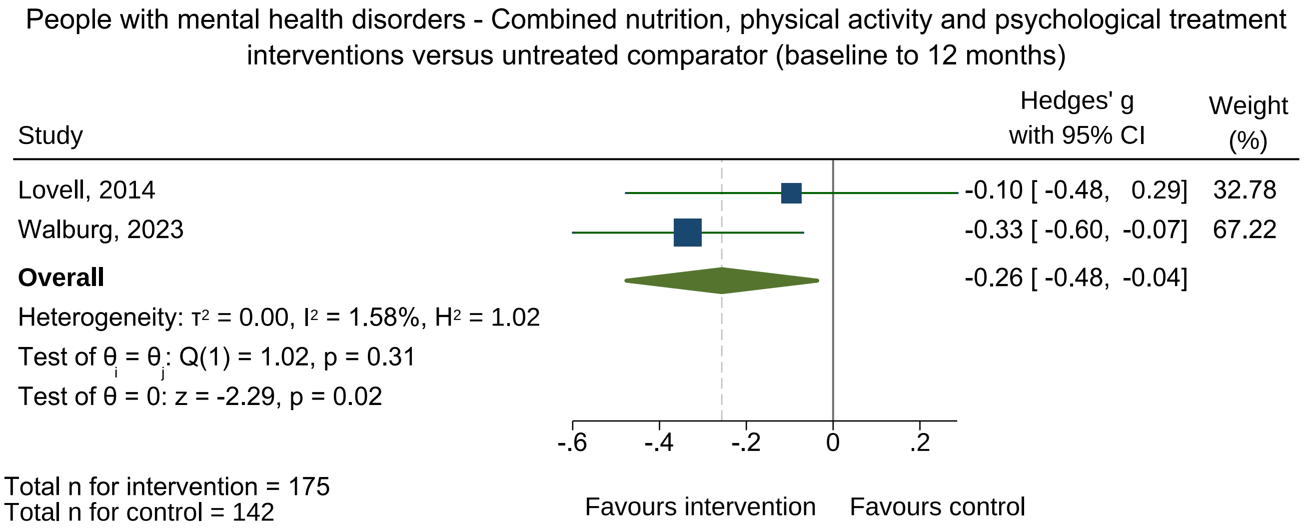
Table 21: Meta-analysis findings for people with a mental health condition with overweight or obesity treated with a behavioural weight management intervention included in the Evidence-to-Decision frameworks*

Main analysis	Intervention vs. untreated comparator (Baseline to 12 months)			Intervention vs. any comparator (Baseline to 12 months)			Intervention vs. untreated comparator (Baseline to end point)			Intervention vs. any comparator (Baseline to end point)		
	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size	Hedges' g (95% CI)	P-value	Effect size
Multimodal Interventions												
Nutrition, physical activity and psychological	-0.26 (-0.48 to -0.04)	0.02	**Small to moderate**†	-	-	-						

* Excludes studies synthesised narratively by vote count that may be presented in the GRADE Summary of Findings tables shown in the Evidence-to-Decision frameworks.

† Statistically significant (p<0.05) findings are shown in bold text

'-' Data available, but not used in GRADE; shaded box indicates no data available for meta-analysis.



Systematic review strengths and limitations

A number of strengths and limitations should be acknowledged in relation to the evidence reviews that informed the Guideline development process. A wide-ranging search in multiple databases was undertaken to identify the relevant evidence since the searches to inform the previous Guidelines were conducted in 2010. The subsequent scope of the research, with over 680 papers included, was greater than for the previous Guidelines. The evidence synthesis was reframed to consider the benefits and impacts of weight maintenance in addition to weight reduction, and the experiences of people living with overweight or obesity. A wider range of age groups was included as well as the population subgroups described above. No language restrictions were applied, ensuring all relevant studies were considered. Best practice methods were utilised through phases of study identification and risk of bias using ROB-2 (22) with all undertaken independently and in duplicate. The literature searches were restricted to trials reporting outcomes at 12 months. Although this approach had the advantage of identifying interventions with at least moderately enduring effects on weight-related outcomes, it meant that the literature on shorter-term outcomes (i.e., less than 12 months) was untapped. Also, there was heterogeneity in the trial populations for some of the interventions, which may affect the generalisability of findings. For example, of the four trials of nutrition interventions with a daily energy intake goal for young and middle-aged adults, the participants were postmenopausal women, overweight (but not obese) women and men), sedentary adults with overweight, and adults with obesity.

The synthesis of evidence was complex, with a series of pragmatic decisions made regarding whether the control arm included an active or inactive comparator. Interventions were classified according to the components within the intervention condition, regardless of what components were in the comparison condition. For example, when the intervention comprised a combination of nutrition plus physical activity and the comparison was physical activity alone, the intervention was classified as nutrition and physical activity due to the heterogeneity in the components of the comparator arms. The implication of these classifications is that the meta-analyses of multimodal interventions with treated comparators may have underestimated the effects of these interventions. Also, different approaches could have been taken to the classification of interventions. For example, interventions that required adherence to prescribed nutrition and physical activity could have been separated from those where advice, counselling, or education targeting nutrition and physical activity was provided. The approach taken was chosen because it is common in public health practice focussed on improving physical activity and nutrition behaviours to use psychoeducational tools (e.g., knowledge provision, goal setting, and self-monitoring), with few trials investigating the effects of direct physical activity or food provision. Pharmacological interventions of differing doses were included in single meta-analyses. Combining different doses was a pragmatic solution to addressing the variability of different dosing regimens in the available trials.

Different decisions with respect to the meta-analyses could have been made. Synthetic effect sizes were created, combining different weight-related outcomes (e.g., body weight, BMI, and waist circumference) into single standardised effect sizes in order to maximise the use of the data available. Producing non-standardised effect sizes for each outcome (e.g., providing information of the effect of an intervention on body weight) may have been of practical value for clinicians.

GRADE and Evidence to decision processes were applied using international gold standard measures (21). Limitations of the evidence synthesis included absence of checking reference lists for further relevant research and citation tracking. Randomised controlled trials with follow-up periods of ≥12 months from baseline were eligible for inclusion which may have resulted in exclusion of effective weight loss interventions in certain treatment areas or population groups. For example, surgical weight management interventions often did not incorporate randomised controlled trials with a no-treatment control group, so additional evidence from longitudinal studies was included in the Evidence to Decision process. Where there was a lack of evidence for relevant treatment types among particular subgroups, reference was made to recommendations based on the age of the person. In terms of the broader Guideline development process, practice points and consensus recommendations were developed to complement the evidence for interventions and their effect established by the primary review.

References

1. National Health and Medical Research Council. Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. Melbourne: NHMRC; 2013 [cited 2024 August 23]. Available from: https://www.nhmrc.gov.au/about-us/publications/clinical-practice-guidelines-management-overweight-and-obesity.
2. National Health and Medical Research Council. NHMRC levels of evidence and grades for recommendations for developers of guidelines. Canberra: NHMRC; 2009.
3. National Health and Medical Research Council. Procedures and requirements for meeting the NHMRC standards for clinical practice guidelines Melbourne: NHMRC; 2022 [cited 2024 August 23]. Available from: https://www.nhmrc.gov.au/about-us/publications/meeting-2011-nhmrc-standard-clinical-practice-guidelines.
4. National Health and Medical Research Council. Guidelines for Guidelines Handbook: National Health and Medical Research Council [cited 2024 August 23]. Available from: www.nhmrc.gov.au/guidelinesforguidelines.
5. GRADE Working Group. GRADE 2024 [cited 2024 August 23]. Available from: https://www.gradeworkinggroup.org/.
6. Commonwealth of Australia. The national obesity strategy 2022–2032 Health Ministers Meeting: Commonwealth of Australia; 2022 [cited 2024 August 23]. Available from: https://www.health.gov.au/sites/default/files/documents/2022/03/national-obesity-strategy-2022-2032_0.pdf.
7. Australian Institute of Health and Welfare. Reporting on the health of culturally and linguistically diverse populations in Australia: An exploratory paper. Canberra; 2022.
8. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372:n71. doi: 10.1136/bmj.n71
9. Page MJ, Moher D, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. BMJ. 2021;372:n160. doi: 10.1136/bmj.n160
10. Ramage S, Farmer A, Eccles KA, McCargar L. Healthy strategies for successful weight loss and weight maintenance: a systematic review. Appl Physiol Nutr Metab. 2014;39(1):1-20. doi: 10.1139/apnm-2013-0026
11. Stevens J, Truesdale KP, McClain JE, Cai J. The definition of weight maintenance. Int J Obes. 2006;30(3):391-9. doi: 10.1038/sj.ijo.0803175
12. Walmsley R, Sumithran P. Current and emerging medications for the management of obesity in adults. Med J Aust. 2023;218(6):276-83. doi: 10.5694/mja2.51871
13. Shi Q, Wang Y, Hao Q, Vandvik PO, Guyatt G, Li J, et al. Pharmacotherapy for adults with overweight and obesity: a systematic review and network meta-analysis of randomised controlled trials. Lancet. 2022;399(10321):259-69. doi: 10.1016/S0140-6736(21)01640-8
14. Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA. Cochrane Handbook for Systematic Reviews of Interventions: Cochrane; 2022 [cited 2024 August 23]. Available from: www.training.cochrane.org/handbook.
15. Borenstein M, Hedges LV, Higgins JPT, Rothstein HR. Introduction to meta-analysis. 2nd ed: John Wiley; 2021.
16. Deeks JJ, Higgins JPT, Altman DG. Chapter 10: Analysing data and undertaking meta-analyses. 2023 updated August 2023. In: Cochrane Handbook for Systematic Reviews of Interventions version 64 [Internet]. Cochrane. Available from: www.training.cochrane.org/handbook.
17. Gooding P, Tarrier N. A systematic review and meta-analysis of cognitive-behavioural interventions to reduce problem gambling: hedging our bets? Behav Res Ther. 2009;47(7):592-607. doi: 10.1016/j.brat.2009.04.002

18. Cochrane Training. Performing meta-analyses in the case of very few studies 2023 [cited 2024 August 23]. Available from: https://training.cochrane.org/resource/performing-meta-analyses-very-few-studies.
19. Saueressig T, Pedder H, Bowe SJ, Owen PJ, Belavy DL. Six meta-analyses on treatments for femoroacetabular impingement syndrome in a year and readers are none the wiser: methods advice for researchers planning meta-analysis of data from fewer than 5 trials. J Orthop Sports Phys Ther. 2021;51(5):201-3. doi: 10.2519/jospt.2021.0107
20. McKenzie JE, Brennan SE. Chapter 12: Synthesizing and presenting findings using other methods. 2022. In: Cochrane Handbook for Systematic Reviews of Interventions version 63 (updated February 2022) [Internet]. Cochrane. Available from: www.training.cochrane.org/handbook.
21. Schünemann H, Brożek J, Guyatt G, Oxman A. GRADE handbook: The GRADE Working Group; 2013 [cited 2024 August 23]. Available from: https://gdt.gradepro.org/app/handbook/handbook.html#h.hnedbo8gqjqk.
22. Sterne JAC, Savović J, Page MJ, Elbers RG, Blencowe NS, Boutron I, et al. RoB 2: a revised tool for assessing risk of bias in randomised trials. BMJ. 2019;366:l4898. doi: 10.1136/bmj.l4898
23. Guyatt GH, Oxman AD, Kunz R, Woodcock J, Brozek J, Helfand M, et al. GRADE guidelines: 7. Rating the quality of evidence--inconsistency. J Clin Epidemiol. 2011;64(12):1294-302. doi: 10.1016/j.jclinepi.2011.03.017
24. Joanna Briggs Institute Adelaide GRADE Centre. Workshop slides. 2022.
25. Cohen J. Statistical power analysis for the behavioral sciences. 2nd ed. New York: Routledge; 1988.
26. Australian Living Evidence Collaboration. Australian pregnancy care guidelines 2024 [cited 2024 August 23]. Available from: https://leappguidelines.org/.
27. Abbenhardt C, McTiernan A, Alfano CM, Wener MH, Campbell KL, Duggan C, et al. Effects of individual and combined dietary weight loss and exercise interventions in postmenopausal women on adiponectin and leptin levels. J Intern Med. 2013;274(2):163-75. doi: 10.1111/joim.12062
28. Abu Dayyeh BK, Bazerbachi F, Vargas EJ, Sharaiha RZ, Thompson CC, Thaemert BC, et al. Endoscopic sleeve gastroplasty for treatment of class 1 and 2 obesity (MERIT): a prospective, multicentre, randomised trial. Lancet. 2022;400(10350):441-51. doi: 10.1016/S0140-6736(22)01280-6
29. Adab P, Pallan MJ, Lancashire ER, Hemming K, Frew E, Barrett T, et al. Effectiveness of a childhood obesity prevention programme delivered through schools, targeting 6 and 7 year olds: cluster randomised controlled trial (WAVES study). BMJ. 2018;360:k211. doi: 10.1136/bmj.k211
30. Ahern AL, Wheeler GM, Aveyard P, Boyland EJ, Halford JCG, Mander AP, et al. Extended and standard duration weight-loss programme referrals for adults in primary care (WRAP): a randomised controlled trial. Lancet. 2017;389(10085):2214-25. doi: 10.1016/S0140-6736(17)30647-5
31. Akers JD, Cornett RA, Savla JS, Davy KP, Davy BM. Daily self-monitoring of body weight, step count, fruit/vegetable intake, and water consumption: a feasible and effective long-term weight loss maintenance approach. J Acad Nutr Diet. 2012;112(5):685-92.e2. doi: 10.1016/j.jand.2012.01.022
32. Alexander E, McGinty EE, Wang N-Y, Dalcin A, Jerome GJ, Miller ER, 3rd, et al. Effects of a behavioural weight loss intervention in people with serious mental illness: subgroup analyses from the ACHIEVE trial. Obes Res Clin Pract. 2019;13(2):205-10. doi: 10.1016/j.orcp.2019.02.002
33. Aller EEJG, Larsen TM, Claus H, Lindroos AK, Kafatos A, Pfeiffer A, et al. Weight loss maintenance in overweight subjects on ad libitum diets with high or low protein content and glycemic index: the DIOGENES trial 12-month results. Int J Obes. 2014;38(12):1511-7. doi: 10.1038/ijo.2014.52
34. Allison DB, Gadde KM, Garvey WT, Peterson CA, Schwiers ML, Najarian T, et al. Controlled-release phentermine/topiramate in severely obese adults: a randomized controlled trial (EQUIP). Obesity. 2012;20(2):330-42. doi: 10.1038/oby.2011.330
35. Almeida FA, You W, Brito FA, Alves TF, Goessl C, Wall SS, et al. A randomized controlled trial to test the effectiveness of two technology-enhanced diabetes prevention programs in primary care: the DiaBEAT-it study. Front Public Health. 2023;11:1000162. doi: 10.3389/fpubh.2023.1000162

36. Alustiza E, Perales A, Mateo-Abad M, Ozcoidi I, Aizpuru G, Albaina O, et al. Tackling risk factors for type 2 diabetes in adolescents: PRE-STARt study in Euskadi. An Pediatr (Barc). 2021;95(3):186-96. doi: 10.1016/j.anpede.2020.11.005
37. Ambrosini GL, Solis-Trapala I, Ahern AL, Fuller NR, Holzapfel C, Hauner H, et al. Greater improvements in diet quality among overweight participants following a group-based commercial weight loss programme than those receiving support to lose weight in primary care. Nutr J. 2018;17:64. doi: 10.1186/s12937-018-0370-x
38. Amer OE, Sabico S, Alfawaz HA, Aljohani N, Hussain SD, Alnaami AM, et al. Reversal of prediabetes in Saudi adults: results from an 18 month lifestyle intervention. Nutrients. 2020;12(3):804. doi: 10.3390/nu12030804
39. Andersen E, van der Ploeg HP, van Mechelen W, Gray CM, Mutrie N, van Nassau F, et al. Contributions of changes in physical activity, sedentary time, diet and body weight to changes in cardiometabolic risk. Int J Behav Nutr Phys Act. 2021;18:166. doi: 10.1186/s12966-021-01237-1
40. Anderson AS, Chong HY, Craigie AM, Donnan PT, Gallant S, Hickman A, et al. A novel approach to increasing community capacity for weight management a volunteer-delivered programme (ActWELL) initiated within breast screening clinics: a randomised controlled trial. Int J Behav Nutr Phys Act. 2021;18:34. doi: 10.1186/s12966-021-01099-7
41. Anderson AS, Craigie AM, Caswell S, Treweek S, Stead M, Macleod M, et al. The impact of a bodyweight and physical activity intervention (BeWEL) initiated through a national colorectal cancer screening programme: randomised controlled trial. BMJ. 2014;348(7950):g1823. doi: 10.1136/bmj.g1823
42. Anderson YC, Leung W, Grant CC, Cave TL, Derraik JGB, Cutfield WS, et al. Economic evaluation of a multi-disciplinary community-based intervention programme for New Zealand children and adolescents with obesity. Obes Res Clin Pract. 2018;12(3):293-8. doi: 10.1016/j.orcp.2018.04.001
43. Annesi JJ. Mediation of the relationship of behavioural treatment type and changes in psychological predictors of healthy eating by body satisfaction changes in women with obesity. Obes Res Clin Pract. 2017;11(1):97-107. doi: 10.1016/j.orcp.2016.03.011
44. Annesi JJ. Relationship of emotional eating and mood changes through self-regulation within three behavioral treatments for obesity. Psychol Rep. 2019;122(5):1689-706. doi: 10.1177/0033294118795883
45. Annesi JJ. Psychosocial correlates of emotional eating and their interrelations: implications for obesity treatment research and development. J Primary Prevent. 2020;41(2):105-25. doi: 10.1007/s10935-020-00580-6
46. Annesi JJ, Johnson PH, Tennant GA, Porter KJ, McEwen KL. Weight loss and the prevention of weight regain: evaluation of a treatment model of exercise self-regulation generalizing to controlled eating. Perm J. 2016;20(3):15-146. doi: 10.7812/TPP/15-146
47. Apolzan JW, Venditti EM, Edelstein SL, Knowler WC, Dabelea D, Boyko EJ, et al. Long-term weight loss with metformin or lifestyle intervention in the Diabetes Prevention Program Outcomes Study. Ann Intern Med. 2019;170(10):682-90. doi: 10.7326/M18-1605
48. Apovian CM, Aronne L, Rubino D, Still C, Wyatt H, Burns C, et al. A randomized, phase 3 trial of naltrexone SR/bupropion SR on weight and obesity-related risk factors (COR-II). Obesity. 2013;21(5):935-43. doi: 10.1002/oby.20309
49. Ard JD, Gower B, Hunter G, Ritchie CS, Roth DL, Goss A, et al. Effects of calorie restriction in obese older adults: the CROSSROADS randomized controlled trial. J Gerontol A Biol Sci Med Sci. 2018;73(1):73-80. doi: 10.1093/gerona/glw237
50. Arguin H, Dionne IJ, Sénéchal M, Bouchard DR, Carpentier AC, Ardilouze J-L, et al. Short- and long-term effects of continuous versus intermittent restrictive diet approaches on body composition and the metabolic profile in overweight and obese postmenopausal women: a pilot study. Menopause. 2012;19(8):870-6. doi: 10.1097/gme.0b013e318250a287

51. Arlinghaus KR, O'Connor DP, Johnston CA. Frequency of school-based intervention needed to improve weight outcomes of Mexican-American adolescents with overweight or obesity: a randomized controlled trial. Pediatr Obes. 2019;14(12):e12568. doi: 10.1111/ijpo.12568
52. Armamento-Villareal R, Aguirre LE, Qualls C, Villareal DT. Effect of lifestyle intervention on the hormonal profile of frail, obese older men. J Nutr Health Aging. 2016;20(3):334-40. doi: 10.1007/s12603-016-0698-x
53. Aronne LJ, Sattar N, Horn DB, Bays HE, Wharton S, Lin W-Y, et al. Continued treatment with tirzepatide for maintenance of weight reduction in adults with obesity: the SURMOUNT-4 randomized clinical trial. JAMA. 2024;331(1):38-48. doi: 10.1001/jama.2023.24945
54. Arredondo EM, Elder JP, Haughton J, Slymen DJ, Sallis JF, Perez LG, et al. Fe en Acción: promoting physical activity among churchgoing Latinas. Am J Public Health. 2017;107(7):1109-15. doi: 10.2105/AJPH.2017.303785
55. Arredondo EM, Haughton J, Ayala GX, Slymen D, Sallis JF, Perez LG, et al. Two-year outcomes of Faith in Action/Fe en Acción: a randomized controlled trial of physical activity promotion in Latinas. Int J Behav Nutr Phys Act. 2022;19:97. doi: 10.1186/s12966-022-01329-6
56. Artene DV, Bordea CI, Blidaru A. Results of 1-year diet and exercise interventions for ER+/PR+/-/HER2- breast cancer patients correlated with treatment type. Chirurgia (Bucur). 2017;112(4):457-68. doi: 10.21614/chirurgia.112.4.457
57. Astbury NM, Edwards RM, Ghebretinsea F, Shanyinde M, Mollison J, Aveyard P, Jebb SA. Extended follow-up of a short total diet replacement programme: results of the Doctor Referral of Overweight People to Low Energy total diet replacement Treatment (DROPLET) randomised controlled trial at 3 years. Int J Obes. 2021;45(11):2432-8. doi: 10.1038/s41366-021-00915-1
58. Astrup A, Carraro R, Finer N, Harper A, Kunesova M, Lean ME, et al. Safety, tolerability and sustained weight loss over 2 years with the once-daily human GLP-1 analog, liraglutide. Int J Obes. 2012;36(6):843-54. doi: 10.1038/ijo.2011.158
59. Baillot A, Vallée C-A, Mampuya WM, Dionne IJ, Comeau E, Méziat-Burdin A, Langlois M-F. Effects of a pre-surgery supervised exercise training 1 year after bariatric surgery: a randomized controlled study. Obes Surg. 2018;28(4):955-62. doi: 10.1007/s11695-017-2943-8
60. Balducci S, Zanuso S, Cardelli P, Salerno G, Fallucca S, Nicolucci A, et al. Supervised exercise training counterbalances the adverse effects of insulin therapy in overweight/obese subjects with type 2 diabetes. Diabetes Care. 2012;35(1):39-41. doi: 10.2337/dc11-1450
61. Bartels SJ, Pratt SI, Aschbrenner KA, Barre LK, Jue K, Wolfe RS, et al. Clinically significant improved fitness and weight loss among overweight persons with serious mental illness. Psychiatr Serv. 2013;64(8):729-36. doi: 10.1176/appi.ps.003622012
62. Bates S, Norman P, Breeze P, Brennan A, Ahern AL. Mechanisms of action in a behavioral weight-management program: latent growth curve analysis. Ann Behav Med. 2022;56(1):64-77. doi: 10.1093/abm/kaab019
63. Bathrellou E, Yannakoulia M, Papanikolaou K, Pehlivanidis A, Pervanidou P, Kanaka-Gantenbein C, et al. Parental involvement does not augment the effectiveness of an intense behavioral program for the treatment of childhood obesity. Hormones. 2010;9(2):171-5. doi: 10.14310/horm.2002.1267
64. Bea JW, Cussler EC, Going SB, Blew RM, Metcalfe LL, Lohman TG. Resistance training predicts 6-yr body composition change in postmenopausal women. Med Sci Sports Exerc. 2010;42(7):1286-95. doi: 10.1249/MSS.0b013e3181ca8115
65. Beavers KM, Ambrosius WT, Rejeski WJ, Burdette JH, Walkup MP, Sheedy JL, et al. Effect of exercise type during intentional weight loss on body composition in older adults with obesity. Obesity. 2017;25(11):1823-9. doi: 10.1002/oby.21977
66. Beavers KM, Beavers DP, Nesbit BA, Ambrosius WT, Marsh AP, Nicklas BJ, Rejeski WJ. Effect of an 18-month physical activity and weight loss intervention on body composition in overweight and obese older adults. Obesity. 2014;22(2):325-31. doi: 10.1002/oby.20607

67. Beavers KM, Beavers DP, Newman JJ, Anderson AM, Loeser RF, Jr., Nicklas BJ, et al. Effects of total and regional fat loss on plasma CRP and IL-6 in overweight and obese, older adults with knee osteoarthritis. Osteoarthritis Cartilage. 2015;23(2):249-56. doi: 10.1016/j.joca.2014.11.005
68. Belalcazar LM, Anderson AM, Lang W, Schwenke DC, Haffner SM, Yatsuya H, et al. Fiber intake and plasminogen activator inhibitor-1 in type 2 diabetes: Look AHEAD (Action for Health in Diabetes) trial findings at baseline and year 1. J Acad Nutr Diet. 2014;114(11):1800-10.e2. doi: 10.1016/j.jand.2014.06.357
69. Belalcazar LM, Haffner SM, Lang W, Hoogeveen RC, Rushing J, Schwenke DC, et al. Lifestyle intervention and/or statins for the reduction of C-reactive protein in type 2 diabetes: from the look AHEAD study. Obesity. 2013;21(5):944-50. doi: 10.1002/oby.20431
70. Bellicha A, Ciangura C, Roda C, Torcivia A, Aron-Wisnewsky J, Poitou C, Oppert J-M. Effect of exercise training after bariatric surgery: A 5-year follow-up study of a randomized controlled trial. PLoS ONE. 2022;17(7):e0271561. doi: 10.1371/journal.pone.0271561
71. Belski R, Mori TA, Puddey IB, Sipsas S, Woodman RJ, Ackland TR, et al. Effects of lupin-enriched foods on body composition and cardiovascular disease risk factors: a 12-month randomized controlled weight loss trial. Int J Obes. 2011;35(6):810-9. doi: 10.1038/ijo.2010.213
72. Belzile D, Auclair A, Roberge J, Piché ME, Lebel A, Pettigrew M, et al. Heart rate variability after bariatric surgery: the add-on value of exercise. Eur J Sport Sci. 2023;23(3):415-22. doi: 10.1080/17461391.2021.2017488
73. Benasi G, Gostoli S, Zhu B, Offidani E, Artin MG, Gagliardi L, et al. Well-being therapy and lifestyle intervention in type 2 diabetes: a pilot randomized controlled trial. Psychosom Med. 2022;84(9):1041-9. doi: 10.1097/PSY.0000000000001115
74. Bennett GG, Foley P, Levine E, Whiteley J, Askew S, Steinberg DM, et al. Behavioral treatment for weight gain prevention among black women in primary care practice: a randomized clinical trial. JAMA Intern Med. 2013;173(19):1770-7. doi: 10.1001/jamainternmed.2013.9263
75. Bennett GG, Warner ET, Glasgow RE, Askew S, Goldman J, Ritzwoller DP, et al. Obesity treatment for socioeconomically disadvantaged patients in primary care practice. Arch Intern Med. 2012;172(7):565-74. doi: 10.1001/archinternmed.2012.1
76. Bensignor MO, Bomberg EM, Bramante CT, Divyalasya TVS, Hale PM, Ramesh CK, et al. Effect of liraglutide treatment on body mass index and weight parameters in children and adolescents with type 2 diabetes: Post hoc analysis of the ellipse trial. Pediatr Obes. 2021;16(8):e12778. doi: 10.1111/ijpo.12778
77. Bensignor MO, Bramante CT, Bomberg EM, Fox CK, Hale PM, Kelly AS, et al. Evaluating potential predictors of weight loss response to liraglutide in adolescents with obesity: a post hoc analysis of the randomized, placebo-controlled SCALE Teens trial. Pediatr Obes. 2023;18(9):e13061. doi: 10.1111/ijpo.13061
78. Bergman F, Wahlström V, Stomby A, Otten J, Lanthén E, Renklint R, et al. Treadmill workstations in office workers who are overweight or obese: a randomised controlled trial. Lancet Public Health. 2018;3(11):e523-e35. doi: 10.1016/S2468-2667(18)30163-4
79. Bergström H, Hagströmer M, Hagberg J, Elinder LS. A multi-component universal intervention to improve diet and physical activity among adults with intellectual disabilities in community residences: a cluster randomised controlled trial. Res Dev Disabil. 2013;34(11):3847-57. doi: 10.1016/j.ridd.2013.07.019
80. Bertz F, Brekke HK, Ellegård L, Rasmussen KM, Wennergren M, Winkvist A. Diet and exercise weight-loss trial in lactating overweight and obese women. Am J Clin Nutr. 2012;96(4):698-705. doi: 10.3945/ajcn.112.040196
81. Bhopal RS, Douglas A, Wallia S, Forbes JF, Lean MEJ, Gill JMR, et al. Effect of a lifestyle intervention on weight change in south Asian individuals in the UK at high risk of type 2 diabetes: a family-cluster randomised controlled trial. Lancet Diabetes Endocrinol. 2014;2(3):218-27. doi: 10.1016/S2213-8587(13)70204-3

82. Bick D, Taylor C, Bhavnani V, Healey A, Seed P, Roberts S, et al. Lifestyle information and commercial weight management groups to support maternal postnatal weight management and positive lifestyle behaviour: the SWAN feasibility randomised controlled trial. BJOG. 2020;127(5):636-45. doi: 10.1111/1471-0528.16043
83. Black MM, Hager E, Le K, Anliker J, Arteaga SS, DiClemente C, et al. Challenge! Health promotion/obesity prevention mentorship model among urban, black adolescents. Pediatrics. 2010;126(2):280-8. doi: 10.1542/peds.2009-1832
84. Black MM, Hager ER, Wang Y, Hurley KM, Latta LW, Candelaria M, Caulfield LE. Toddler obesity prevention: a two-generation randomized attention-controlled trial. Matern Child Nutr. 2021;17(1):e13075. doi: 10.1111/mcn.13075
85. Blomster H, Laitinen T, Lyyra-Laitinen T, Vanninen E, Gylling H, Peltonen M, et al. Endothelial function is well preserved in obese patients with mild obstructive sleep apnea. Sleep Breath. 2014;18(1):177-86. doi: 10.1007/s11325-013-0867-7
86. Bocca G, Corpeleijn E, Stolk RP, Sauer PJJ. Results of a multidisciplinary treatment program in 3-year-old to 5-year-old overweight or obese children: a randomized controlled clinical trial. Arch Pediatr Adolesc Med. 2012;166(12):1109-15. doi: 10.1001/archpediatrics.2012.1638
87. Bogart LM, Elliott MN, Cowgill BO, Klein DJ, Hawes-Dawson J, Uyeda K, Schuster MA. Two-year BMI outcomes from a school-based intervention for nutrition and exercise: a randomized trial. Pediatrics. 2016;137(5):e20152493. doi: 10.1542/peds.2015-2493
88. Bolinder J, Ljunggren Ö, Johansson L, Wilding J, Langkilde AM, Sjöström CD, et al. Dapagliflozin maintains glycaemic control while reducing weight and body fat mass over 2 years in patients with type 2 diabetes mellitus inadequately controlled on metformin. Diabetes Obes Metab. 2014;16(2):159-69. doi: 10.1111/dom.12189
89. Bonn SE, Hult M, Spetz K, Eke H, Andersson E, Wirén M, et al. Effect of a smartphone application on physical activity and weight loss after bariatric surgery-results from a randomized controlled trial. Obes Surg. 2023;33(9):2841-50. doi: 10.1007/s11695-023-06753-6
90. Bouchonville M, Armamento-Villareal R, Shah K, Napoli N, Sinacore DR, Qualls C, Villareal DT. Weight loss, exercise or both and cardiometabolic risk factors in obese older adults: results of a randomized controlled trial. Int J Obes. 2014;38(3):423-31. doi: 10.1038/ijo.2013.122
91. Boutelle KN, Eichen DM, Peterson CB, Strong DR, Kang-Sim D-JE, Rock CL, Marcus BH. Effect of a novel intervention targeting appetitive traits on body mass index among adults with overweight or obesity: a randomized clinical trial. JAMA Netw Open. 2022;5(5):e2212354. doi: 10.1001/jamanetworkopen.2022.12354
92. Boutelle KN, Rhee KE, Liang J, Braden A, Douglas J, Strong D, et al. Effect of attendance of the child on body weight, energy intake, and physical activity in childhood obesity treatment: a randomized clinical trial. JAMA Pediatr. 2017;171(7):622-8. doi: 10.1001/jamapediatrics.2017.0651
93. Bowen DJ, Quintiliani LM, Bhosrekar SG, Goodman R, Smith E. Changing the housing environment to reduce obesity in public housing residents: a cluster randomized trial. BMC Public Health. 2018;18:883. doi: 10.1186/s12889-018-5777-y
94. Boyraz M, Pirgon Ö, Dündar B, Çekmez F, Hatipoğlu N. Long-term treatment with n-3 polyunsaturated fatty acids as a monotherapy in children with nonalcoholic fatty liver disease. J Clin Res Pediatr Endocrinol. 2015;7(2):121-7. doi: 10.4274/jcrpe.1749
95. Bräutigam-Ewe M, Lydell M, Bergh H, Hildingh C, Baigi A, Månsson J. Two-year weight, risk and health factor outcomes of a weight-reduction intervention programme: primary prevention for overweight in a multicentre primary healthcare setting. Scand J Prim Health Care. 2020;38(2):192-200. doi: 10.1080/02813432.2020.1753379
96. Brekke HK, Bertz F, Rasmussen KM, Bosaeus I, Ellegård L, Winkvist A. Diet and exercise interventions among overweight and obese lactating women: randomized trial of effects on cardiovascular risk factors. PLoS ONE. 2014;9(2):e88250. doi: 10.1371/journal.pone.0088250
97. Brown A, Dornhorst A, McGowan B, Omar O, Leeds AR, Taheri S, Frost GS. Low-energy total diet replacement intervention in patients with type 2 diabetes mellitus and obesity treated with

insulin: a randomized trial. BMJ Open Diab Res Care. 2020;8(1):e001012. doi: 10.1136/bmjdrc-2019-001012
98. Brown JC, Sarwer DB, Troxel AB, Sturgeon K, DeMichele AM, Denlinger CS, Schmitz KH. A randomized trial of exercise and diet on body composition in survivors of breast cancer with overweight or obesity. Breast Cancer Res Treat. 2021;189(1):145-54. doi: 10.1007/s10549-021-06284-7
99. Burke LE, Ewing LJ, Ye L, Styn M, Zheng Y, Music E, et al. The SELF trial: a self-efficacy-based behavioral intervention trial for weight loss maintenance. Obesity. 2015;23(11):2175-82. doi: 10.1002/oby.21238
100. Burke LE, Sereika SM, Bizhanova Z, Parmanto B, Kariuki J, Cheng J, et al. The effect of tailored, daily, smartphone feedback to lifestyle self-monitoring on weight loss at 12 months: the SMARTER randomized clinical trial. J Med Internet Res. 2022;24(7):e38243. doi: 10.2196/38243
101. Butryn ML, Crane NT, Lufburrow E, Hagerman CJ, Forman EM, Zhang F. The role of physical activity in long-term weight loss: 36-month results from a randomized controlled trial. Ann Behav Med. 2023;57(2):146-54. doi: 10.1093/abm/kaac028
102. Butryn ML, Forman EM, Lowe MR, Gorin AA, Zhang F, Schaumberg K. Efficacy of environmental and acceptance-based enhancements to behavioral weight loss treatment: the ENACT trial. Obesity. 2017;25(5):866-72. doi: 10.1002/oby.21813
103. Butryn ML, Godfrey KM, Call CC, Forman EM, Zhang F, Volpe SL. Promotion of physical activity during weight loss maintenance: a randomized controlled trial. Health Psychol. 2021;40(3):178-87. doi: 10.1037/hea0001043
104. Cabrera-Rode E, Orlandi N, Padrón Y, Arranz C, Olano R, Machado M, et al. Effect of Diamel in patients with metabolic syndrome: a randomized double-blind placebo-controlled study. J Diabetes. 2013;5(2):180-91. doi: 10.1111/1753-0407.12007
105. Cadmus-Bertram L, Nelson SH, Hartman S, Patterson RE, Parker BA, Pierce JP. Randomized trial of a phone- and web-based weight loss program for women at elevated breast cancer risk: the HELP study. J Behav Med. 2016;39(4):551-9. doi: 10.1007/s10865-016-9735-9
106. Cai R, Chao J, Li D, Zhang M, Kong L, Wang Y. Effect of community-based lifestyle interventions on weight loss and cardiometabolic risk factors in obese elderly in China: a randomized controlled trial. Exp Gerontol. 2019;128:110749. doi: 10.1016/j.exger.2019.110749
107. Caiazzo R, Branche J, Raverdy V, Czernichow S, Carette C, Robert M, et al. Efficacy and safety of the duodeno-jejunal bypass liner in patients with metabolic syndrome: a multicenter randomized controlled trial (ENDOMETAB). Ann Surg. 2020;272(5):696-702. doi: 10.1097/SLA.0000000000004339
108. Calleja Fernández A, Vidal Casariego A, Cano Rodríguez I, Ballesteros Pomar MD. One-year effectiveness of two hypocaloric diets with different protein/carbohydrate ratios in weight loss and insulin resistance. Nutr Hosp. 2012;27(6):2093-101. doi: 10.3305/nh.2012.27.6.6133
109. Campbell KL, Foster-Schubert KE, Alfano CM, Wang C-C, Wang C-Y, Duggan CR, et al. Reduced-calorie dietary weight loss, exercise, and sex hormones in postmenopausal women: randomized controlled trial. J Clin Oncol. 2012;30(19):2314-26. doi: 10.1200/JCO.2011.37.9792
110. Campbell PT, Gross MD, Potter JD, Schmitz KH, Duggan C, McTiernan A, Ulrich CM. Effect of exercise on oxidative stress: a 12-month randomized, controlled trial. Med Sci Sports Exerc. 2010;42(8):1448-53. doi: 10.1249/MSS.0b013e3181cfc908
111. Carnier J, de Mello MT, Ackel-ĎElia C, Corgosinho FC, Campos RMdS, Sanches PdL, et al. Aerobic training (AT) is more effective than aerobic plus resistance training (AT+RT) to improve anorexigenic/orexigenic factors in obese adolescents. Appetite. 2013;69:168-73. doi: 10.1016/j.appet.2013.05.018
112. Carraça EV, Markland D, Silva MN, Coutinho SR, Vieira PN, Minderico CS, et al. Physical activity predicts changes in body image during obesity treatment in women. Med Sci Sports Exerc. 2012;44(8):1604-12. doi: 10.1249/MSS.0b013e31824d922a

113. Carraça EV, Silva MN, Coutinho SR, Vieira PN, Minderico CS, Sardinha LB, Teixeira PJ. The association between physical activity and eating self-regulation in overweight and obese women. Obes Facts. 2013;6(6):493-506. doi: 10.1159/000356449
114. Carter S, Clifton PM, Keogh JB. The effect of intermittent compared with continuous energy restriction on glycaemic control in patients with type 2 diabetes: 24-month follow-up of a randomised noninferiority trial. Diabetes Res Clin Pract. 2019;151:11-9. doi: 10.1016/j.diabres.2019.03.022
115. Cassidy S, Trenell M, Stefanetti RJ, Charman SJ, Barnes AC, Brosnahan N, et al. Physical activity, inactivity and sleep during the Diabetes Remission Clinical Trial (DiRECT). Diabet Med. 2023;40(3):e15010. doi: 10.1111/dme.15010
116. Catalán-Lambán A, Ojeda-Rodríguez A, Marti Del Moral A, Azcona-Sanjulian C. Changes in objectively measured sleep after a multidisciplinary lifestyle intervention in children with abdominal obesity: a randomized trial. Sleep Med. 2023;109:252-60. doi: 10.1016/j.sleep.2023.07.004
117. Cesa GL, Manzoni GM, Bacchetta M, Castelnuovo G, Conti S, Gaggioli A, et al. Virtual reality for enhancing the cognitive behavioral treatment of obesity with binge eating disorder: randomized controlled study with one-year follow-up. J Med Internet Res. 2013;15(6):e113. doi: 10.2196/jmir.2441
118. Chair S-Y, Lo SWS, Cheng HY, Choi KC, Liu T, Wang Q, Sit JWH. Effects of a theory-based educational program on health behaviors and cardiovascular health outcomes among overweight postmenopausal women: a randomized controlled trial. Cardiovasc Nurs. 2024;39(1):79-87. doi: 10.1097/JCN.0000000000001032
119. Chan DL, Cruz JR, Mui WL, Wong SKH, Ng EKW. Outcomes with intra-gastric balloon therapy in BMI < 35 non-morbid obesity: 10-year follow-up study of an RCT. Obes Surg. 2021;31(2):781-6. doi: 10.1007/s11695-020-04986-3
120. Chang S-H, Chang Y-Y, Jeng W-J, Wai JPM. Efficacy of a multidimensional self-management intervention on low-education women with metabolic syndrome: a cluster randomized controlled trial. Sci Rep. 2023;13(1):10358. doi: 10.1038/s41598-023-36971-y
121. Chang S-H, Chien N-H, Yu C-Y. Long-term lifestyle intervention in elderly with metabolic syndrome. Clin Nurs Res. 2019;28(6):658-75. doi: 10.1177/1054773817749923
122. Cheng A, Yeoh E, Moh A, Low S, Tan CH, Lam B, et al. Roux-en-Y gastric bypass versus best medical treatment for type 2 diabetes mellitus in adults with body mass index between 27 and 32 kg/m2: a 5-year randomized controlled trial. Diabetes Res Clin Pract. 2022;188:109900. doi: 10.1016/j.diabres.2022.109900
123. Cheng HL, Griffin HJ, Bryant CE, Rooney KB, Steinbeck KS, O'Connor HT. Impact of diet and weight loss on iron and zinc status in overweight and obese young women. Asia Pac J Clin Nutr. 2013;22(4):574-82. doi: 10.6133/apjcn.2013.22.4.08
124. Chong K, Ikramuddin S, Lee W-J, Billington CJ, Bantle JP, Wang Q, et al. National differences in remission of type 2 diabetes mellitus after Roux-en-Y gastric bypass surgery-subgroup analysis of 2-year results of the Diabetes Surgery Study comparing Taiwanese with Americans with mild obesity (BMI 30-35 kg/m2). Obes Surg. 2017;27(5):1189-95. doi: 10.1007/s11695-016-2433-4
125. Christensen JR, Overgaard K, Carneiro IG, Holtermann A, Søgaard K. Weight loss among female health care workers- a 1-year workplace based randomized controlled trial in the FINALE-health study. BMC Public Health. 2012;12(1):625. doi: 10.1186/1471-2458-12-625
126. Christensen P, Frederiksen R, Bliddal H, Riecke BF, Bartels EM, Henriksen M, et al. Comparison of three weight maintenance programs on cardiovascular risk, bone and vitamins in sedentary older adults. Obesity. 2013;21(10):1982-90. doi: 10.1002/oby.20413
127. Christensen R, Henriksen M, Leeds AR, Gudbergsen H, Christensen P, Sørensen TJ, et al. Effect of weight maintenance on symptoms of knee osteoarthritis in obese patients: a twelve-month randomized controlled trial. Arthritis Care Res. 2015;67(5):640-50. doi: 10.1002/acr.22504
128. Clina JG, Sayer RD, Pan Z, Cohen CW, McDermott MT, Catenacci VA, et al. High- and normal-protein diets improve body composition and glucose control in adults with type 2 diabetes: a randomized trial. Obesity. 2023;31(8):2021-30. doi: 10.1002/oby.23815

129. Cohen TR, Hazell TJ, Vanstone CA, Rodd C, Weiler HA. Changes in eating behavior and plasma leptin in children with obesity participating in a family-centered lifestyle intervention. Appetite. 2018;125:81-9. doi: 10.1016/j.appet.2018.01.017
130. Cohen TR, Mak IL, Loiselle S-E, Kasvis P, Hazell TJ, Vanstone CA, et al. Changes in adiposity without impacting bone health in 9- to 12-year-old children with overweight and obesity after a one-year family-centered lifestyle behavior intervention. Child Obes. 2023;19(1):46-56. doi: 10.1089/chi.2022.0008
131. Coleman KJ, Caparosa SL, Nichols JF, Fujioka K, Koebnick C, McCloskey KN, et al. Understanding the capacity for exercise in post-bariatric patients. Obes Surg. 2017;27(1):51-8. doi: 10.1007/s11695-016-2240-y
132. Colleluori G, Napoli N, Phadnis U, Armamento-Villareal R, Villareal DT. Effect of weight loss, exercise, or both on undercarboxylated osteocalcin and insulin secretion in frail, obese older adults. Oxid Med Cell Longev. 2017;2017:4807046. doi: 10.1155/2017/4807046
133. Collins CE, Okely AD, Morgan PJ, Jones RA, Burrows TL, Cliff DP, et al. Parent diet modification, child activity, or both in obese children: an RCT. Pediatrics. 2011;127(4):619-27. doi: 10.1542/peds.2010-1518
134. Collins KA, Kraus WE, Rogers RJ, Hauser ER, Lang W, Jiang R, et al. Effect of behavioral weight-loss program on biomarkers of cardiometabolic disease risk: Heart Health Study randomized trial. Obesity. 2023;31(2):338-49. doi: 10.1002/oby.23618
135. Conroy MB, McTigue KM, Bryce CL, Tudorascu D, Gibbs BB, Arnold J, et al. Effect of electronic health record-based coaching on weight maintenance: a randomized trial. Ann Intern Med. 2019;171(11):777-84. doi: 10.7326/M18-3337
136. Conroy MB, Sward KL, Spadaro KC, Tudorascu D, Karpov I, Jones BL, et al. Effectiveness of a physical activity and weight loss intervention for middle-aged women: healthy bodies, healthy hearts randomized trial. J Gen Intern Med. 2015;30(2):207-13. doi: 10.1007/s11606-014-3077-5
137. Cooper Z, Doll HA, Hawker DM, Byrne S, Bonner G, Eeley E, et al. Testing a new cognitive behavioural treatment for obesity: a randomized controlled trial with three-year follow-up. Behav Res Ther. 2010;48(8):706-13. doi: 10.1016/j.brat.2010.03.008
138. Coppins DF, Margetts BM, Fa JL, Brown M, Garrett F, Huelin S. Effectiveness of a multi-disciplinary family-based programme for treating childhood obesity (The Family Project). Eur J Clin Nutr. 2011;65(8):903-9. doi: 10.1038/ejcn.2011.43
139. Cornelius T, Gettens K, Gorin AA. Dyadic dynamics in a randomized weight loss intervention. Ann Behav Med. 2016;50(4):506-15. doi: 10.1007/s12160-016-9778-8
140. Cornelli U, Belcaro G, Recchia M, D'Orazio N. Long-term treatment of overweight and obesity with polyglucosamine (PG L112): randomized study compared with placebo in subjects after caloric restriction. Curr Dev Nutr. 2017;1(10):e000919. doi: 10.3945/cdn.117.000919
141. Coughlin JW, Brantley PJ, Champagne CM, Vollmer WM, Stevens VJ, Funk K, et al. The impact of continued intervention on weight: five-year results from the weight loss maintenance trial. Obesity. 2016;24(5):1046-53. doi: 10.1002/oby.21454
142. Coughlin JW, Gullion CM, Brantley PJ, Stevens VJ, Bauck A, Champagne CM, et al. Behavioral mediators of treatment effects in the weight loss maintenance trial. Ann Behav Med. 2013;46(3):369-81. doi: 10.1007/s12160-013-9517-3
143. Courcoulas AP, Belle SH, Neiberg RH, Pierson SK, Eagleton JK, Kalarchian MA, et al. Three-year outcomes of bariatric surgery vs lifestyle intervention for type 2 diabetes mellitus treatment: a randomized clinical trial. JAMA Surg. 2015;150(10):931-40. doi: 10.1001/jamasurg.2015.1534
144. Courcoulas AP, Gallagher JW, Neiberg RH, Eagleton EB, DeLany JP, Lang W, et al. Bariatric surgery vs lifestyle intervention for diabetes treatment: 5-year outcomes from a randomized trial. J Clin Endocrinol Metab. 2020;105(3):866–76. doi: 10.1210/clinem/dgaa006
145. Courcoulas AP, Goodpaster BH, Eagleton JK, Belle SH, Kalarchian MA, Lang W, et al. Surgical vs medical treatments for type 2 diabetes mellitus: a randomized clinical trial. JAMA Surg. 2014;149(7):707-15. doi: 10.1001/jamasurg.2014.467

146. Cox DJ, Oser T, Moncrief M, Conaway M, McCall A. Long-term follow-up of a randomized clinical trial comparing glycemic excursion minimization (GEM) to weight loss (WL) in the management of type 2 diabetes. BMJ Open Diab Res Care. 2021;9(2):e00240. doi: 10.1136/bmjdrc-2021-002403
147. Crespo NC, Elder JP, Ayala GX, Slymen DJ, Campbell NR, Sallis JF, et al. Results of a multi-level intervention to prevent and control childhood obesity among Latino children: the Aventuras Para Ninos Study. Ann Behav Med. 2012;43(1):84-100. doi: 10.1007/s12160-011-9332-7
148. Crespo NC, Talavera GA, Campbell NR, Shadron LM, Behar AI, Slymen D, et al. A randomized controlled trial to prevent obesity among Latino paediatric patients. Pediatr Obes. 2018;13(11):697-704. doi: 10.1111/ijpo.12466
149. Cummings DE, Arterburn DE, Westbrook EO, Kuzma JN, Stewart SD, Chan CP, et al. Gastric bypass surgery vs intensive lifestyle and medical intervention for type 2 diabetes: the CROSSROADS randomised controlled trial. Diabetologia. 2016;59(5):945-53. doi: 10.1007/s00125-016-3903-x
150. Curtin C, Bandini LG, Must A, Gleason J, Lividini K, Phillips S, et al. Parent support improves weight loss in adolescents and young adults with Down syndrome. J Pediatr. 2013;163(5):1402-8.e1. doi: 10.1016/j.jpeds.2013.06.081
151. da Silveira Campos RM, Landi Masquio DC, Campos Corgosinho F, de Lima Sanches P, de Piano A, Carnier J, et al. Homeostasis Model Assessment-Adiponectin: the role of different types of physical exercise in obese adolescents. J Sports Med Phys Fitness. 2017;57(6):831-8. doi: 10.23736/S0022-4707.16.06235-6
152. Dâmaso AR, da Silveira Campos RM, Caranti DA, de Piano A, Fisberg M, Foschini D, et al. Aerobic plus resistance training was more effective in improving the visceral adiposity, metabolic profile and inflammatory markers than aerobic training in obese adolescents. J Sports Sci. 2014;32(15):1435-45. doi: 10.1080/02640414.2014.900692
153. Das SK, Bukhari AS, Taetzsch AG, Ernst AK, Rogers GT, Gilhooly CH, et al. Randomized trial of a novel lifestyle intervention compared with the Diabetes Prevention Program for weight loss in adult dependents of military service members. Am J Clin Nutr. 2021;114(4):1546-59. doi: 10.1093/ajcn/nqab259
154. Daumit GL, Dickerson FB, Wang N-Y, Dalcin A, Jerome GJ, Anderson CAM, et al. A behavioral weight-loss intervention in persons with serious mental illness. N Engl J Med. 2013;368(17):1594-602. doi: 10.1056/NEJMoa1214530
155. Davidson MH, Tonstad S, Oparil S, Schwiers M, Day WW, Bowden CH. Changes in cardiovascular risk associated with phentermine and topiramate extended-release in participants with comorbidities and a body mass index >=27 kg/m(2). Am J Cardiol. 2013;111(8):1131-8. doi: 10.1016/j.amjcard.2012.12.038
156. Davies M, Færch L, Jeppesen OK, Pakseresht A, Pedersen SD, Perreault L, et al. Semaglutide 2·4 mg once a week in adults with overweight or obesity, and type 2 diabetes (STEP 2): a randomised, double-blind, double-dummy, placebo-controlled, phase 3 trial. Lancet. 2021;397(10278):971-84. doi: 10.1016/S0140-6736(21)00213-0
157. Davies MJ, Bergenstal R, Bode B, Kushner RF, Lewin A, Skjøth TV, et al. Efficacy of liraglutide for weight loss among patients with type 2 diabetes: the SCALE Diabetes randomized clinical trial. JAMA. 2015;314(7):687-99. doi: 10.1001/jama.2015.9676
158. Davis SM, Myers OB, Cruz TH, Morshed AB, Canaca GF, Keane PC, O'Donald ER. CHILE: outcomes of a group randomized controlled trial of an intervention to prevent obesity in preschool Hispanic and American Indian children. Prev Med. 2016;89:162-8. doi: 10.1016/j.ypmed.2016.05.018
159. Davy BM, Winett RA, Savla J, Marinik EL, Baugh ME, Flack KD, et al. Resist diabetes: a randomized clinical trial for resistance training maintenance in adults with prediabetes. PLoS ONE. 2017;12(2):e0172610. doi: 10.1371/journal.pone.0172610
160. de Oliveira Maranhão Pureza IR, da Silva Junior AE, Silva Praxedes DR, Lessa Vasconcelos LG, de Lima Macena M, Vieira de Melo IS, et al. Effects of time-restricted feeding on body weight, body composition and vital signs in low-income women with obesity: a 12-month randomized clinical trial. Clin Nutr. 2021;40(3):759-66. doi: 10.1016/j.clnu.2020.06.036

161. de Piano A, de Mello MT, Sanches PdL, da Silva PL, Campos RMS, Carnier J, et al. Long-term effects of aerobic plus resistance training on the adipokines and neuropeptides in nonalcoholic fatty liver disease obese adolescents. Eur J Gastroenterol Hepatol. 2012;24(11):1313-24. doi: 10.1097/MEG.0b013e32835793ac
162. de Vos BC, Runhaar J, Bierma-Zeinstra SMA. Effectiveness of a tailor-made weight loss intervention in primary care. Eur J Nutr. 2014;53(1):95-104. doi: 10.1007/s00394-013-0505-y
163. de Vos BC, Runhaar J, van Middelkoop M, Krul M, Bierma-Zeinstra SM. Long-term effects of a randomized, controlled, tailor-made weight-loss intervention in primary care on the health and lifestyle of overweight and obese women. Am J Clin Nutr. 2016;104(1):33-40. doi: 10.3945/ajcn.116.133512
164. DeBar LL, Stevens VJ, Perrin N, Wu P, Pearson J, Yarborough BJ, et al. A primary care-based, multicomponent lifestyle intervention for overweight adolescent females. Pediatrics. 2012;129(3):e611-e20. doi: 10.1542/peds.2011-0863
165. Debussche X, Rollot O, Le Pommelet C, Fianu A, Le Moullec N, Régnier C, et al. Quarterly individual outpatients lifestyle counseling after initial inpatients education on type 2 diabetes: the REDIA Prev-2 randomized controlled trial in Reunion Island. Diabetes Metab. 2012;38(1):46-53. doi: 10.1016/j.diabet.2011.07.002
166. Dekkers JC, van Wier MF, Ariëns GA, Hendriksen IJ, Pronk NP, Smid T, van Mechelen W. Comparative effectiveness of lifestyle interventions on cardiovascular risk factors among a Dutch overweight working population: a randomized controlled trial. BMC Public Health. 2011;11:49. doi: 10.1186/1471-2458-11-49
167. Demark-Wahnefried W, Jones LW, Snyder DC, Sloane RJ, Kimmick GG, Hughes DC, et al. Daughters and Mothers Against Breast Cancer (DAMES): main outcomes of a randomized controlled trial of weight loss in overweight mothers with breast cancer and their overweight daughters. Cancer. 2014;120(16):2522-34. doi: 10.1002/cncr.28761
168. Demark-Wahnefried W, Morey MC, Sloane R, Snyder DC, Miller PE, Hartman TJ, Cohen HJ. Reach out to enhance wellness home-based diet-exercise intervention promotes reproducible and sustainable long-term improvements in health behaviors, body weight, and physical functioning in older, overweight/obese cancer survivors. J Clin Oncol. 2012;30(19):2354-61. doi: 10.1200/JCO.2011.40.0895
169. Derosa G, Cicero AF, D'Angelo A, Fogari E, Maffioli P. Effects of 1-year orlistat treatment compared to placebo on insulin resistance parameters in patients with type 2 diabetes. J Clin Pharm Ther. 2012;37(2):187-95. doi: 10.1111/j.1365-2710.2011.01280.x
170. Derwig M, Tiberg I, Björk J, Kristensson Hallström I. Changes in perceived parental self-efficacy after a Child-Centred Health Dialogue about preventing obesity. Acta Paediatr. 2022;111(10):1956-65. doi: 10.1111/apa.16453
171. Díaz RG, Esparza-Romero J, Moya-Camarena SY, Robles-Sardín AE, Valencia ME. Lifestyle intervention in primary care settings improves obesity parameters among Mexican youth. J Am Diet Assoc. 2010;110(2):285-90. doi: 10.1016/j.jada.2009.10.042
172. Díaz-López A, Becerra-Tomás N, Ruiz V, Toledo E, Babio N, Corella D, et al. Effect of an intensive weight-loss lifestyle intervention on kidney function: a randomized controlled trial. Am J Nephrol. 2021;52(1):45-58. doi: 10.1159/000513664
173. Dietz de Loos A, Jiskoot G, Beerthuizen A, Busschbach J, Laven J. Metabolic health during a randomized controlled lifestyle intervention in women with PCOS. Eur J Endocrinol. 2021;186(1):53-64. doi: 10.1530/EJE-21-0669
174. Ding S-A, Simonson DC, Wewalka M, Halperin F, Foster K, Goebel-Fabbri A, et al. Adjustable gastric band surgery or medical management in patients with type 2 diabetes: a randomized clinical trial. J Clin Endocrinol Metab. 2015;100(7):2546-56. doi: 10.1210/jc.2015-1443
175. Dixon JB, Schachter LM, O'Brien PE, Jones K, Grima M, Lambert G, et al. Surgical vs conventional therapy for weight loss treatment of obstructive sleep apnea: a randomized controlled trial. JAMA. 2012;308(11):1142-9. doi: 10.1001/2012.jama.11580

176. Dorenbos E, Drummen M, Adam T, Rijks J, Winkens B, Martínez JA, et al. Effect of a high protein/low glycaemic index diet on insulin resistance in adolescents with overweight/obesity-a PREVIEW randomized clinical trial. Pediatr Obes. 2021;16(1):e12702. doi: 10.1111/ijpo.12702
177. Dorling JL, Martin CK, Yu Q, Cao W, Höchsmann C, Apolzan JW, et al. Mediators of weight change in underserved patients with obesity: exploratory analyses from the Promoting Successful Weight Loss in Primary Care in Louisiana (PROPEL) cluster-randomized trial. Am J Clin Nutr. 2022;116(4):1112-22. doi: 10.1093/ajcn/nqac179
178. Dowsey MM, Brown WA, Cochrane A, Burton PR, Liew D, Choong PF. Effect of bariatric surgery on risk of complications after total knee arthroplasty: a randomized clinical trial. JAMA Netw Open. 2022;5(4):e226722. doi: 10.1001/jamanetworkopen.2022.6722
179. Driehuis F, Barte JCM, ter Bogt NCW, Beltman FW, Smit AJ, van der Meer K, Bemelmans WJE. Maintenance of lifestyle changes: 3-year results of the Groningen Overweight and Lifestyle study. Patient Educ Couns. 2012;88(2):249-55. doi: 10.1016/j.pec.2012.03.017
180. Due A, Larsen TM, Mu H, Hermansen K, Stender S, Toubro S, et al. The effect of three different ad libitum diets for weight loss maintenance: a randomized 18-month trial. Eur J Nutr. 2017;56(2):727-38. doi: 10.1007/s00394-015-1116-6
181. Duggan C, Tapsoba JdD, Shivappa N, Harris HR, Hébert JR, Wang C-Y, McTiernan A. Changes in dietary inflammatory index patterns with weight loss in women: a randomized controlled trial. Cancer Prev Res (Phila). 2021;14(1):85-94. doi: 10.1158/1940-6207.CAPR-20-0181
182. Duggan C, Tapsoba JdD, Stanczyk F, Wang C-Y, Schubert KF, McTiernan A. Long-term weight loss maintenance, sex steroid hormones, and sex hormone-binding globulin. Menopause. 2019;26(4):417-22. doi: 10.1097/GME.0000000000001250
183. Duggan C, Tapsoba JdD, Wang C-Y, Campbell KL, Foster-Schubert K, Gross MD, McTiernan A. Dietary weight loss, exercise, and oxidative stress in postmenopausal women: a randomized controlled trial. Cancer Prev Res (Phila). 2016;9(11):835-43. doi: 10.1158/1940-6207.CAPR-16-0163
184. Duggins M, Cherven P, Carrithers J, Messamore J, Harvey A. Impact of family YMCA membership on childhood obesity: a randomized controlled effectiveness trial. J Am Board Fam Med. 2010;23(3):323-33. doi: 10.3122/jabfm.2010.03.080266
185. Duncan MJ, Fenton S, Brown WJ, Collins CE, Glozier N, Kolt GS, et al. Efficacy of a multi-component m-health weight-loss intervention in overweight and obese adults: a randomised controlled trial. Int J Environ Res Public Health. 2020;17(17):6200. doi: 10.3390/ijerph17176200
186. Duncan S, Goodyear-Smith F, McPhee J, Grøntved A, Schofield G. Family-centered brief intervention for reducing obesity and cardiovascular disease risk: a randomized controlled trial. Obesity. 2016;24(11):2311-8. doi: 10.1002/oby.21602
187. Dutheil F, Lac G, Lesourd B, Chapier R, Walther G, Vinet A, et al. Different modalities of exercise to reduce visceral fat mass and cardiovascular risk in metabolic syndrome: the RESOLVE randomized trial. Int J Cardiol. 2013;168(4):3634-42. doi: 10.1016/j.ijcard.2013.05.012
188. Dutton GR, Gowey MA, Tan F, Zhou D, Ard J, Perri MG, Lewis CE. Comparison of an alternative schedule of extended care contacts to a self-directed control: a randomized trial of weight loss maintenance. Int J Behav Nutr Phys Act. 2017;14:107. doi: 10.1186/s12966-017-0564-1
189. Eakin EG, Winkler EA, Dunstan DW, Healy GN, Owen N, Marshall AM, et al. Living well with diabetes: 24-month outcomes from a randomized trial of telephone-delivered weight loss and physical activity intervention to improve glycemic control. Diabetes Care. 2014;37(8):2177-85. doi: 10.2337/dc13-2427
190. Eaton CB, Hartman SJ, Perzanowski E, Pan G, Roberts MB, Risica PM, et al. A randomized clinical trial of a tailored lifestyle intervention for obese, sedentary, primary care patients. Ann Fam Med. 2016;14(4):311-9. doi: 10.1370/afm.1952
191. Epstein LH, Wilfley DE, Kilanowski C, Quattrin T, Cook SR, Eneli IU, et al. Family-based behavioral treatment for childhood obesity implemented in pediatric primary care: a randomized clinical trial. JAMA. 2023;329(22):1947-56. doi: 10.1001/jama.2023.8061

192. Erickson ZD, Kwan CL, Gelberg HA, Arnold IY, Chamberlin V, Rosen JA, et al. A randomized, controlled multisite study of behavioral interventions for veterans with mental illness and antipsychotic medication-associated obesity. J Gen Intern Med. 2017;32:32-9. doi: 10.1007/s11606-016-3960-3
193. Erickson ZD, Mena SJ, Pierre JM, Blum LH, Martin E, Hellemann GS, et al. Behavioral interventions for antipsychotic medication-associated obesity: a randomized, controlled clinical trial. J Clin Psychiatry. 2016;77(2):e183-e9. doi: 10.4088/JCP.14m09552
194. Espeland MA, Carmichael O, Hayden K, Neiberg RH, Newman AB, Keller JN, et al. Long-term impact of weight loss intervention on changes in cognitive function: exploratory analyses from the action for health in diabetes randomized controlled clinical trial. J Gerontol A Biol Sci Med Sci. 2018;73(4):484-91. doi: 10.1093/gerona/glx165
195. Espeland MA, Lewis CE, Bahnson J, Knowler WC, Regensteiner JG, Gaussoin SA, et al. Impact of weight loss on ankle-brachial index and interartery blood pressures. Obesity. 2014;22(4):1032-41. doi: 10.1002/oby.20658
196. Espeland MA, Luchsinger JA, Neiberg RH, Carmichael O, Laurienti PJ, Pi-Sunyer X, et al. Long term effect of intensive lifestyle intervention on cerebral blood flow. J Am Geriatr Soc. 2018;66(1):120-6. doi: 10.1111/jgs.15159
197. Espeland MA, Rejeski WJ, West DS, Bray GA, Clark JM, Peters AL, et al. Intensive weight loss intervention in older individuals: results from the Action for Health in Diabetes Type 2 diabetes mellitus trial. J Am Geriatr Soc. 2013;61(6):912-22. doi: 10.1111/jgs.12271
198. Estruch R, Martínez-González MA, Corella D, Salas-Salvadó J, Fitó M, Chiva-Blanch G, et al. Effect of a high-fat Mediterranean diet on bodyweight and waist circumference: a prespecified secondary outcomes analysis of the PREDIMED randomised controlled trial. Lancet Diabetes Endocrinol. 2019;7(5):e6-e17. doi: 10.1016/S2213-8587(19)30074-9
199. Evans EM, Mojtahedi MC, Thorpe MP, Valentine RJ, Kris-Etherton PM, Layman DK. Effects of protein intake and gender on body composition changes: a randomized clinical weight loss trial. Nutr Metab. 2012;9(1):55. doi: 10.1186/1743-7075-9-55
200. Everett B, Salamonson Y, Koirala B, Zecchin R, Davidson PM. A randomized controlled trial of motivational interviewing as a tool to enhance secondary prevention strategies in cardiovascular disease (MICIS study). Contemp Nurse. 2021;57(1-2):80-98. doi: 10.1080/10376178.2021.1927774
201. Fagevik Olsén M, Wiklund M, Sandberg E, Lundqvist S, Dean E. Long-term effects of physical activity prescription after bariatric surgery: a randomized controlled trial. Physiother Theory Pract. 2022;38(11):1591-601. doi: 10.1080/09593985.2021.1885087
202. Fahs PS, Pribulick M, Williams IC, James GD, Rovynak V, Seibold-Simpson SM. Promoting heart health in rural women. J Rural Health. 2013;29(3):248-57. doi: 10.1111/j.1748-0361.2012.00442.x
203. Fanning J, Rejeski WJ, Leng I, Barnett C, Lovato JF, Lyles MF, Nicklas BJ. Intervening on exercise and daylong movement for weight loss maintenance in older adults: a randomized, clinical trial. Obesity. 2022;30(1):85-95. doi: 10.1002/oby.23318
204. Farinatti P, Monteiro WD, Oliveira RB. Long term home-based exercise is effective to reduce blood pressure in low income Brazilian hypertensive patients: a controlled trial. High Blood Press Cardiovasc Prev. 2016;23(4):395-404. doi: 10.1007/s40292-016-0169-9
205. Farpour-Lambert NJ, Martin XE, Bucher Della Torre S, von Haller L, Ells LJ, Herrmann FR, Aggoun Y. Effectiveness of individual and group programmes to treat obesity and reduce cardiovascular disease risk factors in pre-pubertal children. Clin Obes. 2019;9(6):e12335. doi: 10.1111/cob.12335
206. Farsijani S, Cauley JA, Santanasto AJ, Glynn NW, Boudreau RM, Newman AB. Transition to a more even distribution of daily protein intake is associated with enhanced fat loss during a hypocaloric & physical activity intervention in obese older adults. J Nutr Health Aging. 2020;24(2):210-7. doi: 10.1007/s12603-020-1313-8

207. Feigel-Guiller B, Drui D, Dimet J, Zair Y, Le Bras M, Fuertes-Zamorano N, et al. Laparoscopic gastric banding in obese patients with sleep apnea: a 3-year controlled study and follow-up after 10 years. Obes Surg. 2015;25(10):1886-92. doi: 10.1007/s11695-015-1627-5
208. Fernández-Ruiz VE, Armero-Barranco D, Paniagua-Urbano JA, Sole-Agusti M, Ruiz-Sánchez A, Gómez-Marín J. Short-medium-long-term efficacy of interdisciplinary intervention against overweight and obesity: randomized controlled clinical trial. Int J Nurs Pract. 2018;24(6):e12690. doi: 10.1111/ijn.12690
209. Fernández-Ruiz VE, Ramos-Morcillo AJ, Solé-Agustí M, Paniagua-Urbano JA, Armero-Barranco D. Effectiveness of an interdisciplinary program performed on obese people regarding nutritional habits and metabolic comorbidity: a randomized controlled clinical trial. Int J Environ Res Public Health. 2020;17(1):336. doi: 10.3390/ijerph17010336
210. Fernández-Ruiz VE, Solé-Agustí M, Armero-Barranco D, Cauli O. Weight loss and improvement of metabolic alterations in overweight and obese children through the I2AO2 family program: a randomized controlled clinical trial. Biol Res Nurs. 2021;23(3):488-503. doi: 10.1177/1099800420987303
211. Ferrara A, Hedderson MM, Brown SD, Albright CL, Ehrlich SF, Tsai A-L, et al. The comparative effectiveness of diabetes prevention strategies to reduce postpartum weight retention in women with gestational diabetes mellitus: the Gestational Diabetes' Effects on Moms (GEM) cluster randomized controlled trial. Diabetes Care. 2016;39(1):65-74. doi: 10.2337/dc15-1254
212. Fichtner UA, Armbruster C, Bischoff M, Maiwald P, Sehlbrede M, Tinsel I, et al. Evaluation of an interactive web-based health program for weight loss -a randomized controlled trial. Int J Environ Res Public Health. 2022;19(22):15157. doi: 10.3390/ijerph192215157
213. Fisher G, Hunter GR, Gower BA. Aerobic exercise training conserves insulin sensitivity for 1 yr following weight loss in overweight women. J Appl Physiol (1985). 2012;112(4):688-93. doi: 10.1152/japplphysiol.00843.2011
214. Fitzgibbon ML, Stolley MR, Schiffer L, Sharp LK, Singh V, Dyer A. Obesity reduction black intervention trial (ORBIT): 18-month results. Obesity. 2010;18(12):2317-25. doi: 10.1038/oby.2010.47
215. Fitzgibbon ML, Tussing-Humphreys L, Schiffer L, Smith-Ray R, Marquez DX, DeMott AD, et al. Fit and Strong! Plus: twelve and eighteen month follow-up results for a comparative effectiveness trial among overweight/obese older adults with osteoarthritis. Prev Med. 2020;141:106267. doi: 10.1016/j.ypmed.2020.106267
216. Fjeldsoe BS, Goode AD, Phongsavan P, Bauman A, Maher G, Winkler E, et al. Get Healthy, Stay Healthy: evaluation of the maintenance of lifestyle changes six months after an extended contact intervention. JMIR mHealth uHealth. 2019;7(3):e11070. doi: 10.2196/11070
217. Fontana L, Villareal DT, Das SK, Smith SR, Meydani SN, Pittas AG, et al. Effects of 2-year calorie restriction on circulating levels of IGF-1, IGF-binding proteins and cortisol in nonobese men and women: a randomized clinical trial. Aging Cell. 2016;15(1):22-7. doi: 10.1111/acel.12400
218. Forman EM, Butryn ML, Juarascio AS, Bradley LE, Lowe MR, Herbert JD, Shaw JA. The mind your health project: a randomized controlled trial of an innovative behavioral treatment for obesity. Obesity. 2013;21(6):1119-26. doi: 10.1002/oby.20169
219. Forman EM, Manasse SM, Butryn ML, Crosby RD, Dallal DH, Crochiere RJ. Long-term follow-up of the mind your health project: acceptance-based versus standard behavioral treatment for obesity. Obesity. 2019;27(4):565-71. doi: 10.1002/oby.22412
220. Foster GD, Shantz KL, Vander Veur SS, Oliver TL, Lent MR, Virus A, et al. A randomized trial of the effects of an almond-enriched, hypocaloric diet in the treatment of obesity. Am J Clin Nutr. 2012;96(2):249-54. doi: 10.3945/ajcn.112.037895
221. Foster GD, Wyatt HR, Hill JO, Makris AP, Rosenbaum DL, Brill C, et al. Weight and metabolic outcomes after 2 years on a low-carbohydrate versus low-fat diet: a randomized trial. Ann Intern Med. 2010;153(3):147-57. doi: 10.7326/0003-4819-153-3-201008030-00005

222. Foster-Schubert KE, Alfano CM, Duggan CR, Xiao L, Campbell KL, Kong A, et al. Effect of diet and exercise, alone or combined, on weight and body composition in overweight-to-obese postmenopausal women. Obesity. 2012;20(8):1628-38. doi: 10.1038/oby.2011.76
223. Franklin KA, Lindberg E, Svensson J, Larsson C, Lindahl B, Mellberg C, et al. Effects of a palaeolithic diet on obstructive sleep apnoea occurring in females who are overweight after menopause-a randomised controlled trial. Int J Obes. 2022;46(10):1833-9. doi: 10.1038/s41366-022-01182-4
224. French SA, Gerlach AF, Mitchell NR, Hannan PJ, Welsh EM. Household obesity prevention: Take Action—a group-randomized trial. Obesity. 2011;19(10):2082-8. doi: 10.1038/oby.2010.328
225. French SA, Kunin-Batson AS, Sherwood NE, Berge JM, Shanley R. NET-Works paediatric obesity prevention trial: 66 month outcomes. Pediatr Obes. 2023;18(8):e13055. doi: 10.1111/ijpo.13055
226. French SA, Sherwood NE, Veblen-Mortenson S, Crain AL, JaKa MM, Mitchell NR, et al. Multicomponent obesity prevention intervention in low-income preschoolers: primary and subgroup analyses of the NET-Works randomized clinical trial, 2012-2017. Am J Public Health. 2018;108(12):1695-706. doi: 10.2105/AJPH.2018.304696
227. Friedenreich CM, Neilson HK, O'Reilly R, Duha A, Yasui Y, Morielli AR, et al. Effects of a high vs moderate volume of aerobic exercise on adiposity outcomes in postmenopausal women: a randomized clinical trial. JAMA Oncol. 2015;1(6):766-76. doi: 10.1001/jamaoncol.2015.2239
228. Friedenreich CM, Neilson HK, Wang Q, Stanczyk FZ, Yasui Y, Duha A, et al. Effects of exercise dose on endogenous estrogens in postmenopausal women: a randomized trial. Endocr Relat Cancer. 2015;22(5):863-76. doi: 10.1530/ERC-15-0243
229. Friedenreich CM, Woolcott CG, McTiernan A, Terry T, Brant R, Ballard-Barbash R, et al. Adiposity changes after a 1-year aerobic exercise intervention among postmenopausal women: a randomized controlled trial. Int J Obes. 2011;35(3):427-35. doi: 10.1038/ijo.2010.147
230. Fuller NR, Pearson S, Lau NS, Wlodarczyk J, Halstead MB, Tee H-P, et al. An intragastric balloon in the treatment of obese individuals with metabolic syndrome: a randomized controlled study. Obesity. 2013;21(8):1561-70. doi: 10.1002/oby.20414
231. Fuller NR, Williams K, Shrestha R, Ahern AL, Holzapfel C, Hauner H, et al. Changes in physical activity during a weight loss intervention and follow-up: a randomized controlled trial. Clin Obes. 2014;4(3):127-35. doi: 10.1111/cob.12057
232. Furlan SF, Drager LF, Santos RN, Damiani LP, Bersch-Ferreira AC, Miranda TA, et al. Three-year effects of bariatric surgery on obstructive sleep apnea in patients with obesity grade 1 and 2: a sub-analysis of the GATEWAY trial. Int J Obes. 2021;45(4):914-7. doi: 10.1038/s41366-021-00752-2
233. Gabriel KKP, Conroy MB, Schmid KK, Storti KL, High RR, Underwood DA, et al. The impact of weight and fat mass loss and increased physical activity on physical function in overweight, postmenopausal women: results from the Women on the Move Through Activity and Nutrition study. Menopause. 2011;18(7):759-65. doi: 10.1097/gme.0b013e31820acdcc
234. Gadde KM, Allison DB, Ryan DH, Peterson CA, Troupin B, Schwiers ML, Day WW. Effects of low-dose, controlled-release, phentermine plus topiramate combination on weight and associated comorbidities in overweight and obese adults (CONQUER): a randomised, placebo-controlled, phase 3 trial. Lancet. 2011;377(9774):1341-52. doi: 10.1016/S0140-6736(11)60205-5
235. Gade H, Friborg O, Rosenvinge JH, Småstuen MC, Hjelmesæth J. The impact of a preoperative cognitive behavioural therapy (CBT) on dysfunctional eating behaviours, affective symptoms and body weight 1 year after bariatric surgery: a randomised controlled trial. Obes Surg. 2015;25(11):2112-9. doi: 10.1007/s11695-015-1673-z
236. Gallagher D, Heshka S, Kelley DE, Thornton J, Boxt L, Pi-Sunyer FX, et al. Changes in adipose tissue depots and metabolic markers following a 1-year diet and exercise intervention in overweight and obese patients with type 2 diabetes. Diabetes Care. 2014;37(12):3325-32. doi: 10.2337/dc14-1585
237. Gallagher D, Kelley DE, Thornton J, Boxt L, Pi-Sunyer X, Lipkin E, et al. Changes in skeletal muscle and organ size after a weight-loss intervention in overweight and obese type 2 diabetic patients. Am J Clin Nutr. 2017;105(1):78-84. doi: 10.3945/ajcn.116.139188

238. Gallè F, Di Onofrio V, Romano Spica V, Mastronuzzi R, Russo Krauss P, Belfiore P, et al. Improving physical fitness and health status perception in community-dwelling older adults through a structured program for physical activity promotion in the city of Naples, Italy: a randomized controlled trial. Geriatr Gerontol Int. 2017;17(10):1421-8. doi: 10.1111/ggi.12879
239. Garcia-Silva J, Borrego IRS, Navarrete NN, Peralta-Ramirez MI, Águila FJ, Caballo VE. Efficacy of cognitive-behavioural therapy for lifestyle modification in metabolic syndrome: a randomised controlled trial with a 18-months follow-up. Psychol Health. 2024;39(2):195-215. doi: 10.1080/08870446.2022.2055023
240. Garvey WT, Batterham RL, Bhatta M, Buscemi S, Christensen LN, Frias JP, et al. Two-year effects of semaglutide in adults with overweight or obesity: the STEP 5 trial. Nat Med. 2022;28(10):2083-91. doi: 10.1038/s41591-022-02026-4
241. Garvey WT, Birkenfeld AL, Dicker D, Mingrone G, Pedersen SD, Satylganova A, et al. Efficacy and safety of liraglutide 3.0 mg in individuals with overweight or obesity and type 2 diabetes treated with basal insulin: the SCALE Insulin randomized controlled trial. Diabetes Care. 2020;43(5):1085-93. doi: 10.2337/dc19-1745
242. Garvey WT, Frias JP, Jastreboff AM, le Roux CW, Sattar N, Aizenberg D, et al. Tirzepatide once weekly for the treatment of obesity in people with type 2 diabetes (SURMOUNT-2): a double-blind, randomised, multicentre, placebo-controlled, phase 3 trial. Lancet. 2023;402(10402):613-26. doi: 10.1016/S0140-6736(23)01200-X
243. Garvey WT, Ryan DH, Henry R, Bohannon NJ, Toplak H, Schwiers M, et al. Prevention of type 2 diabetes in subjects with prediabetes and metabolic syndrome treated with phentermine and topiramate extended release. Diabetes Care. 2014;37(4):912-21. doi: 10.2337/dc13-1518
244. Garvey WT, Ryan DH, Look M, Gadde KM, Allison DB, Peterson CA, et al. Two-year sustained weight loss and metabolic benefits with controlled-release phentermine/topiramate in obese and overweight adults (SEQUEL): a randomized, placebo-controlled, phase 3 extension study. Am J Clin Nutr. 2012;95(2):297-308. doi: 10.3945/ajcn.111.024927
245. Georgoulis M, Yiannakouris N, Kechribari I, Lamprou K, Perraki E, Vagiakis E, Kontogianni MD. Sustained improvements in the cardiometabolic profile of patients with obstructive sleep apnea after a weight-loss Mediterranean diet/lifestyle intervention: 12-month follow-up (6 months post-intervention) of the "MIMOSA" randomized clinical trial. Nutr Metab Cardiovasc Dis. 2023;33(5):1019-28. doi: 10.1016/j.numecd.2023.02.010
246. Gepner Y, Shelef I, Schwarzfuchs D, Zelicha H, Tene L, Yaskolka Meir A, et al. Effect of distinct lifestyle interventions on mobilization of fat storage pools: CENTRAL magnetic resonance imaging randomized controlled trial. Circulation. 2018;137(11):1143-57. doi: 10.1161/CIRCULATIONAHA.117.030501
247. Gerards SMPL, Dagnelie PC, Gubbels JS, van Buuren S, Hamers FJM, Jansen MWJ, et al. The effectiveness of lifestyle triple P in the Netherlands: a randomized controlled trial. PLoS ONE. 2015;10(4):e0122240. doi: 10.1371/journal.pone.0122240
248. Gessler N, Willems S, Steven D, Aberle J, Akbulak RO, Gosau N, et al. Supervised Obesity Reduction Trial for AF ablation patients: results from the SORT-AF trial. Europace. 2021;23(10):1548-58. doi: 10.1093/europace/euab122
249. Gilcharan Singh HK, Chee WSS, Hamdy O, Mechanick JI, Lee VKM, Barua A, et al. Eating self-efficacy changes in individuals with type 2 diabetes following a structured lifestyle intervention based on the transcultural Diabetes Nutrition Algorithm (tDNA): a secondary analysis of a randomized controlled trial. PLoS ONE. 2020;15(11):e0242487. doi: 10.1371/journal.pone.0242487
250. Gillison F, Stathi A, Reddy P, Perry R, Taylor G, Bennett P, et al. Processes of behavior change and weight loss in a theory-based weight loss intervention program: a test of the process model for lifestyle behavior change. Int J Behav Nutr Phys Act. 2015;12:2. doi: 10.1186/s12966-014-0160-6
251. Glasgow RE, Kurz D, King D, Dickman JM, Faber AJ, Halterman E, et al. Twelve-month outcomes of an Internet-based diabetes self-management support program. Patient Educ Couns. 2012;87(1):81-92. doi: 10.1016/j.pec.2011.07.024

252. Glaysher MA, Ward J, Aldhwayan M, Ruban A, Prechtl CG, Fisk HL, et al. The effect of a duodenal-jejunal bypass liner on lipid profile and blood concentrations of long chain polyunsaturated fatty acids. Clin Nutr. 2021;40(4):2343-54. doi: 10.1016/j.clnu.2020.10.026
253. Gómez V, Woodman G, Abu Dayyeh BK. Delayed gastric emptying as a proposed mechanism of action during intragastric balloon therapy: results of a prospective study. Obesity. 2016;24(9):1849-53. doi: 10.1002/oby.21555
254. Gomez-Marcos MA, Patino-Alonso MC, Recio-Rodriguez JI, Agudo-Conde C, Romaguera-Bosch M, Magdalena-Gonzalez O, et al. Short- and long-term effectiveness of a smartphone application for improving measures of adiposity: a randomised clinical trial - EVIDENT II study. Eur J Cardiovasc Nurs. 2018;17(6):552-62. doi: 10.1177/1474515118761870
255. Gómez-Pardo E, Fernández-Alvira JM, Vilanova M, Haro D, Martínez R, Carvajal I, et al. A comprehensive lifestyle peer group-based intervention on cardiovascular risk factors: the randomized controlled Fifty-Fifty Program. J Am Coll Cardiol. 2016;67(5):476-85. doi: 10.1016/j.jacc.2015.10.033
256. Gong L, Yuan F, Teng J, Li X, Zheng S, Lin L, et al. Weight loss, inflammatory markers, and improvements of iron status in overweight and obese children. J Pediatr. 2014;164(4):795-800.e2. doi: 10.1016/j.jpeds.2013.12.004
257. Goodwin PJ, Segal RJ, Vallis M, Ligibel JA, Pond GR, Robidoux A, et al. Randomized trial of a telephone-based weight loss intervention in postmenopausal women with breast cancer receiving letrozole: the LISA Trial. J Clin Oncol. 2014;32(21):2231-9. doi: 10.1200/JCO.2013.53.1517
258. Gorin AA, Raynor HA, Fava J, Maguire K, Robichaud E, Trautvetter J, et al. Randomized controlled trial of a comprehensive home environment-focused weight-loss program for adults. Health Psychol. 2013;32(2):128-37. doi: 10.1037/a0026959
259. Gotfredsen JL, Hoppe C, Andersen R, Andersen EW, Landberg R, Overvad K, Tetens I. Effects of substitution dietary guidelines targeted at prevention of IHD on dietary intake and risk factors in middle-aged Danish adults: the Diet and Prevention of Ischemic Heart Disease: a Translational Approach (DIPI) randomised controlled trial. Br J Nutr. 2021;126(8):1179-93. doi: 10.1017/S0007114520005164
260. Gram B, Christensen R, Christiansen C, Gram J. Effects of Nordic walking and exercise in type 2 diabetes mellitus: a randomized controlled trial. Clin J Sport Med. 2010;20(5):355-61. doi: 10.1227/NEU.0b013e3181e56e0a
261. Greaves C, Gillison F, Stathi A, Bennett P, Reddy P, Dunbar J, et al. Waste the waist: a pilot randomised controlled trial of a primary care based intervention to support lifestyle change in people with high cardiovascular risk. Int J Behav Nutr Phys Act. 2015;12:1. doi: 10.1186/s12966-014-0159-z
262. Green CA, Yarborough BJH, Leo MC, Yarborough MT, Stumbo SP, Janoff SL, et al. The STRIDE weight loss and lifestyle intervention for individuals taking antipsychotic medications: a randomized trial. Am J Psychiatry. 2015;172(1):71-81. doi: 10.1176/appi.ajp.2014.14020173
263. Greenway FL, Fujioka K, Plodkowski RA, Mudaliar S, Guttadauria M, Erickson J, et al. Effect of naltrexone plus bupropion on weight loss in overweight and obese adults (COR-I): a multicentre, randomised, double-blind, placebo-controlled, phase 3 trial. Lancet. 2010;376(9741):595-605. doi: 10.1016/S0140-6736(10)60888-4
264. Grilo CM, Ivezaj V, Duffy AJ, Gueorguieva R. 24-month follow-up of randomized controlled trial of guided-self-help for loss-of-control eating after bariatric surgery. Int J Eat Disord. 2022;55(11):1521-31. doi: 10.1002/eat.23804
265. Gudbergsen H, Overgaard A, Henriksen M, Wæhrens EE, Bliddal H, Christensen R, et al. Liraglutide after diet-induced weight loss for pain and weight control in knee osteoarthritis: a randomized controlled trial. Am J Clin Nutr. 2021;113(2):314-23. doi: 10.1093/ajcn/nqaa328
266. Guo H, Zeng X, Zhuang Q, Zheng Y, Chen S. Intervention of childhood and adolescents obesity in Shantou city. Obes Res Clin Pract. 2015;9(4):357-64. doi: 10.1016/j.orcp.2014.11.006
267. Gupta A, Kaur J, Shukla G, Bhullar KK, Lamo P, KC B, et al. Effect of yoga-based lifestyle and dietary modification in overweight individuals with sleep apnea: a randomized controlled trial (ELISA). Sleep Med. 2023;107:149-56. doi: 10.1016/j.sleep.2023.04.020

268. Gussenhoven AHM, van Wier MF, Bosmans JE, Dekkers JC, van Mechelen W. Cost-effectiveness of a distance lifestyle counselling programme among overweight employees from a company perspective, ALIFE@Work: a randomized controlled trial. Work. 2013;46(3):337-46. doi: 10.3233/WOR-121555
269. Habib-Mourad C, Ghandour LA, Maliha C, Dagher M, Kharroubi S, Hwalla N. Impact of a three-year obesity prevention study on healthy behaviors and BMI among Lebanese schoolchildren: findings from Ajyal Salima program. Nutrients. 2020;12(9):2687. doi: 10.3390/nu12092687
270. Haire-Joshu D, Schwarz CD, Steger-May K, Lapka C, Schechtman K, Brownson RC, Tabak RG. A randomized trial of weight change in a national home visiting program. Am J Prev Med. 2018;54(3):341-51. doi: 10.1016/j.amepre.2017.12.012
271. Hajek P, Przulj D, Pesola F, McRobbie H, Peerbux S, Phillips-Waller A, et al. A randomised controlled trial of the 5:2 diet. PLoS ONE. 2021;16(11):e0258853. doi: 10.1371/journal.pone.0258853
272. Halle M, Röhling M, Banzer W, Braumann KM, Kempf K, McCarthy D, et al. Meal replacement by formula diet reduces weight more than a lifestyle intervention alone in patients with overweight or obesity and accompanied cardiovascular risk factors-the ACOORH trial. Eur J Clin Nutr. 2021;75(4):661-9. doi: 10.1038/s41430-020-00783-4
273. Halperin F, Ding S-A, Simonson DC, Panosian J, Goebel-Fabbri A, Wewalka M, et al. Roux-en-Y gastric bypass surgery or lifestyle with intensive medical management in patients with type 2 diabetes: feasibility and 1-year results of a randomized clinical trial. JAMA Surg. 2014;149(7):716-26. doi: 10.1001/jamasurg.2014.514
274. Hanvold SE, Vinknes KJ, Løken EB, Hjartåker A, Klungsøyr O, Birkeland E, et al. Does lifestyle intervention after gastric bypass surgery prevent weight regain? A randomized clinical trial. Obes Surg. 2019;29(11):3419-31. doi: 10.1007/s11695-019-04109-7
275. Hao M, Han W, Yamauchi T. Short-term and long-term effects of a combined intervention of rope skipping and nutrition education for overweight children in Northeast China. Asia Pac J Public Health. 2019;31(4):348-58. doi: 10.1177/1010539519848275
276. Hardcastle SJ, Taylor AH, Bailey MP, Harley RA, Hagger MS. Effectiveness of a motivational interviewing intervention on weight loss, physical activity and cardiovascular disease risk factors: a randomised controlled trial with a 12-month post-intervention follow-up. Int J Behav Nutr Phys Act. 2013;10:40. doi: 10.1186/1479-5868-10-40
277. Harris L, Hankey C, Jones N, Pert C, Murray H, Tobin J, et al. A cluster randomised control trial of a multi-component weight management programme for adults with intellectual disabilities and obesity. Br J Nutr. 2017;118(3):229-40. doi: 10.1017/S0007114517001933
278. Harvie M, Pegington M, McMullan D, Bundred N, Livingstone K, Campbell A, et al. The effectiveness of home versus community-based weight control programmes initiated soon after breast cancer diagnosis: a randomised controlled trial. Br J Canc. 2019;121:443-54. doi: 10.1038/s41416-019-0522-6
279. Hébert JR, Wirth M, Davis L, Davis B, Harmon BE, Hurley TG, et al. C-reactive protein levels in African Americans: a diet and lifestyle randomized community trial. Am J Prev Med. 2013;45(4):430-40. doi: 10.1016/j.amepre.2013.05.011
280. Herrera-Espiñeira C, Martínez-Cirre MdC, López-Morales M, Lozano-Sánchez A, Rodríguez-Ruíz A, Salmerón-López LE, et al. Hospital intervention to reduce overweight with educational reinforcement after discharge: a multicenter randomized clinical trial. Nutrients. 2022;14(12):2499. doi: 10.3390/nu14122499
281. Hersey JC, Khavjou O, Strange LB, Atkinson RL, Blair SN, Campbell S, et al. The efficacy and cost-effectiveness of a community weight management intervention: a randomized controlled trial of the health weight management demonstration. Prev Med. 2012;54(1):42-9. doi: 10.1016/j.ypmed.2011.09.018
282. Hershey MS, Chang C-R, Sotos-Prieto M, Fernandez-Montero A, Cash SB, Christophi CA, et al. Effect of a nutrition intervention on mediterranean diet adherence among firefighters: a cluster

randomized clinical trial. JAMA Netw Open. 2023;6(8):e2329147. doi: 10.1001/jamanetworkopen.2023.29147
283. Hinderliter AL, Sherwood A, Craighead LW, Lin P-H, Watkins L, Babyak MA, Blumenthal JA. The long-term effects of lifestyle change on blood pressure: one-year follow-up of the ENCORE study. Am J Hypertens. 2014;27(5):734-41. doi: 10.1093/ajh/hpt183
284. Hintze LJ, Messier V, Lavoie M-È, Brochu M, Lavoie J-M, Prud'homme D, et al. A one-year resistance training program following weight loss has no significant impact on body composition and energy expenditure in postmenopausal women living with overweight and obesity. Physiol Behav. 2018;189:99-106. doi: 10.1016/j.physbeh.2018.03.014
285. Hjelmesæth J, Rosenvinge JH, Gade H, Friborg O. Effects of cognitive behavioral therapy on eating behaviors, affective symptoms, and weight loss after bariatric surgery: a randomized clinical trial. Obes Surg. 2019;29(1):61-9. doi: 10.1007/s11695-018-3471-x
286. Hoerster KD, Hunter-Merrill R, Nguyen T, Rise P, Barón AE, McDowell J, et al. Effect of a remotely delivered self-directed behavioral intervention on body weight and physical health status among adults with obesity: the D-ELITE randomized clinical trial. JAMA. 2022;328(22):2230-41. doi: 10.1001/jama.2022.21177
287. Hojan K, Kwiatkowska-Borowczyk E, Leporowska E, Milecki P. Inflammation, cardiometabolic markers, and functional changes in men with prostate cancer. A randomized controlled trial of a 12-month exercise program. Pol Arch Intern Med. 2017;127(1):25-35. doi: 10.20452/pamw.3888
288. Hollander P, Gupta AK, Plodkowski R, Greenway F, Bays H, Burns C, et al. Effects of naltrexone sustained-release/bupropion sustained-release combination therapy on body weight and glycemic parameters in overweight and obese patients with type 2 diabetes. Diabetes Care. 2013;36(12):4022-9. doi: 10.2337/dc13-0234
289. Holt RIG, Gossage-Worrall R, Hind D, Bradburn MJ, McCrone P, Morris T, et al. Structured lifestyle education for people with schizophrenia, schizoaffective disorder and first-episode psychosis (STEPWISE): randomised controlled trial. Br J Psychiatry. 2019;214(2):63-73. doi: 10.1192/bjp.2018.167
290. Horie NC, Serrao VT, Simon SS, Gascon MRP, dos Santos AX, Zambone MA, et al. Cognitive effects of intentional weight loss in elderly obese individuals with mild cognitive impairment. J Clin Endocrinol Metab. 2016;101(3):1104-12. doi: 10.1210/jc.2015-2315
291. Houston DK, Leng X, Bray GA, Hergenroeder AL, Hill JO, Jakicic JM, et al. A long-term intensive lifestyle intervention and physical function: the look AHEAD Movement and Memory Study. Obesity. 2015;23(1):77-84. doi: 10.1002/oby.20944
292. Houston DK, Neiberg RH, Miller ME, Hill JO, Jakicic JM, Johnson KC, et al. Physical function following a long-term lifestyle intervention among middle aged and older adults with type 2 diabetes: the Look AHEAD study. J Gerontol A Biol Sci Med Sci. 2018;73(11):1552-9. doi: 10.1093/gerona/glx204
293. Howden EJ, Leano R, Petchey W, Coombes JS, Isbel NM, Marwick TH. Effects of exercise and lifestyle intervention on cardiovascular function in CKD. Clin J Am Soc Nephrol. 2013;8(9):1494-501. doi: 10.2215/CJN.10141012
294. Hu T, Yao L, Reynolds K, Whelton PK, Niu T, Li S, et al. The effects of a low-carbohydrate diet vs. a low-fat diet on novel cardiovascular risk factors: a randomized controlled trial. Nutrients. 2015;7(9):7978-94. doi: 10.3390/nu7095377
295. Hunter GR, Brock DW, Byrne NM, Chandler-Laney PC, Del Corral P, Gower BA. Exercise training prevents regain of visceral fat for 1 year following weight loss. Obesity. 2010;18(4):690-5. doi: 10.1038/oby.2009.316
296. Huseinovic E, Bertz F, Leu Agelii M, Hellebö Johansson E, Winkvist A, Brekke HK. Effectiveness of a weight loss intervention in postpartum women: results from a randomized controlled trial in primary health care. Am J Clin Nutr. 2016;104(2):362-70. doi: 10.3945/ajcn.116.135673
297. Huseinovic E, Bertz F, Winkvist A, Brekke HK. Two‐year follow‐up of a postpartum weight loss intervention: results from a randomized controlled trial. Matern Child Nutr. 2018;14(2):e12539. doi: 10.1111/mcn.12539

298. Huvinen E, Koivusalo SB, Meinilä J, Valkama A, Tiitinen A, Rönö K, et al. Effects of a lifestyle intervention during pregnancy and first postpartum year: findings from the RADIEL study. J Clin Endocrinol Metab. 2018;103(4):1669–77. doi: 10.1210/jc.2017-02477
299. Hystad HT, Steinsbekk S, Ødegård R, Wichstrøm L, Gudbrandsen OA. A randomised study on the effectiveness of therapist-led v. self-help parental intervention for treating childhood obesity. Br J Nutr. 2013;110(6):1143-50. doi: 10.1017/S0007114513000056
300. Ikramuddin S, Billington CJ, Lee W-J, Bantle JP, Thomas AJ, Connett JE, et al. Roux-en-Y gastric bypass for diabetes (the Diabetes Surgery Study): 2-year outcomes of a 5-year, randomised, controlled trial. Lancet Diabetes Endocrinol. 2015;3(6):413-22. doi: 10.1016/S2213-8587(15)00089-3
301. Ikramuddin S, Korner J, Lee W-J, Bantle JP, Thomas AJ, Connett JE, et al. Durability of addition of Roux-en-Y gastric bypass to lifestyle intervention and medical management in achieving primary treatment goals for uncontrolled type 2 diabetes in mild to moderate obesity: a randomized control trial. Diabetes Care. 2016;39(9):1510-8. doi: 10.2337/dc15-2481
302. Ikramuddin S, Korner J, Lee W-J, Connett JE, Inabnet WB, Billington CJ, et al. Roux-en-Y gastric bypass vs intensive medical management for the control of type 2 diabetes, hypertension, and hyperlipidemia: the Diabetes Surgery Study randomized clinical trial. JAMA. 2013;309(21):2240-9. doi: 10.1001/jama.2013.5835
303. Iłowiecka K, Glibowski P, Skrzypek M, Styk W. The long-term dietitian and psychological support of obese patients who have reduced their weight allows them to maintain the effects. Nutrients. 2021;13(6):2020. doi: 10.3390/nu13062020
304. Imayama I, Alfano CM, Kong A, Foster-Schubert KE, Bain CE, Xiao L, et al. Dietary weight loss and exercise interventions effects on quality of life in overweight/obese postmenopausal women: a randomized controlled trial. Int J Behav Nutr Phys Act. 2011;8:118. doi: 10.1186/1479-5868-8-118
305. Imayama I, Alfano CM, Mason C, Wang C, Duggan C, Campbell KL, et al. Weight and metabolic effects of dietary weight loss and exercise interventions in postmenopausal antidepressant medication users and non-users: a randomized controlled trial. Prev Med. 2013;57(5):525-32. doi: 10.1016/j.ypmed.2013.07.006
306. Inoue DS, De Mello MT, Foschini D, Lira FS, De Piano Ganen A, Da Silveira Campos RM, et al. Linear and undulating periodized strength plus aerobic training promote similar benefits and lead to improvement of insulin resistance on obese adolescents. J Diabetes Complicat. 2015;29(2):258-64. doi: 10.1016/j.jdiacomp.2014.11.002
307. Iqbal N, Vetter ML, Moore RH, Chittams JL, Dalton-Bakes CV, Dowd M, et al. Effects of a low-intensity intervention that prescribed a low-carbohydrate vs. a low-fat diet in obese, diabetic participants. Obesity. 2010;18(9):1733-8. doi: 10.1038/oby.2009.460
308. Jaakkola J, Isolauri E, Poussa T, Laitinen K. Benefits of repeated individual dietary counselling in long-term weight control in women after delivery. Matern Child Nutr. 2015;11(4):1041-8. doi: 10.1111/mcn.12115
309. Jago R, McMurray RG, Drews KL, Moe EL, Murray T, Pham TH, et al. HEALTHY intervention: fitness, physical activity, and metabolic syndrome results. Med Sci Sports Exerc. 2011;43(8):1513-22. doi: 10.1249/MSS.0b013e31820c9797
310. Jakicic JM, Davis KK, Rogers RJ, King WC, Marcus MD, Helsel D, et al. Effect of wearable technology combined with a lifestyle intervention on long-term weight loss: the IDEA randomized clinical trial. JAMA. 2016;316(11):1161-71. doi: 10.1001/jama.2016.12858
311. Jakicic JM, Egan CM, Fabricatore AN, Gaussoin SA, Glasser SP, Hesson LA, et al. Four-year change in cardiorespiratory fitness and influence on glycemic control in adults with type 2 diabetes in a randomized trial: the Look AHEAD Trial. Diabetes Care. 2013;36(5):1297-303. doi: 10.2337/dc12-0712
312. Jakicic JM, Otto AD, Lang W, Semler L, Winters C, Polzien K, Mohr KI. The effect of physical activity on 18-month weight change in overweight adults. Obesity. 2011;19(1):100-9. doi: 10.1038/oby.2010.122

313. Jakicic JM, Rickman AD, Lang W, Davis KK, Gibbs BB, Neiberg R, Marcus MD. Time-based physical activity interventions for weight loss: a randomized trial. Med Sci Sports Exerc. 2015;47(5):1061-9. doi: 10.1249/MSS.0000000000000482
314. Jakicic JM, Rogers RJ, Lang W, Gibbs BB, Yuan N, Fridman Y, Schelbert EB. Impact of weight loss with diet or diet plus physical activity on cardiac magnetic resonance imaging and cardiovascular disease risk factors: Heart Health Study randomized trial. Obesity. 2022;30(5):1039-56. doi: 10.1002/oby.23412
315. Jakicic JM, Tate DF, Lang W, Davis KK, Polzien K, Rickman AD, et al. Effect of a stepped-care intervention approach on weight loss in adults: a randomized clinical trial. JAMA. 2012;307(24):2617-26. doi: 10.1001/jama.2012.6866
316. Jakobsen AS, Speyer H, Nørgaard HCB, Karlsen M, Birk M, Hjorthøj C, et al. Effect of lifestyle coaching versus care coordination versus treatment as usual in people with severe mental illness and overweight: two-years follow-up of the randomized CHANGE trial. PLoS ONE. 2017;12(10):e0185881. doi: 10.1371/journal.pone.0185881
317. Janicke DM, Lim CS, Perri MG, Mathews AE, Bobroff LB, Gurka MJ, et al. Featured article: behavior interventions addressing obesity in rural settings: the E-FLIP for Kids trial. J Pediatr Psychol. 2019;44(8):889-901. doi: 10.1093/jpepsy/jsz029
318. Jansson SP, Engfeldt P, Magnuson A, Lohse PT G, Liljegren G. Interventions for lifestyle changes to promote weight reduction, a randomized controlled trial in primary health care. BMC Res Notes. 2013;6:213. doi: 10.1186/1756-0500-6-213
319. Janus ED, Best JD, Davis-Lameloise N, Philpot B, Hernan A, Bennett CM, et al. Scaling-up from an implementation trial to state-wide coverage: results from the preliminary Melbourne Diabetes Prevention Study. Trials. 2012;13:152. doi: 10.1186/1745-6215-13-152
320. Järvholm K, Janson A, Peltonen M, Neovius M, Gronowitz E, Engström M, et al. Metabolic and bariatric surgery versus intensive non-surgical treatment for adolescents with severe obesity (AMOS2): a multicentre, randomised, controlled trial in Sweden. Lancet Child Adolesc Health. 2023;7(4):249-60. doi: 10.1016/S2352-4642(22)00373-X
321. Jastreboff AM, Aronne LJ, Ahmad NN, Wharton S, Connery L, Alves B, et al. Tirzepatide once weekly for the treatment of obesity. N Engl J Med. 2022;387(3):205-16. doi: 10.1056/NEJMoa2206038
322. Jebb SA, Ahern AL, Olson AD, Aston LM, Holzapfel C, Stoll J, et al. Primary care referral to a commercial provider for weight loss treatment versus standard care: a randomised controlled trial. Lancet. 2011;378(9801):1485-92. doi: 10.1016/S0140-6736(11)61344-5
323. Jelalian E, Lloyd-Richardson EE, Mehlenbeck RS, Hart CN, Flynn-O'Brien K, Kaplan J, et al. Behavioral weight control treatment with supervised exercise or peer-enhanced adventure for overweight adolescents. J Pediatr. 2010;157(6):923-8.e1. doi: 10.1016/j.jpeds.2010.05.047
324. Jenkins DJA, Boucher BA, Ashbury FD, Sloan M, Brown P, El-Sohemy A, et al. Effect of current dietary recommendations on weight loss and cardiovascular risk factors. J Am Coll Cardiol. 2017;69(9):1103-12. doi: 10.1016/j.jacc.2016.10.089
325. Jiang X, Fan X, Wu R, Geng F, Hu C. The effect of care intervention for obese patients with type II diabetes. Medicine. 2017;96(42):e7524. doi: 10.1097/MD.0000000000007524
326. Jiskoot G, Timman R, Beerthuizen A, Dietz de Loos A, Busschbach J, Laven J. Weight reduction through a cognitive behavioral therapy lifestyle intervention in PCOS: the primary outcome of a randomized controlled trial. Obesity. 2020;28(11):2134-41. doi: 10.1002/oby.22980
327. Johansen MY, MacDonald CS, Hansen KB, Karstoft K, Christensen R, Pedersen M, et al. Effect of an intensive lifestyle intervention on glycemic control in patients with type 2 diabetes: a randomized clinical trial. JAMA. 2017;318(7):637-46. doi: 10.1001/jama.2017.10169
328. Johnson KC, Bray GA, Cheskin LJ, Clark JM, Egan CM, Foreyt JP, et al. The effect of intentional weight loss on fracture risk in persons with diabetes: results from the Look AHEAD randomized clinical trial. J Bone Miner Res. 2017;32(11):2278-87. doi: 10.1002/jbmr.3214

329. Johnston CA, Moreno JP, Gallagher MR, Wang J, Papaioannou MA, Tyler C, Foreyt JP. Achieving long-term weight maintenance in Mexican-American adolescents with a school-based intervention. J Adolesc Health. 2013;53(3):335-41. doi: 10.1016/j.jadohealth.2013.04.001
330. Johnston CA, Tyler C, McFarlin BK, Poston WSC, Haddock CK, Reeves RS, Foreyt JP. Effects of a school-based weight maintenance program for Mexican-American children: results at 2 years. Obesity. 2010;18(3):542-7. doi: 10.1038/oby.2009.241
331. Jolly K, Lewis A, Beach J, Denley J, Adab P, Deeks JJ, et al. Comparison of range of commercial or primary care led weight reduction programmes with minimal intervention control for weight loss in obesity: Lighten Up randomised controlled trial. BMJ. 2011;343:d6500. doi: 10.1136/bmj.d6500
332. Joosten SA, Khoo JK, Edwards BA, Landry SA, Naughton MT, Dixon JB, Hamilton GS. Improvement in obstructive sleep apnea with weight loss is dependent on body position during sleep. Sleep. 2017;40(5). doi: 10.1093/sleep/zsx047
333. Jorge R, Santos I, Tomás R, Silva MN, Carraça EV, Teixeira VH, Teixeira PJ. Behavioural and psychological pretreatment predictors of short- and long-term weight loss among women with overweight and obesity. Eat Weight Disord. 2020;25(5):1377-85. doi: 10.1007/s40519-019-00775-9
334. Jospe MR, Roy M, Brown RC, Williams SM, Osborne HR, Meredith-Jones KA, et al. The effect of different types of monitoring strategies on weight loss: a randomized controlled trial. Obesity. 2017;25(9):1490-8. doi: 10.1002/oby.21898
335. Jung ME, Locke SR, Bourne JE, Beauchamp MR, Lee T, Singer J, et al. Cardiorespiratory fitness and accelerometer-determined physical activity following one year of free-living high-intensity interval training and moderate-intensity continuous training: a randomized trial. Int J Behav Nutr Phys Act. 2020;17(1):25. doi: 10.1186/s12966-020-00933-8
336. Juul L, Andersen VJ, Arnoldsen J, Maindal HT. Effectiveness of a brief theory-based health promotion intervention among adults at high risk of type 2 diabetes: One-year results from a randomised trial in a community setting. Prim Care Diabetes. 2016;10(2):111-20. doi: 10.1016/j.pcd.2015.07.002
337. Kabisch S, Meyer NMT, Honsek C, Gerbracht C, Dambeck U, Kemper M, et al. Obesity does not modulate the glycometabolic benefit of insoluble cereal fibre in subjects with prediabetes-a stratified post hoc analysis of the Optimal Fibre Trial (OptiFiT). Nutrients. 2019;11(11):2726. doi: 10.3390/nu11112726
338. Kadowaki T, Isendahl J, Khalid U, Lee SY, Nishida T, Ogawa W, et al. Semaglutide once a week in adults with overweight or obesity, with or without type 2 diabetes in an east Asian population (STEP 6): a randomised, double-blind, double-dummy, placebo-controlled, phase 3a trial. Lancet Diabetes Endocrinol. 2022;10(3):193-206. doi: 10.1016/S2213-8587(22)00008-0
339. Kahhan N, Hossain MJ, Lang J, Harrison C, Canas J, Wysocki T, et al. Durability of changes in biomarkers of cardiometabolic disease: 1-year family-based intervention in children with obesity. Metab Syndr Relat Disord. 2021;19(5):264-71. doi: 10.1089/met.2020.0097
340. Kaikkonen KM, Korpelainen R, Vanhala ML, Keinänen-Kiukaanniemi SM, Korpelainen JT. Long-term effects on weight loss and maintenance by intensive start with diet and exercise. Scand J Med Sci Sports. 2023;33(3):246-56. doi: 10.1111/sms.14269
341. Kaikkonen KM, Saltevo SS, Korpelainen JT, Vanhala ML, Jokelainen JJ, Korpelainen RI, Keinänen-Kiukaanniemi SM. Effective weight loss and maintenance by intensive start with diet and exercise. Med Sci Sports Exerc. 2019;51(5):920-9. doi: 10.1249/MSS.0000000000001855
342. Kalarchian MA, Levine MD, Klem ML, Burke LE, Soulakova JN, Marcus MD. Impact of addressing reasons for weight loss on behavioral weight-control outcome. Am J Prev Med. 2011;40(1):18-24. doi: 10.1016/j.amepre.2010.09.019
343. Kalarchian MA, Marcus MD, Courcoulas AP, Cheng Y, Levine MD. Preoperative lifestyle intervention in bariatric surgery: a randomized clinical trial. Surg Obes Relat Dis. 2016;12(1):180-7. doi: 10.1016/j.soard.2015.05.004

344. Kalarchian MA, Marcus MD, Courcoulas AP, Cheng Y, Levine MD, Josbeno D. Optimizing long-term weight control after bariatric surgery: a pilot study. Surg Obes Relat Dis. 2012;8(6):710-5. doi: 10.1016/j.soard.2011.04.231
345. Kalter-Leibovici O, Younis-Zeidan N, Atamna A, Lubin F, Alpert G, Chetrit A, et al. Lifestyle intervention in obese Arab women: a randomized controlled trial. Arch Intern Med. 2010;170(11):970-6. doi: 10.1001/archinternmed.2010.103
346. Kashyap SR, Bhatt DL, Wolski K, Watanabe RM, Abdul-Ghani M, Abood B, et al. Metabolic effects of bariatric surgery in patients with moderate obesity and type 2 diabetes: analysis of a randomized control trial comparing surgery with intensive medical treatment. Diabetes Care. 2013;36(8):2175-82. doi: 10.2337/dc12-1596
347. Katula JA, Vitolins MZ, Morgan TM, Lawlor MS, Blackwell CS, Isom SP, et al. The Healthy Living Partnerships to Prevent Diabetes study: 2-year outcomes of a randomized controlled trial. Am J Prev Med. 2013;44(4 Suppl 4):S324-S32. doi: 10.1016/j.amepre.2012.12.015
348. Katzmarzyk PT, Martin CK, Newton RL, Jr., Apolzan JW, Arnold CL, Davis TC, et al. Weight loss in underserved patients - a cluster-randomized trial. N Engl J Med. 2020;383(10):909-18. doi: 10.1056/NEJMoa2007448
349. Kegler MC, Haardörfer R, Alcantara IC, Gazmararian JA, Veluswamy JK, Hodge TL, et al. Impact of improving home environments on energy intake and physical activity: a randomized controlled trial. Am J Public Health. 2016;106(1):143-52. doi: 10.2105/AJPH.2015.302942
350. Keller C, Ainsworth B, Records K, Todd M, Belyea M, Vega-López S, et al. A comparison of a social support physical activity intervention in weight management among post-partum Latinas. BMC Public Health. 2014;14:971. doi: 10.1186/1471-2458-14-971
351. Kelley JC, Stettler-Davis N, Leonard MB, Hill D, Wrotniak BH, Shults J, et al. Effects of a randomized weight loss intervention trial in obese adolescents on tibia and radius bone geometry and volumetric density. J Bone Miner Res. 2018;33(1):42-53. doi: 10.1002/jbmr.3288
352. Kelly AS, Auerbach P, Barrientos-Perez M, Gies I, Hale PM, Marcus C, et al. A randomized, controlled trial of liraglutide for adolescents with obesity. N Engl J Med. 2020;382(22):2117-28. doi: 10.1056/NEJMoa1916038
353. Kelly AS, Bensignor MO, Hsia DS, Shoemaker AH, Shih W, Peterson C, et al. Phentermine/topiramate for the treatment of adolescent obesity. NEJM Evidence. 2022;1(6). doi: 10.1056/EVIDoa2200014
354. Kempf K, Röhling M, Martin S, Schneider M. Telemedical coaching for weight loss in overweight employees: a three-armed randomised controlled trial. BMJ Open. 2019;9(4):e022242. doi: 10.1136/bmjopen-2018-022242
355. Kennedy BM, Ryan DH, Johnson WD, Harsha DW, Newton RL, Jr., Champagne CM, et al. Baton Rouge Healthy Eating and Lifestyle Program (BR-HELP): a pilot health promotion program. J Prev Interv Community. 2015;43(2):95-108. doi: 10.1080/10852352.2014.973256
356. Kennedy SG, Smith JJ, Morgan PJ, Peralta LR, Hilland TA, Eather N, et al. Implementing resistance training in secondary schools: a cluster randomized controlled trial. Med Sci Sports Exerc. 2018;50(1):62-72. doi: 10.1249/MSS.0000000000001410
357. Kinsey AW, Gowey MA, Tan F, Zhou D, Ard J, Affuso O, Dutton GR. Similar weight loss and maintenance in African American and White women in the Improving Weight Loss (ImWeL) trial. Ethn Health. 2021;26(2):251-63. doi: 10.1080/13557858.2018.1493435
358. Kirby ML, Beatty S, Stack J, Harrison M, Greene I, McBrinn S, et al. Changes in macular pigment optical density and serum concentrations of lutein and zeaxanthin in response to weight loss. Br J Nutr. 2011;105(7):1036-46. doi: 10.1017/S0007114510004721
359. Knäuper B, Carrière K, Frayn M, Ivanova E, Xu Z, Ames-Bull A, et al. The effects of if-then plans on weight loss: results of the McGill CHIP Healthy Weight Program randomized controlled trial. Obesity. 2018;26(8):1285-95. doi: 10.1002/oby.22226

360. Knäuper B, Shireen H, Carrière K, Frayn M, Ivanova E, Xu Z, et al. The effects of if-then plans on weight loss: results of the 24-month follow-up of the McGill CHIP Healthy Weight Program randomized controlled trial. Trials. 2020;21:40. doi: 10.1186/s13063-019-4014-z
361. Knop FK, Aroda VR, do Vale RD, Holst-Hansen T, Laursen PN, Rosenstock J, et al. Oral semaglutide 50 mg taken once per day in adults with overweight or obesity (OASIS 1): a randomised, double-blind, placebo-controlled, phase 3 trial. Lancet. 2023;402(10403):705-19. doi: 10.1016/S0140-6736(23)01185-6
362. Koehestanie P, de Jonge C, Berends FJ, Janssen IM, Bouvy ND, Greve JWM. The effect of the endoscopic duodenal-jejunal bypass liner on obesity and type 2 diabetes mellitus, a multicenter randomized controlled trial. Ann Surg. 2014;260(6):984-92. doi: 10.1097/SLA.0000000000000794
363. Kohl J, Brame J, Centner C, Wurst R, Fuchs R, Sehlbrede M, et al. Effects of a web-based lifestyle intervention on weight loss and cardiometabolic risk factors in adults with overweight and obesity: randomized controlled clinical trial. J Med Internet Res. 2023;25:e43426. doi: 10.2196/43426
364. Kokkvoll A, Grimsgaard S, Ødegaard R, Flægstad T, Njølstad I. Single versus multiple-family intervention in childhood overweight--Finnmark Activity School: a randomised trial. Arch Dis Child. 2014;99(3):225-31. doi: 10.1136/archdischild-2012-303571
365. Kokkvoll A, Grimsgaard S, Steinsbekk S, Flægstad T, Njølstad I. Health in overweight children: 2-year follow-up of Finnmark Activity School--a randomised trial. Arch Dis Child. 2015;100(5):441-8. doi: 10.1136/archdischild-2014-307107
366. Kokkvoll AS, Grimsgaard S, Flægstad T, Andersen LB, Ball GDC, Wilsgaard T, Njølstad I. No additional long-term effect of group vs individual family intervention in the treatment of childhood obesity-a randomised trial. Acta Paediatr. 2020;109(1):183-92. doi: 10.1111/apa.14916
367. Kolt GS, Schofield GM, Kerse N, Garrett N, Ashton T, Patel A. Healthy Steps trial: pedometer-based advice and physical activity for low-active older adults. Ann Fam Med. 2012;10(3):206-12. doi: 10.1370/afm.1345
368. Kong A, Beresford SAA, Alfano CM, Foster-Schubert KE, Neuhouser ML, Johnson DB, et al. Associations between snacking and weight loss and nutrient intake among postmenopausal overweight to obese women in a dietary weight-loss intervention. J Am Diet Assoc. 2011;111(12):1898-903. doi: 10.1016/j.jada.2011.09.012
369. Kong A, Beresford SAA, Alfano CM, Foster-Schubert KE, Neuhouser ML, Johnson DB, et al. Self-monitoring and eating-related behaviors are associated with 12-month weight loss in postmenopausal overweight-to-obese women. J Acad Nutr Diet. 2012;112(9):1428-35. doi: 10.1016/j.jand.2012.05.014
370. Koschker A-C, Warrings B, Morbach C, Seyfried F, Jung P, Dischinger U, et al. Effect of bariatric surgery on cardio-psycho-metabolic outcomes in severe obesity: a randomized controlled trial. Metabolism. 2023;147:155655. doi: 10.1016/j.metabol.2023.155655
371. Kosiborod MN, Abildstrøm SZ, Borlaug BA, Butler J, Rasmussen S, Davies M, et al. Semaglutide in patients with heart failure with preserved ejection fraction and obesity. N Engl J Med. 2023;389(12):1069-84. doi: 10.1056/NEJMoa2306963
372. Kouwenhoven-Pasmooij TA, Robroek SJW, Kraaijenhagen RA, Helmhout PH, Nieboer D, Burdorf A, Hunink MGM. Effectiveness of the blended-care lifestyle intervention 'PerfectFit': a cluster randomised trial in employees at risk for cardiovascular diseases. BMC Public Health. 2018;18:766. doi: 10.1186/s12889-018-5633-0
373. Kroeger CM, Trepanowski JF, Klempel MC, Barnosky A, Bhutani S, Gabel K, Varady KA. Eating behavior traits of successful weight losers during 12 months of alternate-day fasting: an exploratory analysis of a randomized controlled trial. Nutr Health. 2018;24(1):5-10. doi: 10.1177/0260106017753487
374. Kuller LH, Pettee Gabriel KK, Kinzel LS, Underwood DA, Conroy MB, Chang Y, et al. The Women on the Move Through Activity and Nutrition (WOMAN) study: final 48-month results. Obesity. 2012;20(3):636-43. doi: 10.1038/oby.2011.80

375. Kumanyika SK, Fassbender JE, Sarwer DB, Phipps E, Allison KC, Localio R, et al. One-year results of the Think Health! study of weight management in primary care practices. Obesity. 2012;20(6):1249-57. doi: 10.1038/oby.2011.329
376. Kuna ST, Reboussin DM, Borradaile KE, Sanders MH, Millman RP, Zammit G, et al. Long-term effect of weight loss on obstructive sleep apnea severity in obese patients with type 2 diabetes. Sleep. 2013;36(5):641-9. doi: 10.5665/sleep.2618
377. Kuna ST, Reboussin DM, Strotmeyer ES, Millman RP, Zammit G, Walkup MP, et al. Effects of weight loss on obstructive sleep apnea severity. Ten-year results of the Sleep AHEAD study. Am J Respir Crit Care Med. 2021;203(2):221-9. doi: 10.1164/rccm.201912-2511OC
378. LaRose JG, Neiberg RH, Evans EW, Tate DF, Espeland MA, Gorin AA, et al. Dietary outcomes within the study of novel approaches to weight gain prevention (SNAP) randomized controlled trial. Int J Behav Nutr Phys Act. 2019;16(1):14. doi: 10.1186/s12966-019-0771-z
379. Larsen KT, Huang T, Møller NC, Andersen LB, Sørensen J. Cost-effectiveness of a day-camp weight-loss intervention programme for children: results based on a randomised controlled trial with one-year follow-up. Scand J Public Health. 2017;45(6):666-74. doi: 10.1177/1403494816688374
380. Larsen KT, Huang T, Ried-Larsen M, Andersen LB, Heidemann M, Møller NC. A multi-component day-camp weight-loss program is effective in reducing BMI in children after one year: a randomized controlled trial. PLoS ONE. 2016;11(6):e0157182. doi: 10.1371/journal.pone.0157182
381. Latner JD, Ciao AC, Wendicke AU, Murakami JM, Durso LE. Community-based behavioral weight-loss treatment: long-term maintenance of weight loss, physiological, and psychological outcomes. Behav Res Ther. 2013;51(8):451-9. doi: 10.1016/j.brat.2013.04.009
382. Leahey TM, Subak LL, Fava J, Schembri M, Thomas G, Xu X, et al. Benefits of adding small financial incentives or optional group meetings to a web-based statewide obesity initiative. Obesity. 2015;23(1):70-6. doi: 10.1002/oby.20937
383. Leehey DJ, Collins E, Kramer HJ, Cooper C, Butler J, McBurney C, et al. Structured exercise in obese diabetic patients with chronic kidney disease: a randomized controlled trial. Am J Nephrol. 2016;44(1):54-62. doi: 10.1159/000447703
384. Levy RL, Jeffery RW, Langer SL, Graham DJ, Welsh EM, Flood AP, et al. Maintenance-tailored therapy vs. standard behavior therapy for 30-month maintenance of weight loss. Prev Med. 2010;51(6):457-9. doi: 10.1016/j.ypmed.2010.09.010
385. Li B, Pallan M, Liu WJ, Hemming K, Frew E, Lin R, et al. The CHIRPY DRAGON intervention in preventing obesity in Chinese primary-school--aged children: a cluster-randomised controlled trial. PLoS Med. 2019;16(11):e1002971. doi: 10.1371/journal.pmed.1002971
386. Li Y-P, Hu X-Q, Schouten EG, Liu A-L, Du S-M, Li L-Z, et al. Report on childhood obesity in China (8): effects and sustainability of physical activity intervention on body composition of Chinese youth. Biomed Environ Sci. 2010;23(3):180-7. doi: 10.1016/S0895-3988(10)60050-5
387. Lier HØ, Biringer E, Stubhaug B, Tangen T. The impact of preoperative counseling on postoperative treatment adherence in bariatric surgery patients: a randomized controlled trial. Patient Educ Couns. 2012;87(3):336-42. doi: 10.1016/j.pec.2011.09.014
388. Lillis J, Dunsiger S, Thomas JG, Ross KM, Wing RR. Novel behavioral interventions to improve long-term weight loss: A randomized trial of acceptance and commitment therapy or self-regulation for weight loss maintenance. J Behav Med. 2021;44(4):527-40. doi: 10.1007/s10865-021-00215-z
389. Lillis J, Niemeier HM, Thomas JG, Unick J, Ross KM, Leahey TM, et al. A randomized trial of an acceptance-based behavioral intervention for weight loss in people with high internal disinhibition. Obesity. 2016;24(12):2509-14. doi: 10.1002/oby.21680
390. Lin S, Cienfuegos S, Ezpeleta M, Pavlou V, Chakos K, McStay M, et al. Effect of time-restricted eating versus daily calorie restriction on mood and quality of life in adults with obesity. Nutrients. 2023;15(20):4313. doi: 10.3390/nu15204313
391. Linde JA, Nygaard KE, MacLehose RF, Mitchell NR, Harnack LJ, Cousins JM, et al. HealthWorks: results of a multi-component group-randomized worksite environmental intervention trial for weight gain prevention. Int J Behav Nutr Phys Act. 2012;9:14. doi: 10.1186/1479-5868-9-14

392. Lindström J, Peltonen M, Eriksson JG, Ilanne-Parikka P, Aunola S, Keinänen-Kiukaanniemi S, et al. Improved lifestyle and decreased diabetes risk over 13 years: long-term follow-up of the randomised Finnish Diabetes Prevention Study (DPS). Diabetologia. 2013;56(2):284-93. doi: 10.1007/s00125-012-2752-5
393. Lisevick A, Cartmel B, Harrigan M, Li F, Sanft T, Fogarasi M, et al. Effect of the Lifestyle, Exercise, and Nutrition (LEAN) study on long-term weight loss maintenance in women with breast cancer. Nutrients. 2021;13(9):3265. doi: 10.3390/nu13093265
394. Little P, Stuart B, Hobbs RR, Kelly J, Smith ER, Bradbury KJ, et al. Randomised controlled trial and economic analysis of an internet-based weight management programme: POWeR+ (Positive Online Weight Reduction). Health Technol Assess. 2017;21(4). doi: 10.3310/hta21040
395. Liu D, Huang Y, Huang C, Yang S, Wei X, Zhang P, et al. Calorie Restriction with or without time-restricted eating in weight loss. N Engl J Med. 2022;386(16):1495-504. doi: 10.1056/NEJMoa2114833
396. Llaneza P, González C, Fernández-Iñarrea J, Alonso A, Díaz F, Pérez-López FR. Soy isoflavones improve insulin sensitivity without changing serum leptin among postmenopausal women. Climacteric. 2012;15(6):611-20. doi: 10.3109/13697137.2011.631062
397. Llargues E, Franco R, Recasens A, Nadal A, Vila M, Pérez MJ, et al. Assessment of a school-based intervention in eating habits and physical activity in school children: the AVall study. J Epidemiol Community Health. 2011;65(10):896-901. doi: 10.1136/jech.2009.102319
398. Llauradó E, Tarro L, Moriña D, Aceves-Martins M, Giralt M, Solà R. Follow-up of a healthy lifestyle education program (the EdAl study): four years after cessation of randomized controlled trial intervention. BMC Public Health. 2018;18:104. doi: 10.1186/s12889-017-5006-0
399. Lloyd-Richardson EE, Jelalian E, Sato AF, Hart CN, Mehlenbeck R, Wing RR. Two-year follow-up of an adolescent behavioral weight control intervention. Pediatrics. 2012;130(2):e281-e8. doi: 10.1542/peds.2011-3283
400. Lohse B, Krall JS, Psota T, Kris-Etherton P. Impact of a weight management intervention on eating competence: importance of measurement interval in protocol design. Am J Health Promot. 2018;32(3):718-28. doi: 10.1177/0890117117692201
401. Lombard C, Harrison C, Kozica S, Zoungas S, Ranasinha S, Teede H. Preventing weight gain in women in rural communities: a cluster randomised controlled trial. PLoS Med. 2016;13(1):e1001941. doi: 10.1371/journal.pmed.1001941
402. Looijmans A, Stiekema APM, Bruggeman R, van der Meer L, Stolk RP, Schoevers RA, et al. Changing the obesogenic environment to improve cardiometabolic health in residential patients with a severe mental illness: cluster randomised controlled trial. Br J Psychiatry. 2017;211(5):296-303. doi: 10.1192/bjp.bp.117.199315
403. Look AHEAD Study Group. Association between change in accelerometer-measured and self-reported physical activity and cardiovascular disease in the Look AHEAD Trial. Diabetes Care. 2022;45(3):742-9. doi: 10.2337/dc21-1206
404. López Tarraga PJ, Madrona-Marcos F, Panisello-Royo J, Carbayo-Herencia JA, Rosich N, Tarraga-Marcos L, et al. [Evaluation of a motivational intervention of physical activity program in the treatment of obesity and overweight]. Hipertens Riesgo Vasc. 2020;37(1):11-6. doi: 10.1016/j.hipert.2019.05.003
405. López-Padrós C, Salord N, Alves C, Vilarrasa N, Gasa M, Planas R, et al. Effectiveness of an intensive weight-loss program for severe OSA in patients undergoing CPAP treatment: a randomized controlled trial. J Clin Sleep Med. 2020;16(4):503-14. doi: 10.5664/jcsm.8252
406. Lovell K, Wearden A, Bradshaw T, Tomenson B, Pedley R, Davies LM, et al. An exploratory randomized controlled study of a healthy living intervention in early intervention services for psychosis: the INTERvention to encourage ACTivity, improve diet, and reduce weight gain (INTERACT) study. J Clin Psychiatry. 2014;75(5):498-505. doi: 10.4088/JCP.13m08503
407. Lowe MR, Butryn ML, Zhang F. Evaluation of meal replacements and a home food environment intervention for long-term weight loss: a randomized controlled trial. Am J Clin Nutr. 2018;107(1):12-9. doi: 10.1093/ajcn/nqx005

408. Lubans DR, Smith JJ, Plotnikoff RC, Dally KA, Okely AD, Salmon J, Morgan PJ. Assessing the sustained impact of a school-based obesity prevention program for adolescent boys: the ATLAS cluster randomized controlled trial. Int J Behav Nutr Phys Act. 2016;13:92. doi: 10.1186/s12966-016-0420-8
409. Lugones-Sanchez C, Recio-Rodriguez JI, Agudo-Conde C, Repiso-Gento I, G Adalia E, Ramirez-Manent JI, et al. Long-term effectiveness of a smartphone app combined with a smart band on weight loss, physical activity, and caloric intake in a population with overweight and obesity (Evident 3 Study): randomized controlled trial. J Med Internet Res. 2022;24(2):e30416. doi: 10.2196/30416
410. Lundgren JR, Janus C, Jensen SBK, Juhl CR, Olsen LM, Christensen RM, et al. Healthy weight loss maintenance with exercise, liraglutide, or both combined. N Engl J Med. 2021;384(18):1719-30. doi: 10.1056/NEJMoa2028198
411. Lutes LD, Cummings DM, Littlewood K, Dinatale E, Hambidge B. A community health worker-delivered intervention in African American women with type 2 diabetes: a 12-month randomized trial. Obesity. 2017;25(8):1329-35. doi: 10.1002/oby.21883
412. Lutes LD, Damschroder LJ, Masheb R, Kim HM, Gillon L, Holleman RG, et al. Behavioral treatment for veterans with obesity: 24-month weight outcomes from the ASPIRE-VA small changes randomized trial. J Gen Intern Med. 2017;32(Suppl 1):40-7. doi: 10.1007/s11606-017-3987-0
413. Ma J, Strub P, Xiao L, Lavori PW, Camargo CA, Jr., Wilson SR, et al. Behavioral weight loss and physical activity intervention in obese adults with asthma. A randomized trial. Ann Am Thorac Soc. 2015;12(1):1-11. doi: 10.1513/AnnalsATS.201406-271OC
414. Ma J, Yank V, Xiao L, Lavori PW, Wilson SR, Rosas LG, Stafford RS. Translating the Diabetes Prevention Program lifestyle intervention for weight loss into primary care: a randomized trial. JAMA Intern Med. 2013;173(2):113-21. doi: 10.1001/2013.jamainternmed.987
415. Maddison R, Hargreaves EA, Jiang Y, Calder AJ, Wyke S, Gray CM, et al. Rugby Fans in Training New Zealand (RUFIT NZ): a randomized controlled trial to assess the effectiveness of a healthy lifestyle program for overweight men delivered through professional rugby clubs. Int J Behav Nutr Phys Act. 2023;20(1):37. doi: 10.1186/s12966-022-01395-w
416. Madrona Marcos F, Panisello Royo JM, Tarraga Marcos ML, Rosich N, Carbayo Herencia JA, Alins J, et al. Effect of a motivational physical activity program on lipid parameters in patients with obesity and overweight. Clín Investig Arterioscler. 2019;31(6):245-50. doi: 10.1016/j.artere.2019.11.002
417. Maghrabi AH, Wolski K, Abood B, Licata A, Pothier C, Bhatt DL, et al. Two-year outcomes on bone density and fracture incidence in patients with T2DM randomized to bariatric surgery versus intensive medical therapy. Obesity. 2015;23(12):2344-8. doi: 10.1002/oby.21150
418. Mai K, Brachs M, Leupelt V, Jumpertz-von Schwartzenberg R, Maurer L, Grüters-Kieslich A, et al. Effects of a combined dietary, exercise and behavioral intervention and sympathetic system on body weight maintenance after intended weight loss: results of a randomized controlled trial. Metabolism. 2018;83:60-7. doi: 10.1016/j.metabol.2018.01.003
419. Mallorquí-Bagué N, Lozano-Madrid M, Vintró-Alcaraz C, Forcano L, Díaz-López A, Galera A, et al. Effects of a psychosocial intervention at one-year follow-up in a PREDIMED-plus sample with obesity and metabolic syndrome. Sci Rep. 2021;11(1):9144. doi: 10.1038/s41598-021-88298-1
420. Mangieri CW, Johnson RJ, Sweeney LB, Choi YU, Wood JC. Mobile health applications enhance weight loss efficacy following bariatric surgery. Obes Res Clin Pract. 2019;13(2):176-9. doi: 10.1016/j.orcp.2019.01.004
421. Manini TM, Newman AB, Fielding R, Blair SN, Perri MG, Anton SD, et al. Effects of exercise on mobility in obese and nonobese older adults. Obesity. 2010;18(6):1168-75. doi: 10.1038/oby.2009.317
422. Manzoni GM, Cesa GL, Bacchetta M, Castelnuovo G, Conti S, Gaggioli A, et al. Virtual reality-enhanced cognitive-behavioral therapy for morbid obesity: a randomized controlled study with 1 year follow-up. Cyberpsychol Behav Soc Netw. 2016;19(2):134-40. doi: 10.1089/cyber.2015.0208

423. Mårild S, Gronowitz E, Forsell C, Dahlgren J, Friberg P. A controlled study of lifestyle treatment in primary care for children with obesity. Pediatr Obes. 2013;8(3):207-17. doi: 10.1111/j.2047-6310.2012.00105.x
424. Marin-Alejandre BA, Cantero I, Perez-Diaz-Del-Campo N, Monreal JI, Elorz M, Herrero JI, et al. Effects of two personalized dietary strategies during a 2-year intervention in subjects with nonalcoholic fatty liver disease: a randomized trial. Liver Int. 2021;41(7):1532-44. doi: 10.1111/liv.14818
425. Markert J, Herget S, Petroff D, Gausche R, Grimm A, Kiess W, Blüher S. Telephone-based adiposity prevention for families with overweight children (T.A.F.F.-Study): one year outcome of a randomized, controlled trial. Int J Environ Res Public Health. 2014;11(10):10327-44. doi: 10.3390/ijerph111010327
426. Marrero DG, Palmer KNB, Phillips EO, Miller-Kovach K, Foster GD, Saha CK. Comparison of commercial and self-initiated weight loss programs in people with prediabetes: a randomized control trial. Am J Public Health. 2016;106(5):949-56. doi: 10.2105/AJPH.2015.303035
427. Marti A, Fernández de la Puente M, Canudas S, Zalba G, Razquin C, Valle-Hita C, et al. Effect of a 3-year lifestyle intervention on telomere length in participants from PREDIMED-Plus: a randomized trial. Clin Nutr. 2023;42(9):1581-7. doi: 10.1016/j.clnu.2023.06.030
428. Mason AE, Epel ES, Aschbacher K, Lustig RH, Acree M, Kristeller J, et al. Reduced reward-driven eating accounts for the impact of a mindfulness-based diet and exercise intervention on weight loss: data from the SHINE randomized controlled trial. Appetite. 2016;100:86-93. doi: 10.1016/j.appet.2016.02.009
429. Mason AE, Hecht FM, Daubenmier JJ, Sbarra DA, Lin J, Moran PJ, et al. Weight loss maintenance and cellular aging in the supporting health through nutrition and exercise study. Psychosom Med. 2018;80(7):609-19. doi: 10.1097/PSY.0000000000000616
430. Mason C, de Dieu Tapsoba J, Duggan C, Wang C-Y, Alfano CM, McTiernan A. Eating behaviors and weight loss outcomes in a 12-month randomized trial of diet and/or exercise intervention in postmenopausal women. Int J Behav Nutr Phys Act. 2019;16:113. doi: 10.1186/s12966-019-0887-1
431. Mason C, Foster-Schubert KE, Imayama I, Kong A, Xiao L, Bain C, et al. Dietary weight loss and exercise effects on insulin resistance in postmenopausal women. Am J Prev Med. 2011;41(4):366-75. doi: 10.1016/j.amepre.2011.06.042
432. Mason C, Xiao L, Duggan C, Imayama I, Foster-Schubert KE, Kong A, et al. Effects of dietary weight loss and exercise on insulin-like growth factor-I and insulin-like growth factor-binding protein-3 in postmenopausal women: a randomized controlled trial. Cancer Epidemiol Biomarkers Prev. 2013;22(8):1457-63. doi: 10.1158/1055-9965.EPI-13-0337
433. Mason C, Xiao L, Imayama I, Duggan C, Wang C-Y, Korde L, McTiernan A. Vitamin D3 supplementation during weight loss: a double-blind randomized controlled trial. Am J Clin Nutr. 2014;99(5):1015-25. doi: 10.3945/ajcn.113.073734
434. Mason C, Xiao L, Imayama I, Duggan CR, Campbell KL, Kong A, et al. The effects of separate and combined dietary weight loss and exercise on fasting ghrelin concentrations in overweight and obese women: a randomized controlled trial. Clin Endocrinol. 2015;82(3):369-76. doi: 10.1111/cen.12483
435. McCaffery JM, Papandonatos GD, Huggins GS, Peter I, Erar B, Kahn SE, et al. Human cardiovascular disease IBC chip-wide association with weight loss and weight regain in the Look AHEAD trial. Hum Hered. 2013;75(2-4):160-74. doi: 10.1159/000353181
436. McElfish PA, Felix HC, Bursac Z, Rowland B, Yeary KHK, Long CR, et al. A cluster randomized controlled trial comparing diabetes prevention program interventions for overweight/obese Marshallese adults. Inquiry. 2023;60. doi: 10.1177/00469580231152051
437. McGowan BM, Houshmand-Oeregaard A, Laursen PN, Zeuthen N, Baker-Knight J. Impact of BMI and comorbidities on efficacy of once-weekly semaglutide: post hoc analyses of the STEP 1 randomized trial. Obesity. 2023;31(4):990-9. doi: 10.1002/oby.23732

438. McRobbie H, Hajek P, Peerbux S, Kahan BC, Eldridge S, Trépel D, et al. Randomised controlled trial and economic evaluation of a task-based weight management group programme. BMC Public Health. 2019;19:365. doi: 10.1186/s12889-019-6679-3
439. Meenan RT, Stumbo SP, Yarborough MT, Leo MC, Yarborough BJH, Green CA. An economic evaluation of a weight loss intervention program for people with serious mental illnesses taking antipsychotic medications. Adm Policy Ment Health. 2016;43(4):604-15. doi: 10.1007/s10488-015-0669-2
440. Mellberg C, Sandberg S, Ryberg M, Eriksson M, Brage S, Larsson C, et al. Long-term effects of a Palaeolithic-type diet in obese postmenopausal women: a 2-year randomized trial. Eur J Clin Nutr. 2014;68(3):350-7. doi: 10.1038/ejcn.2013.290
441. Melnyk BM, Jacobson D, Kelly SA, Belyea MJ, Shaibi GQ, Small L, et al. Twelve-month effects of the COPE Healthy Lifestyles TEEN program on overweight and depressive symptoms in high school adolescents. J Sch Health. 2015;85(12):861-70. doi: 10.1111/josh.12342
442. Mensinger JL, Calogero RM, Stranges S, Tylka TL. A weight-neutral versus weight-loss approach for health promotion in women with high BMI: a randomized-controlled trial. Appetite. 2016;105:364-74. doi: 10.1016/j.appet.2016.06.006
443. Metzgar CJ, Nickols-Richardson SM. Effects of nutrition education on weight gain prevention: a randomized controlled trial. Nutr J. 2016;15:31. doi: 10.1186/s12937-016-0150-4
444. Miguel Soca PE, Peña Pérez I, Niño Escofet S, Cruz Torres W, Niño Peña A, Ponce De León D. [Randomised controlled trial: the role of diet and exercise in women with metabolic syndrome]. Aten Primaria. 2012;44(7):387-93. doi: 10.1016/j.aprim.2011.07.010
445. Miller CT, Fraser SF, Selig SE, Rice T, Grima M, van den Hoek DJ, et al. Fitness, strength and body composition during weight loss in women with clinically severe obesity: a randomised clinical trial. Obes Facts. 2020;13(4):307-21. doi: 10.1159/000506643
446. Miller GD, Beavers DP, Hamm D, Mihalko SL, Messier SP. Nutrient intake during diet-induced weight loss and exercise interventions in a randomized trial in older overweight and obese adults. J Nutr Health Aging. 2017;21(10):1216-24. doi: 10.1007/s12603-017-0892-5
447. Miller GD, Isom S, Morgan TM, Vitolins MZ, Blackwell C, Brosnihan KB, et al. Effects of a community-based weight loss intervention on adipose tissue circulating factors. Diabetes Metab Syndr. 2014;8(4):205-11. doi: 10.1016/j.dsx.2014.09.003
448. Miller K, Turró R, Greve JW, Bakker CM, Buchwald JN, Espinos JC. MILEPOST multicenter randomized controlled trial: 12-month weight loss and satiety outcomes after *pose* SM vs. medical therapy. Obes Surg. 2017;27(2):310-22. doi: 10.1007/s11695-016-2295-9
449. Mingrone G, Panunzi S, De Gaetano A, Guidone C, Iaconelli A, Nanni G, et al. Bariatric-metabolic surgery versus conventional medical treatment in obese patients with type 2 diabetes: 5 year follow-up of an open-label, single-centre, randomised controlled trial. Lancet. 2015;386(9997):964-73. doi: 10.1016/S0140-6736(15)00075-6
450. Mobasseri M, Yavari A, Najafipoor F, Aliasgarzadeh A, Niafar M. Effect of a long-term regular physical activity on hypertension and body mass index in type 2 diabetes patients. J Sports Med Phys Fitness. 2015;55(1-2):84-90.
451. Mokhtari Z, Karbaschian Z, Pazouki A, Kabir A, Hedayati M, Mirmiran P, Hekmatdoost A. The effects of probiotic supplements on blood markers of endotoxin and lipid peroxidation in patients undergoing gastric bypass surgery; a randomized, double-blind, placebo-controlled, clinical trial with 13 months follow-up. Obes Surg. 2019;29(4):1248-58. doi: 10.1007/s11695-018-03667-6
452. Molenaar EA, van Ameijden EJC, Vergouwe Y, Grobbee DE, Numans ME. Effect of nutritional counselling and nutritional plus exercise counselling in overweight adults: a randomized trial in multidisciplinary primary care practice. Fam Pract. 2010;27(2):143-50. doi: 10.1093/fampra/cmp104
453. Moncrieft AE, Llabre MM, McCalla JR, Gutt M, Mendez AJ, Gellman MD, et al. Effects of a multicomponent life-style intervention on weight, glycemic control, depressive symptoms, and renal function in low-income, minority patients with type 2 diabetes: results of the Community Approach

to Lifestyle Modification for Diabetes randomized controlled trial. Psychosom Med. 2016;78(7):851-60. doi: 10.1097/PSY.0000000000000348
454. Montemayor S, Bouzas C, Mascaró CM, Casares M, Llompart I, Abete I, et al. Effect of dietary and lifestyle interventions on the amelioration of NAFLD in patients with metabolic syndrome: the FLIPAN study. Nutrients. 2022;14(11):2223. doi: 10.3390/nu14112223
455. Moore SM, Borawski EA, Love TE, Jones S, Casey T, McAleer S, et al. Two family interventions to reduce BMI in low-income urban youth: a randomized trial. Pediatrics. 2019;143(6):e20182185. doi: 10.1542/peds.2018-2185
456. Morales-Palomo F, Ramirez-Jimenez M, Ortega JF, Mora-Rodriguez R. Exercise periodization over the year improves metabolic syndrome and medication use. Med Sci Sports Exerc. 2018;50(10):1983-91. doi: 10.1249/MSS.0000000000001659
457. Moreno B, Bellido D, Sajoux I, Goday A, Saavedra D, Crujeiras AB, Casanueva FF. Comparison of a very low-calorie-ketogenic diet with a standard low-calorie diet in the treatment of obesity. Endocrine. 2014;47(3):793-805. doi: 10.1007/s12020-014-0192-3
458. Morey MC, Pieper CF, Edelman DE, Yancy WS, Jr., Green JB, Lum H, et al. Enhanced fitness: a randomized controlled trial of the effects of home - based physical activity counseling on glycemic control in older adults with prediabetes mellitus. J Am Geriatr Soc. 2012;60(9):1655-62. doi: 10.1111/j.1532-5415.2012.04119.x
459. Morgan PJ, Lubans DR, Collins CE, Warren JM, Callister R. 12-month outcomes and process evaluation of the SHED-IT RCT: an internet-based weight loss program targeting men. Obesity. 2011;19(1):142-51. doi: 10.1038/oby.2010.119
460. Mundbjerg LH, Stolberg CR, Cecere S, Bladbjerg E-M, Funch-Jensen P, Gram B, Juhl CB. Supervised physical training improves weight loss after Roux-en-Y gastric bypass surgery: a randomized controlled trial. Obesity. 2018;26(5):828-37. doi: 10.1002/oby.22143
461. Muollo V, Rossi AP, Milanese C, Zamboni M, Rosa R, Schena F, Pellegrini B. Prolonged unsupervised Nordic walking and walking exercise following six months of supervision in adults with overweight and obesity: a randomised clinical trial. Nutr Metab Cardiovasc Dis. 2021;31(4):1247-56. doi: 10.1016/j.numecd.2020.12.012
462. Muralidharan J, Moreno-Indias I, Bulló M, Lopez JV, Corella D, Castañer O, et al. Effect on gut microbiota of a 1-y lifestyle intervention with Mediterranean diet compared with energy-reduced Mediterranean diet and physical activity promotion: PREDIMED-Plus study. Am J Clin Nutr. 2021;114(3):1148-58. doi: 10.1093/ajcn/nqab150
463. Murphy JC, McDaniel JL, Mora K, Villareal DT, Fontana L, Weiss EP. Preferential reductions in intermuscular and visceral adipose tissue with exercise-induced weight loss compared with calorie restriction. J Appl Physiol (1985). 2012;112(1):79-85. doi: 10.1152/japplphysiol.00355.2011
464. Nackers LM, Middleton KR, Dubyak PJ, Daniels MJ, Anton SD, Perri MG. Effects of prescribing 1,000 versus 1,500 kilocalories per day in the behavioral treatment of obesity: a randomized trial. Obesity. 2013;21(12):2481-7. doi: 10.1002/oby.20439
465. Nakade M, Aiba N, Suda N, Morita A, Miyachi M, Sasaki S, Watanabe S. Behavioral change during weight loss program and one-year follow-up: Saku Control Obesity Program (SCOP) in Japan. Asia Pac J Clin Nutr. 2012;21(1):22-34. doi: 10.3316/ielapa.004014331025523
466. Nakata Y, Okada M, Hashimoto K, Harada Y, Sone H, Tanaka K. Weight loss maintenance for 2 years after a 6-month randomised controlled trial comparing education-only and group-based support in Japanese adults. Obes Facts. 2014;7(6):376-87. doi: 10.1159/000369913
467. Napolitano MA, Whiteley JA, Mavredes M, Tjaden AH, Simmens S, Hayman LL, et al. Effect of tailoring on weight loss among young adults receiving digital interventions: an 18 month randomized controlled trial. Transl Behav Med. 2021;11(4):970-80. doi: 10.1093/tbm/ibab017
468. Neale EP, Tapsell LC, Martin A, Batterham MJ, Wibisono C, Probst YC. Impact of providing walnut samples in a lifestyle intervention for weight loss: a secondary analysis of the HealthTrack trial. Food Nutr Res. 2017;61(1). doi: 10.1080/16546628.2017.1344522

469. Nguyen B, Shrewsbury VA, O'Connor J, Steinbeck KS, Hill AJ, Shah S, et al. Two-year outcomes of an adjunctive telephone coaching and electronic contact intervention for adolescent weight-loss maintenance: the Loozit randomized controlled trial. Int J Obes. 2013;37(3):468-72. doi: 10.1038/ijo.2012.74
470. Nguyen KT, Billington CJ, Vella A, Wang Q, Ahmed L, Bantle JP, et al. Preserved insulin secretory capacity and weight loss are the predominant predictors of glycemic control in patients with type 2 diabetes randomized to Roux-en-Y gastric bypass. Diabetes. 2015;64(9):3104-10. doi: 10.2337/db14-1870
471. Nordklint AK, Almdal TP, Vestergaard P, Lundby-Christensen L, Boesgaard TW, Breum L, et al. Effect of metformin and insulin vs. placebo and insulin on whole body composition in overweight patients with type 2 diabetes: a randomized placebo-controlled trial. Osteoporos Int. 2021;32(9):1837-48. doi: 10.1007/s00198-021-05870-1
472. Norman G, Huang J, Davila EP, Kolodziejczyk JK, Carlson J, Covin JR, et al. Outcomes of a 1-year randomized controlled trial to evaluate a behavioral 'stepped-down' weight loss intervention for adolescent patients with obesity. Pediatr Obes. 2016;11(1):18-25. doi: 10.1111/ijpo.12013
473. Nybacka Å, Carlström K, Ståhle A, Nyrén S, Hellström PM, Hirschberg AL. Randomized comparison of the influence of dietary management and/or physical exercise on ovarian function and metabolic parameters in overweight women with polycystic ovary syndrome. Fertil Steril. 2011;96(6):1508-13. doi: 10.1016/j.fertnstert.2011.09.006
474. O'Brien MJ, Perez A, Scanlan AB, Alos VA, Whitaker RC, Foster GD, et al. PREVENT-DM comparative effectiveness trial of lifestyle intervention and metformin. Am J Prev Med. 2017;52(6):788-97. doi: 10.1016/j.amepre.2017.01.008
475. O'Brien PE, Sawyer SM, Laurie C, Brown WA, Skinner S, Veit F, et al. Laparoscopic adjustable gastric banding in severely obese adolescents: a randomized trial. JAMA. 2010;303(6):519-26. doi: 10.1001/jama.2010.81
476. O'Neil PM, Birkenfeld AL, McGowan B, Mosenzon O, Pedersen SD, Wharton S, et al. Efficacy and safety of semaglutide compared with liraglutide and placebo for weight loss in patients with obesity: a randomised, double-blind, placebo and active controlled, dose-ranging, phase 2 trial. Lancet. 2018;392(10148):637-49. doi: 10.1016/S0140-6736(18)31773-2
477. Ockene IS, Tellez TL, Rosal MC, Reed GW, Mordes J, Merriam PA, et al. Outcomes of a Latino community-based intervention for the prevention of diabetes: the Lawrence Latino Diabetes Prevention Project. Am J Public Health. 2012;102(2):336-42. doi: 10.2105/AJPH.2011.300357
478. Ogden J, Hollywood A, Pring C. The impact of psychological support on weight loss post weight loss surgery: a randomised control trial. Obes Surg. 2015;25(3):500-5. doi: 10.1007/s11695-014-1428-2
479. Øhman EA, Fossli M, Ottestad I, Holven KB, Ulven SM, Løland BF, Brekke HK. Dietary treatment postpartum in women with obesity reduces weight and prevents weight gain: a randomised controlled trial. BMC Pregnancy Childbirth. 2023;23(1):695. doi: 10.1186/s12884-023-05976-w
480. Ojeda-Rodríguez A, Morell-Azanza L, Martín-Calvo N, Zalba G, Chueca M, Azcona-Sanjulian MC, Marti A. Association between favourable changes in objectively measured physical activity and telomere length after a lifestyle intervention in pediatric patients with abdominal obesity. Appl Physiol Nutr Metab. 2021;46(3):205-12. doi: 10.1139/apnm-2020-0297
481. Okely AD, Collins CE, Morgan PJ, Jones RA, Warren JM, Cliff DP, et al. Multi-site randomized controlled trial of a child-centered physical activity program, a parent-centered dietary-modification program, or both in overweight children: the HIKCUPS study. J Pediatr. 2010;157(3):388-94.e1. doi: 10.1016/j.jpeds.2010.03.028
482. Orazio LK, Isbel NM, Armstrong KA, Tarnarskyj J, Johnson DW, Hale RE, et al. Evaluation of dietetic advice for modification of cardiovascular disease risk factors in renal transplant recipients. J Ren Nutr. 2011;21(6):462-71. doi: 10.1053/j.jrn.2010.12.002

483. Ortner Hadžiabdić M, Vitali Čepo D, Rahelić D, Božikov V. The effect of the Mediterranean diet on serum total antioxidant capacity in obese patients: a randomized controlled trial. J Am Coll Nutr. 2016;35(3):224-35. doi: 10.1080/07315724.2014.982770
484. Ospanov O, Akilzhanova A, Buchwald JN, Fursov A, Bekmurzinova F, Rakhimova S, et al. Stapleless vs stapled gastric bypass vs hypocaloric diet: a three-arm randomized controlled trial of body mass evolution with secondary outcomes for telomere length and metabolic syndrome changes. Obes Surg. 2021;31(7):3165-76. doi: 10.1007/s11695-021-05454-2
485. Østbye T, Stroo M, Brouwer RJN, Peterson BL, Eisenstein EL, Fuemmeler BF, et al. Steps to Health employee weight management randomized control trial: short-term follow-up results. J Occup Environ Med. 2015;57(2):188-95. doi: 10.1097/JOM.0000000000000335
486. Otten J, Ryberg M, Mellberg C, Andersson T, Chorell E, Lindahl B, et al. Postprandial levels of GLP-1, GIP and glucagon after 2 years of weight loss with a Paleolithic diet: a randomised controlled trial in healthy obese women. Eur J Endocrinol. 2019;180(6):417-27. doi: 10.1530/EJE-19-0082
487. Pakpour AH, Gellert P, Dombrowski SU, Fridlund B. Motivational interviewing with parents for obesity: an RCT. Pediatrics. 2015;135(3):e644-e52. doi: 10.1542/peds.2014-1987
488. Palnati M, Marcus BH, Pekow P, Rosal MC, Manson JE, Chasan-Taber L. The impact of a lifestyle intervention on postpartum weight retention among at-risk Hispanic women. Am J Prev Med. 2021;61(1):44-54. doi: 10.1016/j.amepre.2021.02.005
489. Pannen ST, Maldonado SG, Nonnenmacher T, Sowah SA, Gruner LF, Watzinger C, et al. Adherence and dietary composition during intermittent vs. continuous calorie restriction: follow-up data from a randomized controlled trial in adults with overweight or obesity. Nutrients. 2021;13(4):1195. doi: 10.3390/nu13041195
490. Panosian J, Ding S-A, Wewalka M, Simonson DC, Goebel-Fabbri A, Foster K, et al. Physical activity in obese type 2 diabetes after gastric bypass or medical management. Am J Med. 2017;130(1):83-92. doi: 10.1016/j.amjmed.2016.07.019
491. Papalazarou A, Yannakoulia M, Kavouras SA, Komesidou V, Dimitriadis G, Papakonstantinou A, Sidossis LS. Lifestyle intervention favorably affects weight loss and maintenance following obesity surgery. Obesity. 2010;18(7):1348-53. doi: 10.1038/oby.2009.346
492. Parker SM, Barr M, Stocks N, Denney-Wilson E, Zwar N, Karnon J, et al. Preventing chronic disease in overweight and obese patients with low health literacy using eHealth and teamwork in primary healthcare (HeLP-GP): a cluster randomised controlled trial. BMJ Open. 2022;12(11):e060393. doi: 10.1136/bmjopen-2021-060393
493. Paskett ED, Baltic RD, Young GS, Katz ML, Lesko SM, Webber KH, et al. A group randomized trial to reduce obesity among Appalachian church members: the Walk by Faith study. Cancer Epidemiol Biomarkers Prev. 2018;27(11):1289-97. doi: 10.1158/1055-9965.EPI-17-1085
494. Patel MS, Small DS, Harrison JD, Hilbert V, Fortunato MP, Oon AL, et al. Effect of behaviorally designed gamification with social incentives on lifestyle modification among adults with uncontrolled diabetes: a randomized clinical trial. JAMA Netw Open. 2021;4(5):e2110255. doi: 10.1001/jamanetworkopen.2021.10255
495. Patrick K, Calfas KJ, Norman GJ, Rosenberg D, Zabinski MF, Sallis JF, et al. Outcomes of a 12-month web-based intervention for overweight and obese men. Ann Behav Med. 2011;42(3):391-401. doi: 10.1007/s12160-011-9296-7
496. Patrick K, Norman GJ, Davila EP, Calfas KJ, Raab F, Gottschalk M, et al. Outcomes of a 12-month technology-based intervention to promote weight loss in adolescents at risk for type 2 diabetes. J Diabetes Sci Technol. 2013;7(3):759-70.
497. Paul L, van der Heiden C, van Hoeken D, Deen M, Vlijm A, Klaassen R, et al. Three- and five-year follow-up results of a randomized controlled trial on the effects of cognitive behavioral therapy before bariatric surgery. Int J Eat Disord. 2022;55(12):1824-37. doi: 10.1002/eat.23825
498. Paul L, van der Heiden C, van Hoeken D, Deen M, Vlijm A, Klaassen RA, et al. Cognitive behavioral therapy versus usual care before bariatric surgery: one-year follow-up results of a randomized controlled trial. Obes Surg. 2021;31(3):970-9. doi: 10.1007/s11695-020-05081-3

499. Pavić E, Hadžiabdić MO, Mucalo I, Martinis I, Romić Ž, Božikov V, Rahelić D. Effect of the Mediterranean diet in combination with exercise on metabolic syndrome parameters: 1-year randomized controlled trial. Int J Vitam Nutr Res. 2019;89(3-4):132-43. doi: 10.1024/0300-9831/a000462
500. Pearl RL, Wadden TA, Bach C, LaFata EM, Gautam S, Leonard S, et al. Long-term effects of an internalized weight stigma intervention: a randomized controlled trial. J Consult Clin Psychol. 2023;91(7):398-410. doi: 10.1037/ccp0000819
501. Pearl RL, Wadden TA, Bach C, Tronieri JS, Berkowitz RI. Six-month follow-up from a randomized controlled trial of the Weight BIAS program. Obesity. 2020;28(10):1878-88. doi: 10.1002/oby.22931
502. Pearl RL, Wadden TA, Chao AM, Alamuddin N, Berkowitz RI, Walsh O, et al. Associations between causal attributions for obesity and long-term weight loss. Behav Med. 2020;46(2):87-91. doi: 10.1080/08964289.2018.1556202
503. Pedersen E, Jesudason DR, Clifton PM. High protein weight loss diets in obese subjects with type 2 diabetes mellitus. Nutr Metab Cardiovasc Dis. 2014;24(5):554-62. doi: 10.1016/j.numecd.2013.11.003
504. Pedersen LR, Olsen RH, Anholm C, Astrup A, Eugen-Olsen J, Fenger M, et al. Effects of 1 year of exercise training versus combined exercise training and weight loss on body composition, low-grade inflammation and lipids in overweight patients with coronary artery disease: a randomized trial. Cardiovasc Diabetol. 2019;18:127. doi: 10.1186/s12933-019-0934-x
505. Pedley CF, Case LD, Blackwell CS, Katula JA, Vitolins MZ. The 24-month metabolic benefits of the healthy living partnerships to prevent diabetes: a community-based translational study. Diabetes Metab Syndr. 2018;12(3):215-20. doi: 10.1016/j.dsx.2017.09.011
506. Pedrosa C, Oliveira BMPM, Albuquerque I, Simões-Pereira C, Vaz-de-Almeida MD, Correia F. Markers of metabolic syndrome in obese children before and after 1-year lifestyle intervention program. Eur J Nutr. 2011;50(6):391-400. doi: 10.1007/s00394-010-0148-1
507. Pedrosa C, Oliveira BMPM, Albuquerque I, Simões-Pereira C, Vaz-de-Almeida MD, Correia F. Metabolic syndrome, adipokines and ghrelin in overweight and obese schoolchildren: results of a 1-year lifestyle intervention programme. Eur J Pediatr. 2011;170(4):483-92. doi: 10.1007/s00431-010-1316-2
508. Pekkarinen T, Kaukua J, Mustajoki P. Long-term weight maintenance after a 17-week weight loss intervention with or without a one-year maintenance program: a randomized controlled trial. J Obes. 2015;2015:651460. doi: 10.1155/2015/651460
509. Pérez-Ferre N, Del Valle L, Torrejón MJ, Barca I, Calvo MI, Matía P, et al. Diabetes mellitus and abnormal glucose tolerance development after gestational diabetes: a three-year, prospective, randomized, clinical-based, Mediterranean lifestyle interventional study with parallel groups. Clin Nutr. 2015;34(4):579-85. doi: 10.1016/j.clnu.2014.09.005
510. Perri MG, Limacher MC, von Castel-Roberts K, Daniels MJ, Durning PE, Janicke DM, et al. Comparative effectiveness of three doses of weight-loss counseling: two-year findings from the rural LITE trial. Obesity. 2014;22(11):2293-300. doi: 10.1002/oby.20832
511. Perry CD, Degeneffe D, Davey C, Kollannoor-Samuel G, Reicks M. Weight gain prevention among midlife women: a randomized controlled trial to address needs related to the physical and social environment. Int J Environ Res Public Health. 2016;13(6):530. doi: 10.3390/ijerph13060530
512. Peven JC, Jakicic JM, Rogers RJ, Lesnovskaya A, Erickson KI, Kang C, et al. The effects of a 12-month weight loss intervention on cognitive outcomes in adults with overweight and obesity. Nutrients. 2020;12(10):2988. doi: 10.3390/nu12102988
513. Phelan S, Hagobian T, Brannen A, Hatley KE, Schaffner A, Muñoz-Christian K, Tate DF. Effect of an internet-based program on weight loss for low-income postpartum women: a randomized clinical trial. JAMA. 2017;317(23):2381-91. doi: 10.1001/jama.2017.7119

514. Phelan S, Hart CN, Jelalian E, Muñoz-Christian K, Alarcon N, McHugh A, et al. Effect of prenatal lifestyle intervention on maternal postpartum weight retention and child body mass index z-score at 36 months. Int J Obes. 2021;45(5):1133-42. doi: 10.1038/s41366-021-00784-8
515. Phelan S, Phipps MG, Abrams B, Darroch F, Grantham K, Schaffner A, Wing RR. Does behavioral intervention in pregnancy reduce postpartum weight retention? Twelve-month outcomes of the Fit for Delivery randomized trial. Am J Clin Nutr. 2014;99(2):302-11. doi: 10.3945/ajcn.113.070151
516. Phelan S, Wing RR, Brannen A, McHugh A, Hagobian T, Schaffner A, et al. Does partial meal replacement during pregnancy reduce 12-month postpartum weight retention? Obesity. 2019;27(2):226-36. doi: 10.1002/oby.22361
517. Phillips EG, Wells MT, Winston G, Ramos R, Devine CM, Wethington E, et al. Innovative approaches to weight loss in a high-risk population: the small changes and lasting effects (SCALE) trial. Obesity. 2017;25(5):833-41. doi: 10.1002/oby.21780
518. Pi-Sunyer X, Astrup A, Fujioka K, Greenway F, Halpern A, Krempf M, et al. A randomized, controlled trial of 3.0 mg of liraglutide in weight management. N Engl J Med. 2015;373(1):11-22. doi: 10.1056/NEJMoa1411892
519. Pimentel GD, Portero-McLellan KC, Oliveira ÉP, Spada APM, Oshiiwa M, Zemdegs JCS, Barbalho SM. Long-term nutrition education reduces several risk factors for type 2 diabetes mellitus in Brazilians with impaired glucose tolerance. Nutr Res. 2010;30(3):186-90. doi: 10.1016/j.nutres.2010.03.003
520. Poddar KH, Ames M, Hsin-Jen C, Feeney MJ, Wang Y, Cheskin LJ. Positive effect of mushrooms substituted for meat on body weight, body composition, and health parameters. A 1-year randomized clinical trial. Appetite. 2013;71:379-87. doi: 10.1016/j.appet.2013.09.008
521. Pogacnik Murillo AL, Eckstein F, Wirth W, Beavers D, Loeser RF, Nicklas BJ, et al. Impact of diet and/or exercise intervention on infrapatellar fat pad morphology: secondary analysis from the Intensive Diet and Exercise for Arthritis (IDEA) trial. Cells Tissues Organs. 2017;203(4):258-66. doi: 10.1159/000449407
522. Porca C, Rodriguez-Carnero G, Tejera C, Andujar P, Casanueva FF, Crujeiras AB, Bellido D. Effectiveness to promote weight loss maintenance and healthy lifestyle habits of a group educational intervention program in adults with obesity: IGOBE program. Obes Res Clin Pract. 2021;15(6):570-8. doi: 10.1016/j.orcp.2021.10.003
523. Poulsen SK, Crone C, Astrup A, Larsen TM. Long-term adherence to the New Nordic Diet and the effects on body weight, anthropometry and blood pressure: a 12-month follow-up study. Eur J Nutr. 2015;54(1):67-76. doi: 10.1007/s00394-014-0686-z
524. Pownall HJ, Bray GA, Wagenknecht LE, Walkup MP, Heshka S, Hubbard VS, et al. Changes in body composition over 8 years in a randomized trial of a lifestyle intervention: the look AHEAD study. Obesity. 2015;23(3):565-72. doi: 10.1002/oby.21005
525. Pownall HJ, Schwartz AV, Bray GA, Berkowitz RI, Lewis CE, Boyko EJ, et al. Changes in regional body composition over 8 years in a randomized lifestyle trial: the look AHEAD study. Obesity. 2016;24(9):1899-905. doi: 10.1002/oby.21577
526. Psota TL, Tindall AM, Lohse B, Miller PE, Petersen KS, Kris-Etherton PM. The Weight Optimization Revamping Lifestyle using the Dietary Guidelines (WORLD) study: sustained weight loss over 12 months. Obesity. 2020;28(7):1235-44. doi: 10.1002/oby.22824
527. Ptomey LT, Gibson CA, Lee J, Sullivan DK, Washburn RA, Gorczyca AM, Donnelly JE. Caregivers' effect on weight management in adults with intellectual and developmental disabilities. Disabil Health J. 2017;10(4):542-7. doi: 10.1016/j.dhjo.2017.02.001
528. Ptomey LT, Saunders RR, Saunders M, Washburn RA, Mayo MS, Sullivan DK, et al. Weight management in adults with intellectual and developmental disabilities: a randomized controlled trial of two dietary approaches. J Appl Res Intellect Disabil. 2018;31(S1):82-96. doi: 10.1111/jar.12348
529. Ptomey LT, Washburn RA, Goetz JR, Sullivan DK, Gibson CA, Mayo MS, et al. A randomized trial comparing diet and delivery strategies for weight management in adolescents with intellectual disabilities. Pediatr Obes. 2023;18(1):e12972. doi: 10.1111/ijpo.12972

530. Puhkala J, Kukkonen-Harjula K, Mansikkamäki K, Aittasalo M, Hublin C, Kärmeniemi P, et al. Lifestyle counseling to reduce body weight and cardiometabolic risk factors among truck and bus drivers--a randomized controlled trial. Scand J Work Environ Health. 2015;41(1):54-64. doi: 10.5271/sjweh.3463
531. Purcell K, Sumithran P, Prendergast LA, Bouniu CJ, Delbridge E, Proietto J. The effect of rate of weight loss on long-term weight management: a randomised controlled trial. Lancet Diabetes Endocrinol. 2014;2(12):954-62. doi: 10.1016/S2213-8587(14)70200-1
532. Quattrin T, Roemmich JN, Paluch R, Yu J, Epstein LH, Ecker MA. Treatment outcomes of overweight children and parents in the medical home. Pediatrics. 2014;134(2):290-7. doi: 10.1542/peds.2013-4084
533. Raben A, Vestentoft PS, Brand-Miller J, Jalo E, Drummen M, Simpson L, et al. The PREVIEW intervention study: results from a 3-year randomized 2 x 2 factorial multinational trial investigating the role of protein, glycaemic index and physical activity for prevention of type 2 diabetes. Diabetes Obes Metab. 2021;23(2):324-37. doi: 10.1111/dom.14219
534. Raynor HA, Osterholt KM, Hart CN, Jelalian E, Vivier P, Wing RR. Efficacy of US paediatric obesity primary care guidelines: two randomized trials. Pediatr Obes. 2012;7(1):28-38. doi: 10.1111/j.2047-6310.2011.00005.x
535. Raynor HA, Steeves EA, Hecht J, Fava JL, Wing RR. Limiting variety in non-nutrient-dense, energy-dense foods during a lifestyle intervention: a randomized controlled trial. Am J Clin Nutr. 2012;95(6):1305-14. doi: 10.3945/ajcn.111.031153
536. Recasens MA, Xicola-Coromina E, Manresa J-M, Ullmo PA, Jensen BB, Franco R, et al. Impact of school-based nutrition and physical activity intervention on body mass index eight years after cessation of randomized controlled trial (AVall study). Clin Nutr. 2019;38(6):2592-8. doi: 10.1016/j.clnu.2018.12.029
537. Redmon JB, Bertoni AG, Connelly S, Feeney PA, Glasser SP, Glick H, et al. Effect of the look AHEAD study intervention on medication use and related cost to treat cardiovascular disease risk factors in individuals with type 2 diabetes. Diabetes Care. 2010;33(6):1153-8. doi: 10.2337/dc09-2090
538. Reeves MM, Terranova CO, Winkler EAH, McCarthy N, Hickman IJ, Ware RS, et al. Effect of a remotely delivered weight loss intervention in early-stage breast cancer: randomized controlled trial. Nutrients. 2021;13(11):4091. doi: 10.3390/nu13114091
539. Reichard A, Saunders MD, Saunders RR, Donnelly JE, Lauer E, Sullivan DK, Ptomey L. A comparison of two weight management programs for adults with mobility impairments. Disabil Health J. 2015;8(1):61-9. doi: 10.1016/j.dhjo.2014.08.002
540. Reid RD, McDonnell LA, Riley DL, Mark AE, Mosca L, Beaton L, et al. Effect of an intervention to improve the cardiovascular health of family members of patients with coronary artery disease: a randomized trial. CMAJ. 2014;186(1):23-30. doi: 10.1503/cmaj.130550
541. Reis LO, Favaro WJ, Barreiro GC, de Oliveira LC, Chaim EA, Fregonesi A, Ferreira U. Erectile dysfunction and hormonal imbalance in morbidly obese male is reversed after gastric bypass surgery: a prospective randomized controlled trial. Int J Androl. 2010;33(5):736-44. doi: 10.1111/j.1365-2605.2009.01017.x
542. Rejeski WJ, Ambrosius WT, Burdette JH, Walkup MP, Marsh AP. Community weight loss to combat obesity and disability in at-risk older adults. J Gerontol A Biol Sci Med Sci. 2017;72(11):1547-53. doi: 10.1093/gerona/glw252
543. Rejeski WJ, Brubaker PH, Goff DC, Jr., Bearon LB, McClelland JW, Perri MG, Ambrosius WT. Translating weight loss and physical activity programs into the community to preserve mobility in older, obese adults in poor cardiovascular health. Arch Intern Med. 2011;171(10):880-6. doi: 10.1001/archinternmed.2010.522
544. Rendeli C, Kuczynska E, Giuliano AC, Chiaretti A, Ausili E. Dietary approach to prevent obesity risk in Spina Bifida patients. Childs Nerv Syst. 2020;36(7):1515-20. doi: 10.1007/s00381-019-04471-y

545. Rieger E, Treasure J, Murray K, Caterson I. The use of support people to improve the weight-related and psychological outcomes of adults with obesity: a randomised controlled trial. Behav Res Ther. 2017;94:48-59. doi: 10.1016/j.brat.2017.04.012
546. Risica PM, Gans KM, Kumanyika S, Kirtania U, Lasater TM. SisterTalk: final results of a culturally tailored cable television delivered weight control program for Black women. Int J Behav Nutr Phys Act. 2013;10:141. doi: 10.1186/1479-5868-10-141
547. Robertson W, Fleming J, Kamal A, Hamborg T, Khan KA, Griffiths F, et al. Randomised controlled trial and economic evaluation of the 'Families for Health' programme to reduce obesity in children. Arch Dis Child. 2017;102(5):416-26. doi: 10.1136/archdischild-2016-311514
548. Robinson TN, Matheson D, Wilson DM, Weintraub DL, Banda JA, McClain A, et al. A community-based, multi-level, multi-setting, multi-component intervention to reduce weight gain among low socioeconomic status Latinx children with overweight or obesity: the Stanford GOALS randomised controlled trial. Lancet Diabetes Endocrinol. 2021;9(6):336-49. doi: 10.1016/S2213-8587(21)00084-X
549. Rock CL, Flatt SW, Byers TE, Colditz GA, Demark-Wahnefried W, Ganz PA, et al. Results of the Exercise and Nutrition to Enhance Recovery and Good Health for You (ENERGY) trial: a behavioral weight loss intervention in overweight or obese breast cancer survivors. J Clin Oncol. 2015;33(28):3169-76. doi: 10.1200/JCO.2015.61.1095
550. Rock CL, Flatt SW, Sherwood NE, Karanja N, Pakiz B, Thomson CA. Effect of a free prepared meal and incentivized weight loss program on weight loss and weight loss maintenance in obese and overweight women: a randomized controlled trial. JAMA. 2010;304(16):1803-10. doi: 10.1001/jama.2010.1503
551. Rodríguez Cristóbal JJ, Alonso-Villaverde Grote C, Travé Mercadé P, Pérez Santos JM, Peña Sendra E, Muñoz Lloret A, et al. Randomised clinical trial of an intensive intervention in the primary care setting of patients with high plasma fibrinogen in the primary prevention of cardiovascular disease. BMC Res Notes. 2012;5:126. doi: 10.1186/1756-0500-5-126
552. Röhling M, Stensitzky A, Oliveira CLP, Beck A, Braumann KM, Halle M, et al. Effects of a protein-rich, low-glycaemic meal replacement on changes in dietary intake and body weight following a weight-management intervention—the ACOORH trial. Nutrients. 2021;13(2):376. doi: 10.3390/nu13020376
553. Rojo-Tirado MA, Benito PJ, Ruiz JR, Ortega FB, Romero-Moraleda B, Butragueño J, et al. Body composition changes after a weight loss intervention: a 3-year follow-up study. Nutrients. 2021;13(1):164. doi: 10.3390/nu13010164
554. Rosas LG, Lv N, Xiao L, Lewis MA, Venditti EMJ, Zavella P, et al. Effect of a culturally adapted behavioral intervention for Latino adults on weight loss over 2 years: a randomized clinical trial. JAMA Netw Open. 2020;3(12):e2027744. doi: 10.1001/jamanetworkopen.2020.27744
555. Rosas LG, Lv N, Xiao L, Venditti EM, Lewis MA, Azar KMJ, et al. HOMBRE: a trial comparing 2 weight loss approaches for Latino men. Am J Prev Med. 2022;63(3):341-53. doi: 10.1016/j.amepre.2022.03.032
556. Ross R, Lam M, Blair SN, Church TS, Godwin M, Hotz SB, et al. Trial of prevention and reduction of obesity through active living in clinical settings: a randomized controlled trial. Arch Intern Med. 2012;172(5):414-24. doi: 10.1001/archinternmed.2011.1972
557. Ross R, Latimer-Cheung AE, Day AG, Brennan AM, Hill JO. A small change approach to prevent long-term weight gain in adults with overweight and obesity: a randomized controlled trial. CMAJ. 2022;194(9):E324-E31. doi: 10.1503/cmaj.211041
558. Roth B, Munsch S, Meyer AH. [Long-term evaluation of a psychological training for obese children and their parents (TAKE)]. Prax Kinderpsychol Kinderpsychiat. 2011;60(4):304-21. doi: 10.13109/prkk.2011.60.4.304
559. Rubino DM, Greenway FL, Khalid U, O'Neil PM, Rosenstock J, Sørrig R, et al. Effect of weekly subcutaneous semaglutide vs daily liraglutide on body weight in adults with overweight or obesity

without diabetes: the STEP 8 randomized clinical trial. JAMA. 2022;327(2):138-50. doi: 10.1001/jama.2021.23619
560. Rumbo-Rodríguez L, Zaragoza-Marti A, Sánchez-SanSegundo M, Ferrer-Cascales R, Laguna-Pérez A, Hurtado-Sánchez JA. Effectiveness of a two-year multicomponent intervention for the treatment of overweight and obesity in older people. Nutrients. 2022;14(22):4762. doi: 10.3390/nu14224762
561. Runhaar J, Deroisy R, van Middelkoop M, Barretta F, Barbetta B, Oei EH, et al. The role of diet and exercise and of glucosamine sulfate in the prevention of knee osteoarthritis: further results from the PRevention of knee Osteoarthritis in Overweight Females (PROOF) study. Semin Arthritis Rheum. 2016;45(4, Supplement):S42-S8. doi: 10.1016/j.semarthrit.2015.11.001
562. Rusu E, Jinga M, Enache G, Rusu F, Dragomir AD, Ancuta I, et al. Effects of lifestyle changes including specific dietary intervention and physical activity in the management of patients with chronic hepatitis C--a randomized trial. Nutr J. 2013;12:119. doi: 10.1186/1475-2891-12-119
563. Ruusunen A, Voutilainen S, Karhunen L, Lehto SM, Tolmunen T, Keinänen-Kiukaanniemi S, et al. How does lifestyle intervention affect depressive symptoms? results from the Finnish Diabetes Prevention Study. Diabet Med. 2012;29(7):e126-e32. doi: 10.1111/j.1464-5491.2012.03602.x
564. Saelens BE, Lozano P, Scholz K. A randomized clinical trial comparing delivery of behavioral pediatric obesity treatment using standard and enhanced motivational approaches. J Pediatr Psychol. 2013;38(9):954-64. doi: 10.1093/jpepsy/jst054
565. Sahlman J, Seppä J, Herder C, Peltonen M, Peuhkurinen K, Gylling H, et al. Effect of weight loss on inflammation in patients with mild obstructive sleep apnea. Nutr Metab Cardiovasc Dis. 2012;22(7):583-90. doi: 10.1016/j.numecd.2010.10.007
566. Saito T, Watanabe M, Nishida J, Izumi T, Omura M, Takagi T, et al. Lifestyle modification and prevention of type 2 diabetes in overweight Japanese with impaired fasting glucose levels: a randomized controlled trial. Arch Intern Med. 2011;171(15):1352-60. doi: 10.1001/archinternmed.2011.275
567. Salas-Salvadó J, Díaz-López A, Ruiz-Canela M, Basora J, Fitó M, Corella D, et al. Effect of a lifestyle intervention program with energy-restricted Mediterranean diet and exercise on weight loss and cardiovascular risk factors: one-year results of the PREDIMED-Plus trial. Diabetes Care. 2019;42(5):777-88. doi: 10.2337/dc18-0836
568. Salva A, Andrieu S, Fernandez E, Schiffrin EJ, Moulin J, Decarli B, et al. Health and nutrition promotion program for patients with dementia (NutriAlz): cluster randomized trial. J Nutr Health Aging. 2011;15(10):822-30. doi: 10.1007/s12603-011-0363-3
569. Santa-Maria CA, Coughlin JW, Sharma D, Armanios M, Blackford AL, Schreyer C, et al. The effects of a remote-based weight loss program on adipocytokines, metabolic markers, and telomere length in breast cancer survivors: the POWER-Remote trial. Clin Cancer Res. 2020;26(12):3024-34. doi: 10.1158/1078-0432.CCR-19-2935
570. Santamaria A, Giordano D, Corrado F, Pintaudi B, Interdonato ML, Di Vieste G, et al. One-year effects of myo-inositol supplementation in postmenopausal women with metabolic syndrome. Climacteric. 2012;15(5):490-5. doi: 10.3109/13697137.2011.631063
571. Santanasto AJ, Newman AB, Strotmeyer ES, Boudreau RM, Goodpaster BH, Glynn NW. Effects of changes in regional body composition on physical function in older adults: a pilot randomized controlled trial. J Nutr Health Aging. 2015;19(9):913-21. doi: 10.1007/s12603-015-0523-y
572. Santos I, Mata J, Silva MN, Sardinha LB, Teixeira PJ. Predicting long-term weight loss maintenance in previously overweight women: a signal detection approach. Obesity. 2015;23(5):957-64. doi: 10.1002/oby.21082
573. Sarwer DB, Moore RH, Spitzer JC, Wadden TA, Raper SE, Williams NN. A pilot study investigating the efficacy of postoperative dietary counseling to improve outcomes after bariatric surgery. Surg Obes Relat Dis. 2012;8(5):561-8. doi: 10.1016/j.soard.2012.02.010
574. Saslow LR, Daubenmier JJ, Moskowitz JT, Kim S, Murphy EJ, Phinney SD, et al. Twelve-month outcomes of a randomized trial of a moderate-carbohydrate versus very low-carbohydrate diet in

overweight adults with type 2 diabetes mellitus or prediabetes. Nutr & Diabetes. 2017;7(12):304. doi: 10.1038/s41387-017-0006-9
575. Sattin RW, Williams LB, Dias J, Garvin JT, Marion L, Joshua TV, et al. Community Trial of a Faith-Based Lifestyle Intervention to Prevent Diabetes Among African-Americans. J Community Health. 2016;41(1):87-96. doi: 10.1007/s10900-015-0071-8
576. Savoye M, Nowicka P, Shaw M, Yu S, Dziura J, Chavent G, et al. Long-term results of an obesity program in an ethnically diverse pediatric population. Pediatrics. 2011;127(3):402-10. doi: 10.1542/peds.2010-0697
577. Schauer PR, Bhatt DL, Kirwan JP, Wolski K, Aminian A, Brethauer SA, et al. Bariatric surgery versus intensive medical therapy for diabetes - 5-year outcomes. N Engl J Med. 2017;376(7):641-51. doi: 10.1056/NEJMoa1600869
578. Schauer PR, Bhatt DL, Kirwan JP, Wolski K, Brethauer SA, Navaneethan SD, et al. Bariatric surgery versus intensive medical therapy for diabetes--3-year outcomes. N Engl J Med. 2014;370(21):2002-13. doi: 10.1056/NEJMoa1401329
579. Schauer PR, Kashyap SR, Wolski K, Brethauer SA, Kirwan JP, Pothier CE, et al. Bariatric surgery versus intensive medical therapy in obese patients with diabetes. N Engl J Med. 2012;366(17):1567-76. doi: 10.1056/NEJMoa1200225
580. Schiavon CA, Bersch-Ferreira AC, Santucci EV, Oliveira JD, Torreglosa CR, Bueno PT, et al. Effects of bariatric surgery in obese patients with hypertension: the GATEWAY randomized Trial (Gastric Bypass to Treat Obese Patients With Steady Hypertension). Circulation. 2018;137(11):1132-42. doi: 10.1161/CIRCULATIONAHA.117.032130
581. Schiavon CA, Bhatt DL, Ikeoka D, Santucci EV, Santos RN, Damiani LP, et al. Three-year outcomes of bariatric surgery in patients with obesity and hypertension : a randomized clinical trial. Ann Intern Med. 2020;173(9):685-93. doi: 10.7326/M19-3781
582. Schröder H, Cárdenas-Fuentes G, Martínez-González MA, Corella D, Vioque J, Romaguera D, et al. Effectiveness of the physical activity intervention program in the PREDIMED-Plus study: a randomized controlled trial. Int J Behav Nutr Phys Act. 2018;15:110. doi: 10.1186/s12966-018-0741-x
583. Seimon RV, Wild-Taylor AL, Keating SE, McClintock S, Harper C, Gibson AA, et al. Effect of weight loss via severe vs moderate energy restriction on lean mass and body composition among postmenopausal women with obesity: the TEMPO Diet randomized clinical trial. JAMA Netw Open. 2019;2(10):e1913733. doi: 10.1001/jamanetworkopen.2019.13733
584. Sellman D, Schroder R, Deering D, Elmslie J, Foulds J, Frampton C. Psychosocial enhancement of the Green Prescription for obesity recovery: a randomised controlled trial. N Z Med J. 2017;130(1450):44-54.
585. Serra-Prat M, Terradellas M, Lorenzo I, Arús M, Burdoy E, Salietti A, et al. Effectiveness of a weight-loss intervention in preventing frailty and functional decline in community-dwelling obese older people. A randomized controlled trial. J Frailty Aging. 2022;11(1):91-9. doi: 10.14283/jfa.2021.38
586. Shah K, Armamento-Villareal R, Parimi N, Chode S, Sinacore DR, Hilton TN, et al. Exercise training in obese older adults prevents increase in bone turnover and attenuates decrease in hip bone mineral density induced by weight loss despite decline in bone-active hormones. J Bone Miner Res. 2011;26(12):2851-9. doi: 10.1002/jbmr.475
587. Shapiro JR, Koro T, Doran N, Thompson S, Sallis JF, Calfas K, Patrick K. Text4Diet: a randomized controlled study using text messaging for weight loss behaviors. Prev Med. 2012;55(5):412-7. doi: 10.1016/j.ypmed.2012.08.011
588. Siegrist M, Lammel C, Haller B, Christle J, Halle M. Effects of a physical education program on physical activity, fitness, and health in children: the JuvenTUM project. Scand J Med Sci Sports. 2013;23(3):323-30. doi: 10.1111/j.1600-0838.2011.01387.x
589. Silva AM, Nunes CL, Jesus F, Francisco R, Matias CN, Cardoso M, et al. Effectiveness of a lifestyle weight-loss intervention targeting inactive former elite athletes: the Champ4Life randomised controlled trial. Br J Sports Med. 2022;56(7):394-402. doi: 10.1136/bjsports-2021-104212

590. Silva MN, Markland D, Carraça EV, Vieira PN, Coutinho SR, Minderico CS, et al. Exercise autonomous motivation predicts 3-yr weight loss in women. Med Sci Sports Exerc. 2011;43(4):728-37. doi: 10.1249/MSS.0b013e3181f3818f
591. Silva MN, Vieira PN, Coutinho SR, Minderico CS, Matos MG, Sardinha LB, Teixeira PJ. Using self-determination theory to promote physical activity and weight control: a randomized controlled trial in women. J Behav Med. 2010;33(2):110-22. doi: 10.1007/s10865-009-9239-y
592. Simonson DC, Halperin F, Foster K, Vernon A, Goldfine AB. Clinical and patient-centered outcomes in obese patients with type 2 diabetes 3 years after randomization to Roux-en-Y gastric bypass surgery versus intensive lifestyle management: the SLIMM-T2D study. Diabetes Care. 2018;41(4):670-9. doi: 10.2337/dc17-0487
593. Simonson DC, Vernon A, Foster K, Halperin F, Patti ME, Goldfine AB. Adjustable gastric band surgery or medical management in patients with type 2 diabetes and obesity: three-year results of a randomized trial. Surg Obes Relat Dis. 2019;15(12):2052-9. doi: 10.1016/j.soard.2019.03.038
594. Simpson SA, Coulman E, Gallagher D, Jewell K, Cohen D, Newcombe RG, et al. Healthy eating and lifestyle in pregnancy (HELP): a cluster randomised trial to evaluate the effectiveness of a weight management intervention for pregnant women with obesity on weight at 12 months postpartum. Int J Obes. 2021;45(8):1728-39. doi: 10.1038/s41366-021-00835-0
595. Simpson SA, McNamara R, Shaw C, Kelson M, Moriarty Y, Randell E, et al. A feasibility randomised controlled trial of a motivational interviewing-based intervention for weight loss maintenance in adults. Health Technol Assess. 2015;19(50). doi: 10.3310/hta19500
596. Slater S, Lambkin D, Schumacher T, Williams A, Baillie J. Testing the effectiveness of a novel, evidence-based weight management and lifestyle modification programme in primary care: the Healthy Weight Initiative. J Prim Health Care. 2022;14(1):64-73. doi: 10.1071/HC21065
597. Smith JD, Berkel C, Carroll AJ, Fu E, Grimm KJ, Mauricio AM, et al. Health behaviour outcomes of a family based intervention for paediatric obesity in primary care: a randomized type II hybrid effectiveness-implementation trial. Pediatr Obes. 2021;16(9):e12780. doi: 10.1111/ijpo.12780
598. Sniehotta FF, Evans EH, Sainsbury K, Adamson A, Batterham A, Becker F, et al. Behavioural intervention for weight loss maintenance versus standard weight advice in adults with obesity: a randomised controlled trial in the UK (NULevel Trial). PLoS Med. 2019;16(5):e1002793. doi: 10.1371/journal.pmed.1002793
599. Spence ND, Newton AS, Keaschuk RA, Ambler KA, Holt NL, Jetha MM, et al. Parents as agents of change in managing pediatric obesity: a randomized controlled trial comparing cognitive behavioral therapy versus psychoeducation interventions. Child Obes. 2023;19(2):71-87. doi: 10.1089/chi.2021.0194
600. Spring B, Duncan JM, Janke EA, Kozak AT, McFadden HG, DeMott A, et al. Integrating technology into standard weight loss treatment: a randomized controlled trial. JAMA Intern Med. 2013;173(2):105-11. doi: 10.1001/jamainternmed.2013.1221
601. Spring B, Pellegrini CA, Pfammatter A, Duncan JM, Pictor A, McFadden HG, et al. Effects of an abbreviated obesity intervention supported by mobile technology: the ENGAGED randomized clinical trial. Obesity. 2017;25(7):1191-8. doi: 10.1002/oby.21842
602. Stark LJ, Clifford LM, Towner EK, Filigno SS, Zion C, Bolling C, Rausch J. A pilot randomized controlled trial of a behavioral family-based intervention with and without home visits to decrease obesity in preschoolers. J Pediatr Psychol. 2014;39(9):1001-12. doi: 10.1093/jpepsy/jsu059
603. Stark LJ, Filigno SS, Kichler JC, Bolling C, Ratcliff MB, Robson SM, et al. Maintenance following a randomized trial of a clinic and home-based behavioral intervention of obesity in preschoolers. J Pediatr. 2019;213:128-.e3. doi: 10.1016/j.jpeds.2019.05.004
604. Stark LJ, Spear S, Boles R, Kuhl E, Ratcliff M, Scharf C, et al. A pilot randomized controlled trial of a clinic and home-based behavioral intervention to decrease obesity in preschoolers. Obesity. 2011;19(1):134-41. doi: 10.1038/oby.2010.87

605. Steele RG, Aylward BS, Jensen CD, Cushing CC, Davis AM, Bovaird JA. Comparison of a family-based group intervention for youths with obesity to a brief individual family intervention: a practical clinical trial of positively fit. J Pediatr Psychol. 2012;37(1):53-63. doi: 10.1093/jpepsy/jsr057
606. Stettler N, Wrotniak BH, Hill DL, Kumanyika SK, Xanthopoulos MS, Nihtianova S, et al. Prevention of excess weight gain in paediatric primary care: beverages only or multiple lifestyle factors. The Smart Step Study, a cluster-randomized clinical trial. Pediatr Obes. 2015;10(4):267-74. doi: 10.1111/ijpo.260
607. Stewart TM, Bachand AR, Han H, Ryan DH, Bray GA, Williamson DA. Body image changes associated with participation in an intensive lifestyle weight loss intervention. Obesity. 2011;19(6):1290-5. doi: 10.1038/oby.2010.276
608. Stookey JD, Evans J, Chan C, Tao-Lew L, Arana T, Arthur S. Healthy apple program to support child care centers to alter nutrition and physical activity practices and improve child weight: a cluster randomized trial. BMC Public Health. 2017;17:965. doi: 10.1186/s12889-017-4951-y
609. Ströbl V, Knisel W, Landgraf U, Faller H. A combined planning and telephone aftercare intervention for obese patients: effects on physical activity and body weight after one year. J Rehabil Med. 2013;45(2):198-205. doi: 10.2340/16501977-1095
610. Stumm G, Blaik A, Kropf S, Westphal S, Hantke TK, Luley C. Long-term follow-up of the telemonitoring weight-reduction program "Active Body Control". J Diabetes Res. 2016;2016:3798729. doi: 10.1155/2016/3798729
611. Sullivan S, Swain JM, Woodman G, Antonetti M, De La Cruz-Muñoz N, Jonnalagadda SS, et al. Randomized sham-controlled trial evaluating efficacy and safety of endoscopic gastric plication for primary obesity: the ESSENTIAL trial. Obesity. 2017;25(2):294-301. doi: 10.1002/oby.21702
612. Sundfør TM, Svendsen M, Tonstad S. Effect of intermittent versus continuous energy restriction on weight loss, maintenance and cardiometabolic risk: a randomized 1-year trial. Nutr Metab Cardiovasc Dis. 2018;28(7):698-706. doi: 10.1016/j.numecd.2018.03.009
613. Svensson CK, Larsen JR, Vedtofte L, Jakobsen MSL, Jespersen HR, Jakobsen MI, et al. One-year follow-up on liraglutide treatment for prediabetes and overweight/obesity in clozapine- or olanzapine-treated patients. Acta Psychiatr Scand. 2019;139(1):26-36.
614. Svetkey LP, Batch BC, Lin P-H, Intille SS, Corsino L, Tyson CC, et al. Cell phone intervention for you (CITY): a randomized, controlled trial of behavioral weight loss intervention for young adults using mobile technology. Obesity. 2015;23(11):2133-41. doi: 10.1002/oby.21226
615. Taheri S, Zaghloul H, Chagoury O, Elhadad S, Ahmed SH, El Khatib N, et al. Effect of intensive lifestyle intervention on bodyweight and glycaemia in early type 2 diabetes (DIADEM-I): an open-label, parallel-group, randomised controlled trial. Lancet Diabetes Endocrinol. 2020;8(6):477-89. doi: 10.1016/S2213-8587(20)30117-0
616. Tapsell LC, Batterham MJ, Thorne RL, O'Shea JE, Grafenauer SJ, Probst YC. Weight loss effects from vegetable intake: a 12-month randomised controlled trial. Eur J Clin Nutr. 2014;68(7):778-85. doi: 10.1038/ejcn.2014.39
617. Tapsell LC, Lonergan M, Batterham MJ, Neale EP, Martin A, Thorne R, et al. Effect of interdisciplinary care on weight loss: a randomised controlled trial. BMJ Open. 2017;7(7):e014533. doi: 10.1136/bmjopen-2016-014533
618. Tárraga Marcos ML, Rosich N, Panisello Royo JM, Gálvez Casas A, Serrano Selva JP, Rodríguez-Montes JA, Tárraga López PJ. [Efficacy of motivational interventions in the treatment of overweight and obesity]. Nutr Hosp. 2014;30(4):741-8. doi: 10.3305/nh.2014.30.4.7704
619. Tarro L, Llauradó E, Albaladejo R, Moriña D, Arija V, Solà R, Giralt M. A primary-school-based study to reduce the prevalence of childhood obesity - the EdAl (Educació en Alimentació) study: a randomized controlled trial. Trials. 2014;15:58. doi: 10.1186/1745-6215-15-58
620. Taveras EM, Gortmaker SL, Hohman KH, Horan CM, Kleinman KP, Mitchell K, et al. Randomized controlled trial to improve primary care to prevent and manage childhood obesity: the High Five for Kids study. Arch Pediatr Adolesc Med. 2011;165(8):714-22. doi: 10.1001/archpediatrics.2011.44

621. Taveras EM, Marshall R, Kleinman KP, Gillman MW, Hacker K, Horan CM, et al. Comparative effectiveness of childhood obesity interventions in pediatric primary care: a cluster-randomized clinical trial. JAMA Pediatr. 2015;169(6):535-42. doi: 10.1001/jamapediatrics.2015.0182
622. Taveras EM, Marshall R, Sharifi M, Avalon E, Fiechtner L, Horan C, et al. Comparative effectiveness of clinical-community childhood obesity interventions: a randomized clinical trial. JAMA Pediatr. 2017;171(8):e171325. doi: 10.1001/jamapediatrics.2017.1325
623. Tay J, Zajac IT, Thompson CH, Luscombe-Marsh ND, Danthiir V, Noakes M, et al. A randomised-controlled trial of the effects of very low-carbohydrate and high-carbohydrate diets on cognitive performance in patients with type 2 diabetes. Br J Nutr. 2016;116(10):1745-53. doi: 10.1017/S0007114516004001
624. Taylor RW, Cox A, Knight L, Brown DA, Meredith-Jones K, Haszard JJ, et al. A tailored family-based obesity intervention: a randomized trial. Pediatrics. 2015;136(2):282-9. doi: 10.1542/peds.2015-0595
625. Teixeira PJ, Silva MN, Coutinho SR, Palmeira AL, Mata J, Vieira PN, et al. Mediators of weight loss and weight loss maintenance in middle-aged women. Obesity. 2010;18(4):725-35. doi: 10.1038/oby.2009.281
626. Tejera C, Porca C, Rodriguez-Carnero G, Andújar P, Casanueva FF, Bellido D, Crujeiras AB. Reducing metabolic syndrome through a group educational intervention program in adults with obesity: IGOBE program. Nutrients. 2022;14(5):1066. doi: 10.3390/nu14051066
627. ter Bogt NCW, Milder IEJ, Bemelmans WJE, Beltman FW, Broer J, Smit AJ, van der Meer K. Changes in lifestyle habits after counselling by nurse practitioners: 1-year results of the Groningen Overweight and Lifestyle study. Public Health Nutr. 2011;14(6):995-1000. doi: 10.1017/S1368980010003708
628. The Diabetes Prevention Program Research Group. Long-term safety, tolerability, and weight loss associated with metformin in the Diabetes Prevention Program Outcomes Study. Diabetes Care. 2012;35(4):731-7. doi: 10.2337/dc11-1299
629. The Look AHEAD Research Group. Cardiovascular effects of intensive lifestyle intervention in type 2 diabetes. N Engl J Med. 2013;369(2):145-54. doi: 10.1056/NEJMoa1212914
630. Thomas JG, Bond DS, Raynor HA, Papandonatos GD, Wing RR. Comparison of smartphone-based behavioral obesity treatment with gold standard group treatment and control: a randomized trial. Obesity. 2019;27(4):572-80. doi: 10.1002/oby.22410
631. Thomas JG, Raynor HA, Bond DS, Luke AK, Cardoso CC, Foster GD, Wing RR. Weight loss in Weight Watchers Online with and without an activity tracking device compared to control: a randomized trial. Obesity. 2017;25(6):1014-21. doi: 10.1002/oby.21846
632. Thompson CC, Abu Dayyeh BK, Kushner R, Sullivan S, Schorr AB, Amaro A, et al. Percutaneous gastrostomy device for the treatment of class II and class III obesity: results of a randomized controlled trial. Am J Gastroenterol. 2017;112(3):447-57. doi: 10.1038/ajg.2016.500
633. Thorndike AN, McCurley JL, Gelsomin ED, Anderson E, Chang Y, Porneala B, et al. Automated behavioral workplace intervention to prevent weight gain and improve diet: the ChooseWell 365 randomized clinical trial. JAMA Netw Open. 2021;4(6):e2112528. doi: 10.1001/jamanetworkopen.2021.12528
634. Topham GL, Washburn IJ, Hubbs-Tait L, Kennedy TS, Rutledge JM, Page MC, et al. The Families and Schools for Health Project: a longitudinal cluster randomized controlled trial targeting children with overweight and obesity. Int J Environ Res Public Health. 2021;18(16):8744. doi: 10.3390/ijerph18168744
635. Tremblay A, Dutheil F, Drapeau V, Metz L, Lesour B, Chapier R, et al. Long-term effects of high-intensity resistance and endurance exercise on plasma leptin and ghrelin in overweight individuals: the RESOLVE Study. Appl Physiol Nutr Metab. 2019;44(11):1172-9. doi: 10.1139/apnm-2019-0019
636. Trepanowski JF, Kroeger CM, Barnosky A, Klempel MC, Bhutani S, Hoddy KK, et al. Effect of alternate-day fasting on weight loss, weight maintenance, and cardioprotection among metabolically

healthy obese adults: a randomized clinical trial. JAMA Intern Med. 2017;177(7):930-8. doi: 10.1001/jamainternmed.2017.0936
637. Trief PM, Fisher L, Sandberg J, Cibula DA, Dimmock J, Hessler DM, et al. Health and psychosocial outcomes of a telephonic couples behavior change intervention in patients with poorly controlled type 2 diabetes: a randomized clinical trial. Diabetes Care. 2016;39(12):2165-73. doi: 10.2337/dc16-0035
638. Tronieri JS, Fabricatore AN, Wadden TA, Auerbach P, Endahl L, Sugimoto D, Rubino D. Effects of dietary self-monitoring, physical activity, liraglutide 3.0 mg, and placebo on weight loss in the SCALE IBT trial. Obes Facts. 2020;13(6):572-83. doi: 10.1159/000511130
639. Tronieri JS, Wadden TA, Chao AM, Pearl RL, Alamuddin N, Berkowitz RI. Early weight loss in behavioral treatment predicts later rate of weight loss and response to pharmacotherapy. Ann Behav Med. 2019;53(3):290-5. doi: 10.1093/abm/kay036
640. Tsaban G, Yaskolka Meir A, Zelicha H, Rinott E, Kaplan A, Shalev A, et al. Diet-induced fasting ghrelin elevation reflects the recovery of insulin sensitivity and visceral adiposity regression. J Clin Endocrinol Metab. 2022;107(2):336-45. doi: 10.1210/clinem/dgab681
641. Tseng E, Dalcin AT, Jerome GJ, Gennusa JV, Goldsholl S, Cook C, et al. Effect of a behavioral weight loss intervention in people with serious mental illness and diabetes. Diabetes Care. 2019;42(5):804-9. doi: 10.2337/dc18-2201
642. Tuomilehto H, Gylling H, Peltonen M, Martikainen T, Sahlman J, Kokkarinen J, et al. Sustained improvement in mild obstructive sleep apnea after a diet- and physical activity-based lifestyle intervention: postinterventional follow-up. Am J Clin Nutr. 2010;92(4):688-96. doi: 10.3945/ajcn.2010.29485
643. Tur JJ, Escudero AJ, Alos MM, Salinas R, Terés E, Soriano JB, et al. One year weight loss in the TRAMOMTANA study. A randomized controlled trial. Clin Endocrinol. 2013;79(6):791-9. doi: 10.1111/cen.12109
644. Turner-McGrievy GM, Wilcox S, Frongillo EA, Murphy EA, Hutto B, Wilson M, et al. Effect of a plant-based vs omnivorous soul food diet on weight and lipid levels among African American adults: a randomized clinical trial. JAMA Netw Open. 2023;6(1):e2250626. doi: 10.1001/jamanetworkopen.2022.50626
645. Unick JL, Beavers D, Bond DS, Clark JM, Jakicic JM, Kitabchi AE, et al. The long-term effectiveness of a lifestyle intervention in severely obese individuals. Am J Med. 2013;126(3):236-42.E2. doi: 10.1016/j.amjmed.2012.10.010
646. Unick JL, Lang W, Williams SE, Bond DS, Egan CM, Espeland MA, et al. Objectively-assessed physical activity and weight change in young adults: a randomized controlled trial. Int J Behav Nutr Phys Act. 2017;14:165. doi: 10.1186/s12966-017-0620-x
647. Valero-Pérez M, Bermejo LM, López-Plaza B, García MA, Palma-Milla S, Gómez-Candela C. Regular consumption of Lipigo® promotes the reduction of body weight and improves the rebound effect of obese people undergo a comprehensive weight loss program. Nutrients. 2020;12(7):1960. doi: 10.3390/nu12071960
648. van der Aa MP, Elst MAJ, van de Garde EMW, van Mil EGAH, Knibbe CAJ, van der Vorst MMJ. Long-term treatment with metformin in obese, insulin-resistant adolescents: results of a randomized double-blinded placebo-controlled trial. Nutr & Diabetes. 2016;6(8):e228. doi: 10.1038/nutd.2016.37
649. van der Baan-Slootweg O, Benninga MA, Beelen A, van der Palen J, Tamminga-Smeulders C, Tijssen JGP, van Aalderen WMC. Inpatient treatment of children and adolescents with severe obesity in the Netherlands: a randomized clinical trial. JAMA Pediatr. 2014;168(9):807-14. doi: 10.1001/jamapediatrics.2014.521
650. van Elten TM, Karsten MDA, Geelen A, Gemke RJBJ, Groen H, Hoek A, et al. Preconception lifestyle intervention reduces long term energy intake in women with obesity and infertility: a randomised controlled trial. Int J Behav Nutr Phys Act. 2019;16:3. doi: 10.1186/s12966-018-0761-6

651. van Gemert WA, Monninkhof EM, May AM, Peeters PH, Schuit AJ. Effect of exercise on insulin sensitivity in healthy postmenopausal women: the SHAPE study. Cancer Epidemiol Biomarkers Prev. 2015;24(1):81-7. doi: 10.1158/1055-9965.EPI-14-0722
652. Van Name MA, Camp AW, Magenheimer EA, Li F, Dziura JD, Montosa A, et al. Effective translation of an intensive lifestyle intervention for Hispanic women with prediabetes in a community health center setting. Diabetes Care. 2016;39(4):525-31. doi: 10.2337/dc15-1899
653. van Wier MF, Dekkers JC, Hendriksen IJM, Heymans MW, Ariëns GAM, Pronk NP, et al. Effectiveness of phone and e-mail lifestyle counseling for long term weight control among overweight employees. J Occup Environ Med. 2011;53(6):680-6. doi: 10.1097/JOM.0b013e31821f2bbb
654. Verduci E, Banderali G, Di Profio E, Vizzuso S, Zuccotti G, Radaelli G. Effect of individual- versus collective-based nutritional-lifestyle intervention on the atherogenic index of plasma in children with obesity: a randomized trial. Nutr Metab. 2021;18:11. doi: 10.1186/s12986-020-00537-w
655. Vermunt PWA, Milder IEJ, Wielaard F, de Vries JHM, Baan CA, van Oers JAM, Westert GP. A lifestyle intervention to reduce type 2 diabetes risk in Dutch primary care: 2.5-year results of a randomized controlled trial. Diabet Med. 2012;29(8):e223-31. doi: 10.1111/j.1464-5491.2012.03648.x
656. Vermunt PWA, Milder IEJ, Wielaard F, de Vries JHM, van Oers HAM, Westert GP. Lifestyle counseling for type 2 diabetes risk reduction in Dutch primary care: results of the APHRODITE study after 0.5 and 1.5 years. Diabetes Care. 2011;34(9):1919-25. doi: 10.2337/dc10-2293
657. Verrastro O, Panunzi S, Castagneto-Gissey L, De Gaetano A, Lembo E, Capristo E, et al. Bariatric-metabolic surgery versus lifestyle intervention plus best medical care in non-alcoholic steatohepatitis (BRAVES): a multicentre, open-label, randomised trial. Lancet. 2023;401(10390):1786-97. doi: 10.1016/S0140-6736(23)00634-7
658. Versteegden DPA, Van Himbeeck MJJ, Luyer MD, van Montfort G, de Zoete J-PJGM, Smulders JF, Nienhuijs SW. A randomized clinical trial evaluating eHealth in bariatric surgery. Surg Endosc. 2023;37(10):7625-33. doi: 10.1007/s00464-023-10211-w
659. Verweij LM, Proper KI, Weel ANH, Hulshof CTJ, van Mechelen W. Long-term effects of an occupational health guideline on employees' body weight-related outcomes, cardiovascular disease risk factors, and quality of life: results from a randomized controlled trial. Scand J Work Environ Health. 2013;39(3):284-94. doi: 10.5271/sjweh.3341
660. Vesco KK, Leo MC, Karanja N, Gillman MW, McEvoy CT, King JC, et al. One-year postpartum outcomes following a weight management intervention in pregnant women with obesity. Obesity. 2016;24(10):2042-9. doi: 10.1002/oby.21597
661. Viester L, Verhagen EALM, Bongers PM, van der Beek AJ. Effectiveness of a worksite intervention for male construction workers on dietary and physical activity behaviors, body mass index, and health outcomes: results of a randomized controlled trial. Am J Health Promot. 2018;32(3):795-805. doi: 10.1177/0890117117694450
662. Villareal DT, Chode S, Parimi N, Sinacore DR, Hilton T, Armamento-Villareal R, et al. Weight loss, exercise, or both and physical function in obese older adults. N Engl J Med. 2011;364(13):1218-29. doi: 10.1056/NEJMoa1008234
663. Vimalananda V, Damschroder L, Janney CA, Goodrich D, Kim HM, Holleman R, et al. Weight loss among women and men in the ASPIRE-VA behavioral weight loss intervention trial. Obesity. 2016;24(9):1884-91. doi: 10.1002/oby.21574
664. Voils CI, Olsen MK, Gierisch JM, McVay MA, Grubber JM, Gaillard L, et al. Maintenance of weight loss after initiation of nutrition training: a randomized trial. Ann Intern Med. 2017;166(7):463-71. doi: 10.7326/M16-2160
665. von Gruenigen V, Frasure H, Kavanagh MB, Janata J, Waggoner S, Rose P, et al. Survivors of uterine cancer empowered by exercise and healthy diet (SUCCEED): a randomized controlled trial. Gynecol Oncol. 2012;125(3):699-704. doi: 10.1016/j.ygyno.2012.03.042
666. Vos RC, Huisman SD, Houdijk ECAM, Pijl H, Wit JM. The effect of family-based multidisciplinary cognitive behavioral treatment on health-related quality of life in childhood obesity. Qual Life Res. 2012;21(9):1587-94. doi: 10.1007/s11136-011-0079-1

667. Wadden TA, Bailey TS, Billings LK, Davies M, Frias JP, Koroleva A, et al. Effect of subcutaneous semaglutide vs placebo as an adjunct to intensive behavioral therapy on body weight in adults with overweight or obesity: the STEP 3 randomized clinical trial. JAMA. 2021;325(14):1403-13. doi: 10.1001/jama.2021.1831
668. Wadden TA, Chao AM, Bahnson JL, Bantle JP, Clark JM, Gaussoin SA, et al. End-of-trial health outcomes in Look AHEAD participants who elected to have bariatric surgery. Obesity. 2019;27(4):581-90. doi: 10.1002/oby.22411
669. Wadden TA, Chao AM, Machineni S, Kushner R, Ard J, Srivastava G, et al. Tirzepatide after intensive lifestyle intervention in adults with overweight or obesity: the SURMOUNT-3 phase 3 trial. Nat Med. 2023;29(11):2909-18. doi: 10.1038/s41591-023-02597-w
670. Wadden TA, Foreyt JP, Foster GD, Hill JO, Klein S, O'Neil PM, et al. Weight loss with naltrexone SR/bupropion SR combination therapy as an adjunct to behavior modification: the COR-BMOD trial. Obesity. 2011;19(1):110-20. doi: 10.1038/oby.2010.147
671. Wadden TA, Hollander P, Klein S, Niswender K, Woo V, Hale PM, Aronne L. Weight maintenance and additional weight loss with liraglutide after low-calorie-diet-induced weight loss: the SCALE Maintenance randomized study. Int J Obes. 2013;37(11):1443-51. doi: 10.1038/ijo.2013.120
672. Wadden TA, Neiberg RH, Wing RR, Clark JM, Delahanty LM, Hill JO, et al. Four-year weight losses in the Look AHEAD study: factors associated with long-term success. Obesity. 2011;19(10):1987-98. doi: 10.1038/oby.2011.230
673. Wadden TA, Tronieri JS, Sugimoto D, Lund MT, Auerbach P, Jensen C, Rubino D. Liraglutide 3.0 mg and intensive behavioral therapy (IBT) for obesity in primary care: the SCALE IBT randomized controlled trial. Obesity. 2020;28(3):529-36. doi: 10.1002/oby.22726
674. Wadden TA, Walsh OA, Berkowitz RI, Chao AM, Alamuddin N, Gruber K, et al. Intensive behavioral therapy for obesity combined with liraglutide 3.0 mg: a randomized controlled trial. Obesity. 2019;27(1):75-86. doi: 10.1002/oby.22359
675. Wake M, Lycett K, Clifford SA, Sabin MA, Gunn J, Gibbons K, et al. Shared care obesity management in 3-10 year old children: 12 month outcomes of HopSCOTCH randomised trial. BMJ. 2013;346:f3092. doi: 10.1136/bmj.f3092
676. Walburg FS, van Meijel B, Hoekstra T, Kol J, Pape LM, de Joode JW, et al. Effectiveness of a lifestyle intervention for people with a severe mental illness in Dutch outpatient mental health care: a randomized clinical trial. JAMA Psychiatry. 2023;80(9):886-94. doi: 10.1001/jamapsychiatry.2023.1566
677. Walc A, Latimer-Cheung AE, Day AG, Brennan AM, Hill JO, Ross R. A small change approach on adiposity, lean mass and bone mineral density in adults with overweight and obesity: a randomized controlled trial. Clin Obes. 2023;13(4):e12587. doi: 10.1111/cob.12587
678. Waling M, Lind T, Hernell O, Larsson C. A one-year intervention has modest effects on energy and macronutrient intakes of overweight and obese Swedish children. J Nutr. 2010;140(10):1793-8. doi: 10.3945/jn.110.125435
679. Wani K, Alfawaz H, Alnaami AM, Sabico S, Khattak MNK, Al-Attas O, et al. Effects of a 12-month intensive lifestyle monitoring program in predominantly overweight/obese Arab adults with prediabetes. Nutrients. 2020;12(2):464. doi: 10.3390/nu12020464
680. Warnakulasuriya LS, Fernando MMA, Adikaram AVN, Thawfeek ARM, Anurasiri W-ML, Silva RR, et al. Metformin in the management of childhood obesity: a randomized control trial. Child Obes. 2018;14(8):553-65. doi: 10.1089/chi.2018.0043
681. Warschburger P, Kroeller K, Haerting J, Unverzagt S, van Egmond-Fröhlich A. Empowering Parents of Obese Children (EPOC): a randomized controlled trial on additional long-term weight effects of parent training. Appetite. 2016;103:148-56. doi: 10.1016/j.appet.2016.04.007
682. Warschburger P, Zitzmann J. Does an age-specific treatment program augment the efficacy of a cognitive-behavioral weight loss program in adolescence and young adulthood? Results from a controlled study. Nutrients. 2019;11(9):2053. doi: 10.3390/nu11092053

683. Washburn RA, Szabo-Reed AN, Gorczyca AM, Sullivan DK, Honas JJ, Mayo MS, et al. A randomized trial evaluating exercise for the prevention of weight regain. Obesity. 2021;29(1):62-70. doi: 10.1002/oby.23022
684. Watson S, Woodside JV, Ware LJ, Hunter SJ, McGrath A, Cardwell CR, et al. Effect of a web-based behavior change program on weight loss and cardiovascular risk factors in overweight and obese adults at high risk of developing cardiovascular disease: randomized controlled trial. J Med Internet Res. 2015;17(7):e177. doi: 10.2196/jmir.3828
685. Weghuber D, Barrett T, Barrientos-Perez M, Gies I, Hesse D, Jeppesen OK, et al. Once-Weekly Semaglutide in Adolescents with Obesity. N Engl J Med. 2022;387(24):2245-57.
686. Wekker V, Huvinen E, van Dammen L, Rono K, Painter RC, Zwinderman AH, et al. Long-term effects of a preconception lifestyle intervention on cardiometabolic health of overweight and obese women. Eur J Pub Health. 2019;29(2):308-14. doi: 10.1093/eurpub/cky222
687. Werkman A, Hulshof PJM, Stafleu A, Kremers SPJ, Kok FJ, Schouten EG, Schuit AJ. Effect of an individually tailored one-year energy balance programme on body weight, body composition and lifestyle in recent retirees: a cluster randomised controlled trial. BMC Public Health. 2010;10:110. doi: 10.1186/1471-2458-10-110
688. West DS, Gorin AA, Subak LL, Foster G, Bragg C, Hecht J, et al. A motivation-focused weight loss maintenance program is an effective alternative to a skill-based approach. Int J Obes. 2011;35(2):259-69. doi: 10.1038/ijo.2010.138
689. West DS, Harvey JR, Krukowski RA, Prewitt TE, Priest J, Ashikaga T. Do individual, online motivational interviewing chat sessions enhance weight loss in a group-based, online weight control program? Obesity. 2016;24(11):2334-40. doi: 10.1002/oby.21645
690. Wharton S, Batterham RL, Bhatta M, Buscemi S, Christensen LN, Frias JP, et al. Two-year effect of semaglutide 2.4 mg on control of eating in adults with overweight/obesity: STEP 5. Obesity. 2023;31(3):703-15.
691. Wharton S, Yin P, Burrows M, Gould E, Blavignac J, Christensen RAG, et al. Extended-release naltrexone/bupropion is safe and effective among subjects with type 2 diabetes already taking incretin agents: a post-hoc analysis of the LIGHT trial. Int J Obes. 2021;45(8):1687-95.
692. White DK, Neogi T, Rejeski WJ, Walkup MP, Lewis CE, Nevitt MC, et al. Can an intensive diet and exercise program prevent knee pain among overweight adults at high risk? Arthritis Care Res. 2015;67(7):965-71. doi: 10.1002/acr.22544
693. Wild B, Hünnemeyer K, Sauer H, Hain B, Mack I, Schellberg D, et al. A 1-year videoconferencing-based psychoeducational group intervention following bariatric surgery: results of a randomized controlled study. Surg Obes Relat Dis. 2015;11(6):1349-60. doi: 10.1016/j.soard.2015.05.018
694. Wild B, Hünnemeyer K, Sauer H, Schellberg D, Müller-Stich BP, Königsrainer A, et al. Sustained effects of a psychoeducational group intervention following bariatric surgery: follow-up of the randomized controlled BaSE study. Surg Obes Relat Dis. 2017;13(9):1612-8. doi: 10.1016/j.soard.2017.03.034
695. Wilding JPH, Batterham RL, Calanna S, Davies M, Van Gaal LF, Lingvay I, et al. Once-Weekly Semaglutide in Adults with Overweight or Obesity. N Engl J Med. 2021;384(11):989-1002. doi: 10.1056/NEJMoa2032183
696. Wilding JPH, Batterham RL, Davies M, Van Gaal LF, Kandler K, Konakli K, et al. Weight regain and cardiometabolic effects after withdrawal of semaglutide: The STEP 1 trial extension. Diabetes Obes Metab. 2022;24(8):1553-64.
697. Williams CF, Bustamante EE, Waller JL, Davis CL. Exercise effects on quality of life, mood, and self-worth in overweight children: the SMART randomized controlled trial. Transl Behav Med. 2019;9(3):451-9. doi: 10.1093/tbm/ibz015
698. Wilson MG, DeJoy DM, Vandenberg R, Padilla H, Davis M. FUEL Your Life: a translation of the Diabetes Prevention Program to worksites. Am J Health Promot. 2016;30(3):188-97. doi: 10.4278/ajhp.130411-QUAN-169

699. Wing RR, Rosen RC, Fava JL, Bahnson J, Brancati F, Gendrano INC, III, et al. Effects of weight loss intervention on erectile function in older men with type 2 diabetes in the Look AHEAD trial. J Sex Med. 2010;7(1, Pt 1):156-65. doi: 10.1111/j.1743-6109.2009.01458.x
700. Wing RR, West DS, Grady D, Creasman JM, Richter HE, Myers D, et al. Effect of weight loss on urinary incontinence in overweight and obese women: results at 12 and 18 months. J Urol. 2010;184(3):1005-10. doi: 10.1016/j.juro.2010.05.031
701. Winters-Stone KM, Dieckmann N, Maddalozzo GF, Bennett JA, Ryan CW, Beer TM. Resistance exercise reduces body fat and insulin during androgen-deprivation therapy for prostate cancer. Oncol Nurs Forum. 2015;42(4):348-56. doi: 10.1188/15.ONF.348-356
702. Wylie-Rosett J, Groisman-Perelstein AE, Diamantis PM, Jimenez CC, Shankar V, Conlon BA, et al. Embedding weight management into safety-net pediatric primary care: randomized controlled trial. Int J Behav Nutr Phys Act. 2018;15:12. doi: 10.1186/s12966-017-0639-z
703. Xiang AH, Trigo E, Martinez M, Katkhouda N, Beale E, Wang X, et al. Impact of gastric banding versus metformin on β-cell function in adults with impaired glucose tolerance or mild type 2 diabetes. Diabetes Care. 2018;41(12):2544-51. doi: 10.2337/dc18-1662
704. Yackobovitch-Gavan M, Wolf Linhard D, Nagelberg N, Poraz I, Shalitin S, Phillip M, Meyerovitch J. Intervention for childhood obesity based on parents only or parents and child compared with follow-up alone. Pediatr Obes. 2018;13(11):647-55. doi: 10.1111/ijpo.12263
705. Yadav V, Marracci G, Kim E, Spain R, Cameron M, Overs S, et al. Low-fat, plant-based diet in multiple sclerosis: a randomized controlled trial. Mult Scler Relat Disord. 2016;9:80-90. doi: 10.1016/j.msard.2016.07.001
706. Yaskolka Meir A, Rinott E, Tsaban G, Zelicha H, Kaplan A, Rosen P, et al. Effect of green-Mediterranean diet on intrahepatic fat: the DIRECT PLUS randomised controlled trial. Gut. 2021;70(11):2085-95. doi: 10.1136/gutjnl-2020-323106
707. Yates T, Davies MJ, Sehmi S, Gorely T, Khunti K. The Pre-diabetes Risk Education and Physical Activity Recommendation and Encouragement (PREPARE) programme study: are improvements in glucose regulation sustained at 2 years? Diabet Med. 2011;28(10):1268-71. doi: 10.1111/j.1464-5491.2011.03357.x
708. Yavari A, Najafipoor F, Aliasgarzadeh A, Niafar M, Mobasseri M. Effect of aerobic exercise, resistance training or combined training on glycaemic control and cardiovascular risk factors in patients with type 2 diabetes. Biol Sport. 2012;29(2):135-43.
709. Yin X, Yan L, Lu Y, Jiang Q, Pu Y, Sun Q. Correction of hypovitaminosis D does not improve the metabolic syndrome risk profile in a Chinese population: a randomized controlled trial for 1 year. Asia Pac J Clin Nutr. 2016;25(1):71-7. doi: 10.6133/apjcn.2016.25.1.06
710. Yin Z, Perry J, Duan X, He M, Johnson R, Feng Y, Strand M. Cultural adaptation of an evidence-based lifestyle intervention for diabetes prevention in Chinese women at risk for diabetes: results of a randomized trial. Int Health. 2018;10(5):391-400. doi: 10.1093/inthealth/ihx072
711. Zamorano AS, Wilson EM, Liu J, Leon A, Kuroki LM, Thaker PH, et al. Text-message-based behavioral weight loss for endometrial cancer survivors with obesity: a randomized controlled trial. Gynecol Oncol. 2021;162(3):770-7. doi: 10.1016/j.ygyno.2021.06.007
712. Zelicha H, Kloting N, Kaplan A, Yaskolka Meir A, Rinott E, Tsaban G, et al. The effect of high-polyphenol Mediterranean diet on visceral adiposity: the DIRECT PLUS randomized controlled trial. BMC Med. 2022;20:327. doi: 10.1186/s12916-022-02525-8
713. Zhang H-J, He J, Pan L-L, Ma Z-M, Han C-K, Chen C-S, et al. Effects of moderate and vigorous exercise on nonalcoholic fatty liver disease: a randomized clinical trial. JAMA Intern Med. 2016;176(8):1074-82. doi: 10.1001/jamainternmed.2016.3202
714. Zhou K, Wolski K, Malin SK, Aminian A, Schauer PR, Bhatt DL, Kashyap SR. Impact of weight loss trajectory following randomization to bariatric surgery on long-term diabetes glycemic and cardiometabolic parameters. Endocr Pract. 2019;25(6):572-9. doi: 10.4158/EP-2018-0522

Appendix A: NHMRC procedures and requirements for guidelines checklist

A. Governance and stakeholder involvement

Mandatory requirement	Fulfilled	Location
A.1 The organisation/s responsible for developing and publishing the guideline is/are named.	Yes	Guidelines and Technical report
A.2 Sources of funding for guideline development, publication and dissemination are stated. Guidelines for Guidelines | Transparency.	Yes	Guidelines
A.3 A multidisciplinary group that includes end-users, relevant disciplines and clinical experts is convened to develop the purposes, scope and content of the guideline, and the process and criteria for selecting member are described. Guidelines for Guidelines | Guideline Development Group.	Yes	Guidelines and Technical report
A.4 Consumers participate in the guideline development, and the processes employed to recruit, involve and support consumer participants are described. Guidelines for Guidelines | Consumer Involvement	Yes	Administrative report
A.5 A complete list of all the people involved in the guideline development process is provided, including the following information for each person: name, profession or discipline, organisational affiliation and role in the guideline development process.	Yes	Guidelines
A.6 Potential competing interests are identified, managed and documented, and a competing interest declaration is completed by each member of the guideline development group. Guidelines for Guidelines | Identifying and Managing Conflicts of Interest	Yes	Administrative report
A.7 A list of organisations that will be approached to endorse the guideline is provided.	Yes	Technical Report
A.8 The guideline development process includes participation by representatives of Aboriginal and Torres Strait Islander peoples and culturally and linguistically diverse communities (as appropriate to the clinical need and context), and the processes employed to recruit, involve and support these participants are described. Guidelines for Guidelines | Engaging Aboriginal and Torres Strait Islander Peoples	Yes	Technical Report and Administrative report
Desirable requirement	**Fulfilled**	**Location**
A.2.1 The amount and percentage of total funding received from each funding source is stated. Guidelines for Guidelines | Transparency.	Yes	Technical report

B. Scope and purpose

Mandatory requirement	Fulfilled	Location
B.1 The purpose of the guideline is stated, including the clinical questions (see Requirement C.1), issue or problems the	Yes	Guidelines and Technical Report

guideline addresses. Guidelines for Guidelines | Scoping Guideline		
B.2 The health care settings to which the recommendations apply is described, including the health system level (e.g. primary care, acute care) and clinical stage (e.g. whether the guideline covers prevention, screening, assessment, treatment, rehabilitation or monitoring).	Yes	Guidelines and Technical Report
B.3. The intended end users of the guideline are clearly defined, and any relevant exceptions are identified. Guidelines for Guidelines | Engaging Stakeholders	Yes	Guidelines
B.4 The population to which the guideline recommendations will apply is defined (e.g. children, adolescents, adults or older adults) and population subgroups for which specific information is required are identified and described. Guidelines for Guidelines | Equity	Yes	Guidelines and Technical Report
B.5 Issues relevant to Aboriginal and Torres Strait Islander peoples (such as particular risks, treatment considerations or sociocultural considerations) are identified and described. Guidelines for Guidelines | Engaging Aboriginal and Torres Strait Islander Peoples	Yes	Guidelines
Desirable requirement	**Fulfilled**	**Location**
B.5.1 Issues relevant to special-needs groups such as culturally and linguistically diverse communities or groups with low socioeconomic status (e.g. particular risks, treatment considerations or sociocultural considerations) are identified and described. Guidelines for Guidelines | Equity	Yes	Guidelines

C. Evidence review

Mandatory requirement	Fulfilled	Location
C.1 Clinical questions addressed by the guideline are stated in a structured and consistent format to define the boundaries of the topic, i.e. by specifying the relevant population, intervention/s (e.g. treatment/s or diagnostic test/s), comparator/s and outcomes measured. Guidelines for Guidelines | Forming Questions	Yes	Technical report
C.2. Systematic searches for evidence are undertaken and the search strategy is documented, including the search terms and databases searched.	Yes	Technical report
C.3. The population groups specified in the search strategy include Aboriginal and Torres Strait Islander peoples and any population subgroups that have been identified (see Requirement B.4 and B5).	Yes	Technical report
C.4. The publication period covered by the searches is stated, and the latest date is within 12 months of the first day of public consultation and within 20 months of submission of the final draft guideline to NHMRC for approval.	Yes	Technical report
C.5. The inclusion and exclusion criteria used to select studies for appraisal are described. Guidelines for Guidelines | Selecting Studies	Yes	Technical report
C.6. For each clinical question, the developer has provided an evidence table, which summarises the systematic assessment and critical appraisal of all studies that meet the inclusion criteria (i.e. the body of evidence on which a recommendation will be based). Each evidence table should include information	Yes	Technical report and Supplementary files 1, 2 and 3

on study design, outcomes, level of evidence, the findings of meta-analysis (if performed) and other relevant information. Guidelines for Guidelines | Synthesising Evidence		
C.7 For each clinical question, the developer has provided an evidence statement form, which documents the synthesis and evaluation of the body of evidence to determine the grade of each recommendation, in accordance with NHMRC-approved method (GRADE8).	Yes	Technical report and Supplementary files 1, 2 and 3
C.8 For each recommendation, the developer has provided an evidence summary, which briefly states the outcomes of each clinical studies on which the recommendation was based.	Yes	Technical report, and Supplementary file 3
C.9 A recommended date for future update of the guideline is identified.	Yes	Guideline
Desirable requirement	**Fulfilled**	**Location**
C.3.1 The population groups specified in the search strategy include groups such as culturally and linguistically diverse communities or other groups for whom specific sociocultural factors (including ethnicity, gender, age, disability, socioeconomic status and location) in prevention or treatment outcomes should be considered.	Yes	Technical report
C.3.2 Search strategies include search terms to identify evidence related to consumers' perceptions and experiences.	Yes	Technical report
C.3.3 Dependent on the guideline scope, the search strategy is designed to identify evidence for all relevant alternatives for screening, prevention, diagnosis or treatment of the condition addressed by the guideline, including relevant complementary and alternative medicine approaches.	Yes	Technical report
C.3.4 Search strategies include search terms to identify evidence related to cost effectiveness and resource implications of practice.	No	N/A
C.8.1 If gaps in the evidence are identified during the evidence review, these are described in the guideline and areas for further research are noted.	Yes	Guidelines and Supplementary file 3

D. Guideline recommendations

Mandatory requirement	Fulfilled	Location
D.1 The wording of recommendations is specific, unambiguous, clearly describes the action/s to be taken by users and matches the strength of the body of evidence.	Yes	Guidelines
D.2 The wording of recommendations is written in plain English and is consistent throughout the guideline.	Yes	Guidelines
D.3 For each evidence-based recommendation, the supporting references are listed and the grade of recommendation is indicated in accordance with NHMRC-approved method (GRADE).	Yes	Supplementary file 3
D.4 Recommendations formulated in the absence of quality evidence (where a systematic review of the evidence was conducted as part of the search strategy) are clearly labelled. The preferred term for this type of recommendation is a consensus-based recommendation.	Yes	Guidelines and Supplementary file 3
D.5 Any further recommendations included in the guideline, where the subject matter is outside of the scope of search strategy, are clearly labelled as such. The preferred term for this type of recommendation is a practice point.	Yes	Guidelines

D.6 The method used to arrive at consensus-based recommendations or practice points (Requirements D.4 and D.5) (e.g. voting or formal methods, such as Delphi) is documented.	Yes	Guidelines and Technical report
D.7 Areas of major debate about the evidence and the recommendations are identified and the various significant viewpoints are outlined in the guideline text (even if the guideline development working group members eventually reached a decision).	N/A	Not applicable (no areas of major debate arose)
D.8 The strengths and limitations of the body of evidence reviewed are described in the guideline text and areas of uncertainty are acknowledged.	Yes	Guidelines
D.9 The guideline acknowledges current national guideline recommendations approved by NHMRC or endorsed by major authorities, and any deviations from these are explicitly noted in the guideline text and the rationale provided.	Yes	Guidelines and Technical Report
D.10 Where a guideline makes any recommendation/s specifying intervention/s that are not available or restricted in Australia, the text clearly indicates this, and the developer has consulted the relevant authority/ies (see Requirement F.3).	N/A	No recommendations specifying interventions that are not available or restricted in Australia were made.
D.11 Where evidence is identified showing that Aboriginal and Torres Strait Islander peoples or other population groups have specific prevention or treatment outcomes, this evidence is clearly identified and considered in the formulation of the recommendations.	Yes	Guidelines, Technical Report, and Supplementary file 3
D.12 The harms (risks or side effects) and benefits of each recommended intervention and its alternatives are described in the guideline text and the rationale for the recommendation is explained.	Yes	Guidelines, Technical Report, Supplementary files 1 and 3
D.13 Any safety, legal or potential misuse issues related to the clinical recommendations are identified and described in the guideline text.	Yes	Guideline
D.14 The potential impact of each recommendation on clinical practice or outcomes is described in the text.	Yes	Guideline and Supplementary file 3

E. Guideline structure and style

Mandatory requirement	Fulfilled	Location
E.1 The guideline includes a title page listing: (a) the date of publication; (b) the authorship (organisation or individuals); (c) the publisher; (d) copyright information including the copyright holder; (e) address for requesting permission to reproduce material in the text; (f) the ISBN number; (g) a preferred citation for the guideline publication.	Yes	Guidelines
E.2 The guideline is easy to navigate and includes a table of contents or index with hyperlinks or bookmarks to facilitate navigation.	Yes	Guidelines
E.3 The guideline includes a brief (e.g. 1-page) plain English summary.	Yes	Guidelines
E.4 The guideline includes an executive summary that lists all recommendations and their grade using NHMRC-approved method (GRADE8). The summary of recommendations is available as a separate document, and the guideline text states where to obtain this document.	Yes	Guidelines, Recommendations summary

E.5 A glossary of technical terms, acronyms and abbreviations is provided, and terms are used consistently throughout the guideline.	Yes	Guidelines
E.6 Where medicines are mentioned in the guideline, generic names are used and brand names are avoided.	Yes	Guidelines
E.7 The document design and layout enables recommendations to be identified easily within the text and is suitable for people with visual impairment.	Yes	Guidelines
E.8 References in the text are clearly identified and the citations clearly listed. For electronic references, the source location (e.g. website address) and date accessed is stated.	Yes	Guidelines
E.9 Chapter and heading levels are consistent, clearly distinguishable by the document design and layout, and assist with the navigation throughout each topic of the guideline.	Yes	Guidelines
E.10 The guideline information is sequenced in a logical manner which is applicable to the intended end user.	Yes	Guidelines
E.11 The technical report is either (i) included in the guideline document, or (ii) provided in a readily accessible location, such as a website, which is indicated in the guideline.	Yes	Guidelines
E.12 The administrative report is either (i) included in the guideline document, or (ii) provided in a readily accessible location, such as a website, which is indicated in the guideline.	Yes	Guidelines

F. Public consultation

Mandatory requirement	**Fulfilled**	**Location**
F.1 The process for public consultation on the draft guideline complies with Section 14A of the NHMRC Act 1992 (Cwlth)1 and accompanying regulations7.	Yes	Technical Report
F.2 Details of submissions received during public consultation and the response of the guideline development working group to the submissions (including whether, why and how the guideline was altered) are provided as a separate document to the NHMRC.	TBC	Will be completed after public consultation
F.3 During the public consultation period, the developer has undertaken and documented consultation with: (i) the Director-General, Chief Executive or Secretary of each state, territory and Commonwealth health department; (ii) other relevant government departments as appropriate to your guideline topic; (iii) relevant authority/ies, when a guideline makes any recommendation/s specifying interventions that are not available or restricted in Australia (see Requirement D.10). Guidelines for Guidelines | Public Consultation	TBC	Will be completed after public consultation
F.4 The developer has identified and consulted with key professional organisations (such as specialty colleges) and consumer organisations that will be involved in, or affected by, the implementation of the clinical recommendations of the guideline.	TBC	Will be completed after public consultation
Desirable requirement	**Fulfilled**	**Location**
F.2.1 A version of the public consultation submissions summary is publicly available, with submissions de-identified	TBC	Will be completed after public consultation

G. Dissemination and implementation of guidelines

Mandatory requirement	Fulfilled	Location
G.1 A plan for the dissemination of the guideline is submitted as a separate document from the clinical practice guideline. Guidelines for Guidelines | Dissemination and Communication	Yes	Technical report
G.2 Key recommendations that are most likely to lead to improvements in health outcomes are highlighted for consideration in implementation. Guidelines for Guidelines | Implementation	Yes	Guidelines
Desirable requirement	**Fulfilled**	**Location**
G.3 A practical implementation plan is provided as a separate document, based on considerations of the Australian health care context and identification of appropriate organisation/s where the key recommendations may be directed. Guidelines for Guidelines | Implementation	No	Out of scope
G.4 Resources to support implementation of the guidelines are developed, such as summaries and other tools for different health care professionals, and the guideline indicates where these can be obtained.	N/A	Out of scope
G.5 Accompanying consumer information is provided.	N/A	Out of scope
G.6 Versions of the plain English summary and consumer information are available in different languages, if appropriate.	N/A	Out of scope
G.7 Suggestions for local adaptation and adoption of the guideline are provided.	N/A	Out of scope
G.8 Measures are developed for determining the extent to which key guideline recommendations are implemented.	N/A	Out of scope
G.9 An evaluation strategy is developed and described to assess the extent to which guideline recommendations are adopted into routine practice.	N/A	Out of scope

Appendix B: Scoping reviews conducted to inform Guideline context and Evidence-to-Decision frameworks

Scoping review 1 – What is the impact of weight status, weight loss or weight maintenance on health outcomes in individuals living with overweight or obesity?

People living with overweight or obesity often have multiple chronic disease co-morbidities and increased burden of disease from these conditions. Many of these conditions have been shown to improve or even resolve with weight maintenance or weight loss. A scoping review of systematic reviews aimed to identify health outcomes associated with weight status (overweight or obesity versus healthy weight), or weight loss or weight maintenance (resulting from a weight management intervention) in people living with overweight or obesity. The methods and results of this review are detailed below.

The findings presented informed the Guideline Introduction, and 'Problem' section of the Evidence-to-Decision frameworks. The results presented here are a summary of findings extracted for these Evidence-to-Decision framework sections.

Methods

The PICOT ('Population, Intervention, Comparator, Outcome, Time') framework for scoping review 1 is presented in Table B1.

Table B1: Scoping review 1 PICOT framework

PICOT Category	Details
Population	• People living with overweight or obesity
Interventions/Exposures	Weight status, weight loss, or weight maintenance*: • Weight status (overweight or obesity) • Percentage relative change in body weight; • Relative change in (or maintenance of) BMI or BMI z-score/ BMI for age centiles, defined by the study under review; • Relative change in (or maintenance of) waist circumference, defined by the study under review
Comparators	• Weight maintenance (when intervention/exposure was weight loss) • Weight gain (when intervention/exposure was weight loss or weight maintenance) • People of a healthy weight
Outcomes	**For all populations:** Changes in incidence or prevalence of: • Cardiovascular disease • Type 2 diabetes mellitus • Non-alcoholic fatty liver disease (NAFLD) • Musculoskeletal conditions

	• Cancer • Mental health • Reproductive health Mortality from any of the above diseases measured as incidence or risk Quality-of-life ratings Change in incidence or prevalence of: • Blood pressure indicators • Blood glucose level • Blood lipid profile
Time: Intervention length and follow-up period	Systematic reviews of RCT studies that have: • any length of intervention/exposure; and any length of follow up
Study/publication type	Systematic reviews published in peer-reviewed journals, in any language, and excluding conference abstracts, editorials, and letters to the editor.
Publication date range	January 2010 to November 2023
Databases searched	• Ovid MEDLINE (date limits 2010-2023) • APA PsycINFO via EBSCOHost (date limits January 2010-December 2023) • CINAHL Complete via EBSCOHost (date limits January 2010-December 2023) • Cochrane Library (all years)
Notes	*Weight status, weight loss, or weight maintenance as defined by the authors of each paper and cross-checked by the authors of the current review.

Search terms

The scoping review 1 search terms used are presented in Table B2 (only the Ovid MEDLINE version is presented for simplicity; search terms were also developed for APA PsycINFO via EBSCOHost, CINAHL Complete via EBSCOHost, and the Cochrane Library). Where a MeSH heading used in the Ovid MEDLINE search could not be substituted with an equivalent term in another database, the heading was dropped from the search in that given database. Truncation and fuzzy logic terms were use (for example obes*).

Table B2: Scoping review 1 Ovid MEDLINE search terms

Search number	**Search terms**
1	exp obesity/
2	(obes* or overweight* or over weight*).ab,ti.
3	Body Mass Index/
4	Weight Loss/
5	exp Obesity Management/
6	(obesity adj4 management).ab,ti.
7	Body Weight Maintenance/
8	(weight management or weight control or weight maintenance).ab,ti.
9	Pediatric Obesity/
10	((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese)).ab,ti.
11	1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10
12	cardiovascular.ab,ti.
13	exp Diabetes Mellitus, Type 2/
14	(type 2 diabetes or diabetes type 2).ab,ti.
15	Non-alcoholic Fatty Liver Disease/

16	(non alcoholic fatty liver disease OR non-alcoholic fatty liver disease OR nonalcoholic fatty liver disease OR non alcoholic fatty liver* OR non-alcoholic fatty liver* OR nonalcoholic fatty liver* OR non alcoholic steatohepatitis OR non-alcoholic steatohepatitis OR nonalcoholic steatohepatitis OR non alcoholic steatohepatitides OR non-alcoholic steatohepatitides OR nonalcoholic steatohepatitides OR NAFLD OR NASH OR NAFL OR MAFLD).ab,ti.
17	(musculoskeletal pain* or muscle pain*).ab,ti.
18	Arthroplasty, Replacement, Hip/
19	(hip replacement* or hip arthroplast* or hip prosthes*).ab,ti.
20	Arthroplasty, Replacement, Knee/
21	(knee replacement* or knee arthroplast* or knee prosthes*).ab,ti.
22	Mental Health/
23	exp Neoplasm/
24	exp Infertility/
25	12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24
26	meta-analysis.pt
27	(meta-anal* OR metaanal*).ab,ti.
28	systematic review.pt
29	26 OR 27 OR 28
30	11 AND 25 AND 29
31	Date limit: January 2010 to December 2022

Inclusion criteria

Publication types

Publication types included:

- papers where overweight or obesity was the topic for study;
- systematic review study types;
- studies reported in any language (translation facilitated using the document function of Google Translate, https://translate.google.com/); and
- full-text papers in peer-reviewed publications.

Types of participants

- Studies involving participants aged 2 years and older with any degree of overweight or obesity were considered.

Types of intervention/exposure measures

Overweight and obesity (as defined in included papers) assessed with one or more of the following measures:

- dual energy X-ray absorptiometry (DXA);
- BMI or BMI z-score/ BMI-for-age centiles;
- waist circumference;
- weight for height growth chart; and
- body weight (kgs or lbs).

Types of outcome measures

Study measures assessed in all populations included change in prevalence and/or incidence of morbidity and/or mortality due to:

- cardiovascular disease (including coronary heart disease such as angina, heart attack, heart failure, cardiomyopathy, atrial fibrillation; stroke and transient ischaemic attack; and peripheral arterial disease);
- Type 2 diabetes mellitus;
- non-alcoholic fatty liver disease (NAFLD; also known as metabolic associated fatty liver disease – MAFLD), including non-alcoholic fatty liver (NAFL), and non-alcoholic steatohepatitis (NASH);
- musculoskeletal conditions (including hip and knee replacement, and use of a validated assessment measure of pain relating to non-inflammation-related musculoskeletal conditions, e.g., back pain, hip/knee pain);
- cancer (of any type);
- mental health (by any validated measure of depression, anxiety, eating disorders, or suicide);
- reproductive health (in men or women); and
- health-related quality of life (by any validated measure).

Study measures assessed for scoping review 1 in paediatric populations only (i.e., children and adolescents aged 2 to <18 years) included prevalence and/or incidence of the following:

- systolic and diastolic blood pressure;
- blood glucose level; and
- blood lipid markers including total cholesterol, LDL- or HDL-cholesterol, and triglycerides

Timing of outcome assessment

Systematic reviews of studies that had any length of intervention/exposure and any length of follow up.

Exclusion criteria

Publication types

The following publication types were excluded:

- papers that were not systematic reviews (e.g., scoping reviews, narrative reviews, protocols, individual studies);
- reviews published prior to January 2010;
- conference abstracts,
- editorials; and
- letters to the Editor

Types of participants

Studies with the following participants were excluded:

- participants with pre-existing cancer who were not in remission;
- participants with overweight or obesity due to a specific genetic condition, e.g., Prader Willi Syndrome; and
- studies in animals

Study selection

The initial search was conducted on 20 December 2022, and updated 13 November 2023. Database searches were exported to Covidence for screening by title and abstract then by full text. This process was conducted independently and in duplicate by two reviewers.

Data extraction and synthesis

Data extraction was conducted using REDCap® software (EDC software, USA). This included: publication details, study population characteristics (sample size, age, and sex of participants), intervention or exposure types (measures of overweight or obesity), number of studies (and design) included in the review, and outcomes (prevalence, risk, or resolution of the following conditions: cardiovascular disease, Type 2 diabetes mellitus, NAFLD, musculoskeletal conditions, cancer (of any type), mental health (depression, anxiety, eating disorders, or suicide), reproductive health (in men or women), and health-related quality of life. Only results that were statistically significant in the reviews are reported, hence not all studies in the reference list on page 45 are cited.

The data were exported into an Excel spreadsheet, and synthesised by population type, and disease outcome.

Results

The summary of yield from both searches is presented in Table B3. The PRISMA flow diagram is shown in Figure B1. After removing overlapping search yields, and duplicates, n=5,561 publication titles and abstracts were screened for inclusion eligibility. After excluding n=4,751 ineligible titles and abstracts, n=810 full texts were screened. A total of n=226 papers were eligible for inclusion in this review.

Table B3: Scoping review 1 literature yield

Database	Yield (n)	
Ovid MEDLINE	8,314	
APA PsycINFO via EBSCOHost	381	
CINAHL Complete via EBSCOHost	4,384	
Cochrane Library	184	
		Duplicates removed (n)
Before duplicates removed	13,263	
Overlapping yield from original December 2022 search	6,980	6,283
After duplicates removed in EndNote	5,910	1,070
After duplicates removed in Covidence	5,561	349
		Excluded (n)
Title/abstract screening	5,561	4,751
Full text screening	810	584 Exclusion reasons: - Ineligible outcomes (n=376) - Ineligible study design (n=74) - Ineligible intervention (n=57) - Ineligible patient population (n=52) - Ineligible comparator (n=23) - Ineligible publication date (n=1) - Full text not available for review (n=1)
Included full texts	**226**	

No papers in a language other than English were identified, and therefore did not require translation.

Summary of findings

Table B4 shows a summary of characteristics of included reviews, including review type; number and type of reviewed studies and location; participant characteristics including populations of interest, number, and pre-existing conditions; intervention type including weight status, weight loss, or weight maintenance; and outcome type, i.e. disease/condition of interest.

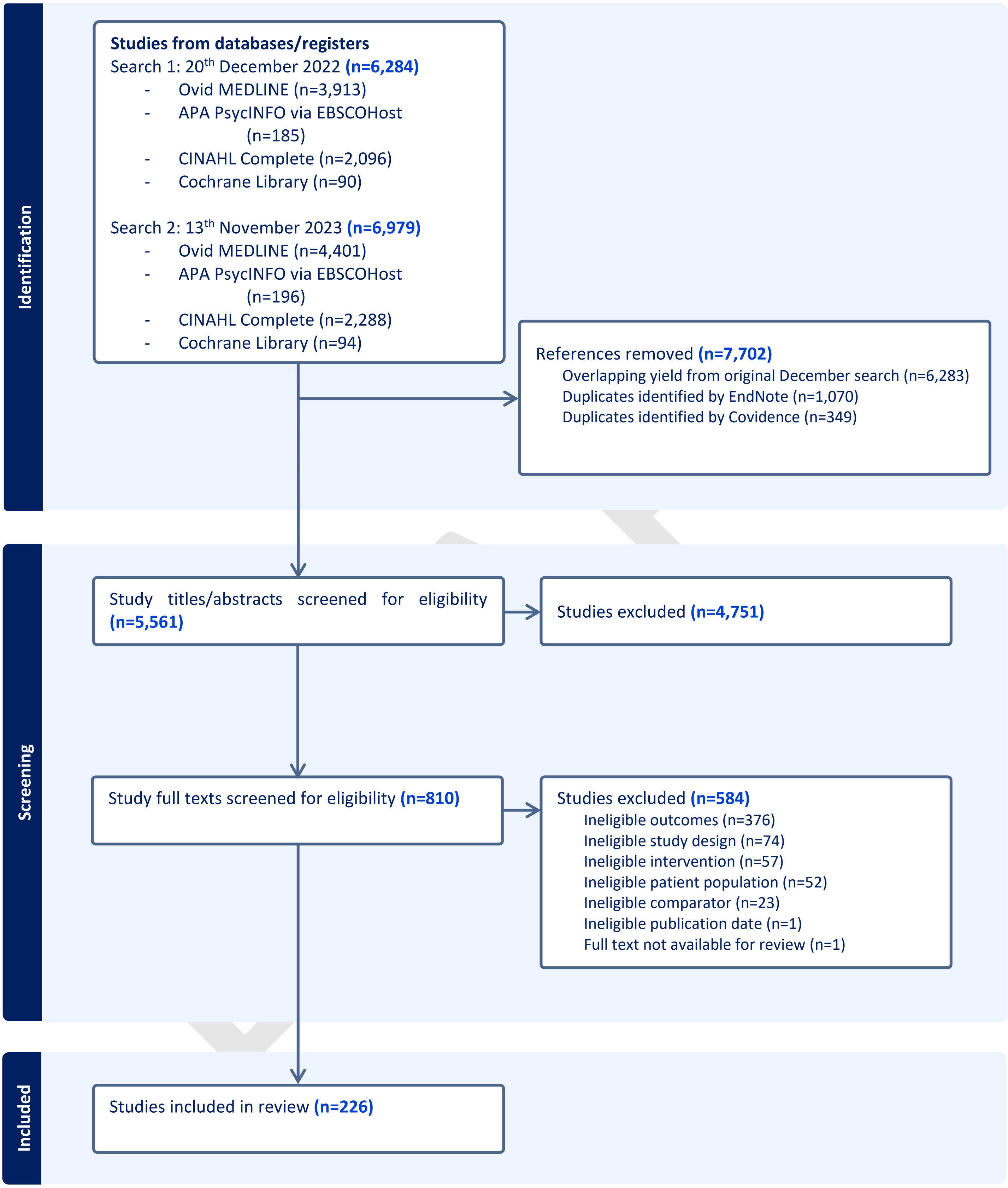


Figure B1: Scoping review 1 PRISMA flow diagram.

Table B4: Summary of characteristics of reviews included in scoping review 1

The following abbreviations are used in the table below: CAD, Coronary artery disease; CVD, Cardiovascular disease; NAFLD, Non-alcoholic fatty liver disease; NRCTs, Non-randomised control trials; OA, Osteoarthritis; PAD, Peripheral artery disease; PCOS; Polycystic ovary syndrome; RCTs, Randomised control trials; T2DM, Type 2 diabetes mellitus; THA, Total hip arthroplasty; and TKA, Total knee arthroplasty.

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Abar et al., 2018 (715)	Systematic review	47	Longitudinal observational	UK, US, China, Republic of Korea, Finland, Canada, Netherlands, Singapore, Japan, Australia, Norway, Sweden, Taiwan, Austria, Iceland, Europe	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	7,393,510	-	Weight status	Cancer
Abar et al., 2019 (716)	Systematic review	65	Longitudinal observational	Republic of Korea, US, UK, Norway, Austria, Sweden, Taiwan, Japan, Australia, China, Singapore, Netherlands, Finland, Iceland, Canada	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	Cancer
Abdullah et al., 2010 (717)	Systematic review	18	Longitudinal observational	US, Finland, Japan, Germany, Asia-Pacific, Finland, UK, China, Republic of Korea	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	590,251	-	Weight status	Type 2 diabetes mellitus (T2DM)
Akdeniz et al., 2020 (718)	Systematic review	13	Longitudinal observational	US, Canada, Denmark, India, France, Taiwan, Sweden	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	Cancer
Al-Bayati et al., 2019 (719)	Systematic review	125	Longitudinal observational	Not reported	All adults (18y+)	Not reported	-	Weight status	Cancer
Alwash et al., 2021 (720)	Systematic review	20	Cross-sectional, longitudinal observational	China, Turkey, US, Australia, Brazil, Republic of Korea, Finland, Iran, Canada, Pakistan, India	Young and middle-aged adults (18-<65y), all adults (18y+), pregnant women	52,874	-	Weight status	T2DM

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Amadou et al., 2013 (721)	Systematic review	30	Longitudinal observational	US, China, Japan, Canada, Nigeria, Vietnam, UK, Thailand, Germany, Norway, Sweden, France, Netherlands	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	Cancer
Anagnostis et al., 2021 (722)	Systematic review	23	Cross-sectional, longitudinal observational	US, Australia, Sweden, UK, China, Czech Republic, Denmark, Finland, Iran, Netherlands, Turkey	Young and middle-aged adults (18-<65y), all adults (18y+)	319,780	Polycystic ovary syndrome (PCOS)	Weight status	T2DM
Anderson et al., 2015 (723)	Systematic review	74	Cross-sectional	Not reported	Infants (12 months to <2y), children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	47,100	-	Weight status	Non-alcoholic fatty liver disease (NAFLD)
Arafat et al., 2021 (724)	Systematic review	7	Longitudinal observational	Palestine	All adults (18y+)	Not reported	-	Weight status	Cancer
Arango et al., 2021 (725)	Umbrella review of reviews	14	Umbrella reviews	Not reported	All adults (18y+)	Not reported	-	Weight status	Mental health
Aune et al., 2012 (726)	Systematic review	24	Longitudinal observational	US, UK, Sweden, Finland, Republic of Korea, Japan, Netherlands, Europe, Austria	All adults (18y+)	Not reported	-	Weight status	Cancer
Aune et al., 2015 (727)	Systematic review	28	Longitudinal observational	UK, Taiwan, Japan, China, US, Australia, Europe, Republic of Korea, Sweden, Finland, Austria, Norway, Netherlands, Canada	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	6,681,795	-	Weight status	Cancer
Azizi et al., 2023 (728)	Systematic review	13	Longitudinal observational	Austria, Japan, Norway, US, Republic of Korea, Europe, UK, China, Singapore	Young and middle-aged adults (18-<65y), all adults (18y+)	14,020,031	-	Weight status	Cancer
Babu et al., 2018 (729)	Systematic review	18	Cross-sectional, longitudinal observational	India	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Weight status	T2DM

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Bae et al., 2014 (730)	Systematic review	17	Longitudinal observational	China, Canada, US, UK, Sweden, Italy, Norway, Finland, Denmark, Germany, Australia	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	Ovarian cancer	Weight status	Cancer
Baghdadi et al., 2015 (731)	Systematic review	10	Cross-sectional, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	7,872	Rheumatoid Arthritis (RA)	Weight status	Cardiovascular disease (CVD)
Barry et al., 2018 (732)	Systematic review	8	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	137,406	CVD	Weight status	CVD
Bell et al., 2014 (733)	Systematic review	7	Longitudinal observational	US, Iran, Sweden, Republic of Korea, Taiwan, Spain, Australia, UK	All adults (18y+)	Not reported	-	Weight status	T2DM
Bigna et al., 2018 (734)	Systematic review	12	Cross-sectional	Cameroon	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	37,147	-	Weight status	T2DM
Burnette et al., 2020 (735)	Systematic review	51	Cross-sectional, longitudinal observational	US	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+), Aboriginal and Torres Strait Islander people	Not reported	-	Weight status	CVD

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Byun et al., 2022 (736)	Systematic review	37	Longitudinal observational	Netherlands, Finland, US, Denmark, Norway, Sweden, Japan, France, Israel, UK, Australia	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y), young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Weight status	Cancer
Campbell & McPherson, 2019 (737)	Systematic review	17	Cross-sectional, longitudinal observational	China, UK, Netherlands, Australia, New Zealand, US, Ireland, Norway, Denmark, France, Malaysia	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Weight status	Reproductive health
Campbell et al., 2015 (738)	Systematic review	30	Cross-sectional, longitudinal observational	US, Denmark, UK, Australia, Italy, Netherlands, Brazil, China, New Zealand, Hungary, Czech Republic, Argentina, Norway, Turkey, Russia, France	Young and middle-aged adults (18-<65y), all adults (18y+)	115,158	-	Weight status	Reproductive health
Cao & Ma, 2011 (739)	Systematic review	26	Longitudinal observational	Sweden, US, Switzerland, Netherlands, Japan	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	1,281,686	-	Weight status	Cancer, mortality from any of the listed diseases
Capristo et al., 2021 (740)	Systematic review	28	RCTs	Not reported	All adults (18y+)	50,106	-	Weight loss	CVD, mortality from any of the listed diseases
Castillo et al., 2012 (741)	Systematic review	21	Longitudinal observational	Denmark, Sweden, US, UK, Republic of Korea, Norway, Europe, Finland, Netherlands, Asia-Pacific, Taiwan	All adults (18y+)	12,541,974	-	Weight status	Cancer, mortality from any of the listed diseases
Castillo et al., 2014 (742)	Systematic review	16	Longitudinal observational	US, Europe, Netherlands, Austria, Norway, Sweden	All adults (18y+)	>2.3 million	-	Weight status	Cancer

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Castro et al., 2018 (743)	Systematic review	100	Longitudinal observational	Europe, Asia, North America	All adults (18y+)	Not reported	-	Weight status	Cancer
Chan et al., 2014 (744)	Systematic review	82	Longitudinal observational	US, Italy, Austria, Canada, Greece, Norway, Germany, Denmark, UK, France, Sweden, Australia, Republic of Korea, China, Japan, Tunisia,	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	213,075	Breast cancer	Weight status	CVD, cancer, mortality from any of the listed diseases
Chen et al., 2013 (745)	Systematic review	24	Longitudinal observational	Japan, Republic of Korea, China, US, Denmark, Iceland, Sweden, UK, Netherlands, Norway, Australia	All adults (18y+)	>10 million	-	Weight status	Cancer
Chen et al., 2015 (746)	Systematic review	8	Longitudinal observational	US, Europe, Australia, Canada, International (unspecified)	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	394,434	-	Weight status	Cancer
Chen et al., 2017 (747)	Systematic review	31	Longitudinal observational	Europe, US, Asia, Australia	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	3,318,796	-	Weight status	Cancer
Chen et al., 2022 (748)	Systematic review	8	Longitudinal observational	Australia, US, Italy, China, Taiwan, Japan, Europe, Asia	All adults (18y+)	297,956	NAFLD	Weight status	Cancer
Chen et al., 2023 (749)	Umbrella review of reviews	18	Meta-analyses	Not reported	All adults (18y+)	Not reported	-	Weight status	Cancer
Cloostermans et al., 2015 (750)	Systematic review	9	Longitudinal observational	Australia, UK, US, Netherlands, Finland, Canada	Young and middle-aged adults (18-<65y), all adults (18y+)	119,396	-	Weight status	T2DM
Colpani et al., 2018 (751)	Systematic review	59	Longitudinal observational	US, Germany, Norway, China, UK, Finland, Japan, Denmark, Sweden, Brazil	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	5,358,902	-	Weight status	CVD, mortality from any of the listed diseases

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Cronin et al., 2013 (752)	Systematic review	7	Longitudinal observational	Spain, Germany, Italy, Australia, International (unspecified)	Older adults (65y+), all adults (18y+)	1,872	Peripheral artery disease (PAD)	Weight status	CVD, mortality from any of the listed diseases
Crouch et al., 2022 (753)	Systematic review	53	RCTs, Cross-sectional, longitudinal observational	Algeria, Egypt, Uganda, Seychelles, Tanzania, Zanzibar, RSA, Gambia, Ghana, Nigeria, Cameroon	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	56,280	-	Weight status	Blood pressure indicators
Dehesh et al., 2023 (754)	Systematic review	102	Cross-sectional, longitudinal observational	Germany, Mexico, US, Taiwan, China, Israel, Brazil, India, Japan, Afghanistan, Pakistan, Nigeria, Netherlands, Singapore, Italy, Morocco, Iran, Thailand, Poland, Colombia, Republic of Korea, Turkey, Denmark, Czech Republic, France, Greece, Sweden, Spain, Saudi Arabia, Australia, Algeria, Africa	All adults (18y+)	20,025,860	-	Weight status	Cancer
Deng et al., 2022 (755)	Systematic review	190	Mendelian randomisation studies	Europe, Japan	All adults (18y+)	Not reported	-	Weight status	Cancer
Ding et al., 2023 (756)	Systematic review	10	Longitudinal observational	US, Israel, Norway, Denmark	All children (2-<18y)	588,134	-	Weight status	Cancer
Discacciati et al., 2012 (757)	Systematic review	13	Longitudinal observational	US, Netherlands, Australia, Japan, Europe, Sweden	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	2,113,799	-	Weight status	Cancer
Dobbins et al., 2013 (758)	Systematic review	57	Longitudinal observational	US, Sweden, Norway, Japan, International (unspecified)	All adults (18y+)	Not reported	-	Weight status	Cancer

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Dong et al., 2017 (759)	Systematic review	19	Longitudinal observational	US, Sweden, Europe, Australia, China, UK	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	1,343,560	-	Weight status	Cancer
Druesne-Pecollo et al., 2012 (760)	Systematic review	26	Longitudinal observational	US, France, Denmark, Finland, Spain	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	38,095	Breast cancer	Weight status	Cancer
Du et al., 2017 (761)	Systematic review	7	Longitudinal observational	US, Norway, Australia, Europe, China	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	913,182	-	Weight status	Cancer
Duan et al., 2015 (762)	Systematic review	29	Longitudinal observational	China, Lithuania, US, Norway, Republic of Korea, UK, Sweden, Japan, Austria, Israel, Finland	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	7,253,941	-	Weight status	Cancer
Eckel et al., 2016 (763)	Systematic review	22	Longitudinal observational	US, UK, Norway, Denmark, Australia, Iran, Greece, Sweden, Canada, Italy, France, Ireland, Japan	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	CVD
El-Medany et al., 2020 (764)	Systematic review	71	Longitudinal observational	US, Australia, Canada, Kuwait, Belgium, Spain, UK, Switzerland, Poland, Denmark, Germany, Iceland, Mexico, Finland, Norway, Venezuela, Brazil, France, Italy, Tunisia, Portugal, Israel, Philippines, Thailand	Adolescents (12y to <18y), all children (2-<18y)	Not reported	-	Weight loss, Weight status	Blood pressure indicators, blood lipid profile

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Ellwanger et al., 2022 (765)	Systematic review	42	RCTs, longitudinal observational	Australia, US, China, Denmark, Sweden, Israel, Italy, Japan, Austria, Norway, England, Scotland, Finland, Netherlands	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	3,499,022	-	Weight status	Cancer
Esposito et al., 2014 (766)	Systematic review	6	Longitudinal observational	Europe, Italy, China, Austria, Sweden, Norway, Canada	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	136,262,926	-	Weight status	Cancer
Fan et al., 2013 (767)	Systematic review	14	Longitudinal observational	US, Canada, Sweden, UK, Italy, Netherlands	Young and middle-aged adults (18-<65y), all adults (18y+)	299,059	-	Weight status	CVD, mortality from any of the listed diseases
Fang et al., 2018 (768)	Systematic review	330	Longitudinal observational	US, Europe, Norway, Singapore, Australia, UK, Republic of Korea, Africa, Sweden, Austria, Finland, Canada, Taiwan, Japan, Lithuania, France, Mexico, Asia, Denmark	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	Cancer
Fardet et al., 2017 (769)	Systematic review	31	Longitudinal observational	US, Italy, Netherlands, Japan, Taiwan, Australia, Canada, New Zealand, UK, Europe	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	Family history of colorectal cancer	Weight status	Cancer
Foong & Bolton, 2017 (770)	Systematic review	43	Longitudinal observational	Not reported	All adults (18y+)	3,491,943	-	Weight status	Cancer
Friedemann et al., 2012 (771)	Systematic review	63	RCTs, Cross-sectional, longitudinal observational	US, Italy, Denmark, Sweden, Cyprus, Israel, Belgium, Japan, Greece, Iceland, China (Hong Kong), Hungary, Republic of Korea, Norway, France, Spain, Germany, UK, Australia, Switzerland, Estonia, Canada, Portugal	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	49,220	-	Weight status	CVD, blood pressure indicators, blood glucose level, blood lipid profile

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Galati et al., 2022 (772)	Systematic review	23	Longitudinal observational	UK, US, Thailand, Brazil, Canada, Mexico, Denmark, Sweden	Infants (12 months to <2y), children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	18,195	Acute lymphoblastic leukemia (ALL) or Acute myeloid leukemia (AML)	Weight status	Cancer, mortality from any of the listed diseases
Galaviz et al., 2018 (773)	Systematic review	77	RCTs, NRCTs	US, New Zealand, Thailand, UK, Germany, Finland, Spain, Canada, Netherlands, Australia, Israel, Greece, Norway, Japan	Young and middle-aged adults (18-<65y), all adults (18y+)	34,512	-	Weight loss	T2DM
Gallagher et al., 2023 (774)	Systematic review	17	Longitudinal observational	Finland, Iran, UK, Spain, France, Australia, Canada	All children (2-<18y), all adults (18y+)	117,435	-	Weight maintenance	Mental health
Gao et al., 2019 (775)	Systematic review	28	Longitudinal observational	Finland, US, China, Japan, Republic of Korea, Austria, Sweden, Canada, UK, Singapore, Norway, Lithuania, Europe	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	28,784,269	-	Weight status	Cancer
Garcia & Mingyang, 2019 (776)	Systematic review	15	Longitudinal observational	Not reported	All children (2-<18y), all adults (18y+)	>4.7 million	-	Weight status	Cancer
Godina-Flores et al., 2023 (777)	Systematic review	16	Cross-sectional	Mexico	All children (2-<18y)	12 103	-	Weight status	Mental health
Golabek et al., 2014 (778)	Systematic review	23	Longitudinal observational	Norway, Sweden, Austria, Australia, US, UK, Netherlands, Europe	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	3,153,185	-	Weight status	Cancer, mortality from any of the listed diseases

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Golabek et al., 2016 (779)	Systematic review	20	Longitudinal observational	Israel, US, Japan, Republic of Korea, UK, Sweden, Norway, Netherlands, Denmark, Europe	Adolescents (12y to <18y), young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	8,716,689	-	Weight status	Cancer, mortality from any of the listed diseases
Gonzalez-Castro et al., 2021 (780)	Systematic review	27	Cross-sectional, longitudinal observational	Mexico, US, Greece, Bahrain, Pakistan, United Arab Emirates, Sweden, India, Spain, Palestine, Canada, Bangladesh, Republic of Korea, Ethiopia, Saudi Arabia, Germany, Australia	All adults (18y+)	48,466	T2DM	Weight status	Mental health
Goodarzi et al., 2022 (781)	Systematic review	7	Longitudinal observational	US, UK, Republic of Korea	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	759,066	-	Weight status	Cancer
Guo et al., 2016 (782)	Systematic review	8	Longitudinal observational	Denmark, Sweden, Norway, Republic of Korea	Adolescents (12y to <18y), young and middle-aged adults (18-<65y), all adults (18y+)	2,983,093	-	Weight status	CVD
Gupta et al., 2016 (783)	Systematic review	14	Longitudinal observational	US, UK, Republic of Korea, China (Hong Kong), Asia-Pacific, Netherlands, Scotland, Switzerland	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	3,008,137	-	Weight status	Cancer, mortality from any of the listed diseases
Gupta et al., 2018 (784)	Systematic review	9	Longitudinal observational	North America, Europe, Asia-Pacific region	All adults (18y+)	1,599,453	-	Weight status	Cancer, mortality from any of the listed diseases

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Huang et al., 2020 (785)	Systematic review	19	Longitudinal observational	Iran, Republic of Korea, China, Israel, Japan	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	1,637,994	-	Weight status	CVD, mortality from any of the listed diseases
Huang et al., 2022 (786)	Systematic review	30	Longitudinal observational	Iran, UK, Sweden, US, Canada, Germany, Denmark, Republic of Korea, Taiwan, Sweden	Young and middle-aged adults (18-<65y), all adults (18y+)	3,543,340	T2DM	Weight loss	CVD, mortality from any of the listed diseases
Im et al., 2021 (787)	Systematic review	61	Longitudinal observational	Republic of Korea	Young and middle-aged adults (18-<65y), all adults (18y+)	837,897	-	Weight status	NAFLD
Jaspan et al., 2021 (788)	Systematic review	45	Longitudinal observational	Japan, Canada, Netherlands, US, Iran, Australia, UK, Italy, Mexico, Taiwan, Republic of Korea, France, Egypt, Europe, Germany, Norway, Asia, Austria, Scotland, China	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	607,266	Colorectal cancer	Weight status	Cancer, mortality from any of the listed diseases
Jayedi et al., 2022 (789)	Systematic review	216	Longitudinal observational	UK, Finland, Norway, Denmark, Sweden, Germany, Netherlands, Switzerland, France, Italy, Spain, US, Canada, South America, Australia, Africa, China, Japan, Republic of Korea, Taiwan, India, Bangladesh, Thailand, Singapore, Middle East	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	25,999,148	-	Weight status	T2DM
Jenabi & Poorolajal, 2015 (790)	Systematic review	40	Longitudinal observational	US, Canada, UK, Norway, Italy, Europe, Sweden, Finland, Czech, Australia, Mexico, Netherlands, China	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	32,281,242	-	Weight status	Cancer
Jokela & Laakasuo, 2023 (791)	Systematic review	8	Mendelian randomisation studies	Not reported	All adults (18y+)	1,367,175	-	Weight status	Mental health

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Kaczmarek et al., 2016 (792)	Systematic review	9	RCTs, Cross-sectional, Interviews	Australia, US, UK, Italy	Adolescents (12y to <18y)	987	-	Weight status	Health-related quality-of-life ratings
Kakoly et al., 2018 (793)	Systematic review	40	Cross-sectional, longitudinal observational	Spain, Italy, US, Romania, India, Australia, Turkey, Czech Republic, Greece, Brazil, Chile, Denmark, China, Sweden, Austria, Taiwan, Iran, Poland, UK, Thailand, Norway	Adolescents (12y to <18y), young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Weight status	T2DM, reproductive health
Kam et al., 2022 (794)	Systematic review	104	Longitudinal observational	Iran, Republic of Korea, Japan, India, China, China (Hong Kong), Taiwan, Sri Lanka, Singapore, Malaysia	All adults (18y+)	2,247,754	NAFLD	Weight status	NAFLD
Kane et al., 2019 (795)	Systematic review	7	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	18,598	-	Weight loss	CVD
Keum et al., 2015 (796)	Systematic review	46	Longitudinal observational	Canada, Norway, Australia, US, Japan, Netherlands, Sweden, Europe, China	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	4,211,352	-	Weight status	Cancer
Khadra et al., 2019 (797)	Systematic review	11	Cross-sectional, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	60,118	-	Weight status	T2DM
Khoramdad et al., 2023 (798)	Systematic review	22	Longitudinal observational	Iran	Young and middle-aged adults (18-<65y), all adults (18y+)	12,460	-	Weight status	Cancer

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Kim et al., 2021 (799)	Umbrella review of reviews	39	Systematic reviews, meta-analyses, mendelian randomisation studies	US, Europe, Asia, Australia, New Zealand	All adults (18y+)	Not reported	-	Weight status	CVD, mortality from any of the listed diseases
Kodama et al., 2014 (800)	Systematic review	15	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	647,786	-	Weight status	T2DM
Kodama et al., 2017 (801)	Systematic review	8	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	127,119	-	Weight status	T2DM
Kokts-Porietis et al., 2021 (802)	Systematic review	46	Longitudinal observational	Turkey, US, Italy, New Zealand, Brazil, Taiwan, Norway, UK, Germany, Republic of Korea, Belgium, France, Canada, Finland, Denmark, Japan, Australia	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	33,332	Endometrial cancer survivors	Weight status	Cancer
Koutoukidis et al., 2015 (803)	Systematic review	8	RCTs, Cross-sectional, longitudinal observational	Not reported	All adults (18y+)	Not reported	Endometrial cancer survivors	Weight status	Health-related quality-of-life ratings
Koutoukidis et al., 2019 (804)	Systematic review	22	RCTs	China, China (Hong Kong), Italy, US, Greece, Saudi Arabia, Iran, Australia, Singapore, Russia, UK, Israel	Young and middle-aged adults (18-<65y), all adults (18y+)	2,588	NAFLD	Weight loss	NAFLD
Koutoukidis et al., 2021 (805)	Systematic review	43	RCTs, single-arm intervention trials	UK, Singapore, India, US, Israel, China, Cuba, Saudi Arabia, Italy, Germany, Poland, Romania, Republic of Korea, Japan, China (Hong Kong), Mexico, Australia, Kuwait, Spain	All adults (18y+)	2,809	NAFLD	Weight loss	NAFLD

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Kramer et al., 2013 (806)	Systematic review	8	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	61,386	-	Weight status	CVD, mortality from any of the listed diseases
Kwon et al., 2017 (807)	Systematic review	16	Cross-sectional, longitudinal observational	US, Italy, Sweden, Ukraine, Denmark, Germany, Netherlands, Spain, Taiwan, UK, Japan, Iceland, Iran	Young and middle-aged adults (18-<65y), all adults (18y+)	445,125	T2DM	Weight status	CVD, mortality from any of the listed diseases
Kyrgiou et al., 2017 (808)	Umbrella review of reviews	49	Systematic reviews and meta-analyses	Not reported	All adults (18y+)	Not reported	-	Weight status	Cancer
Larsson & Burgess, 2021 (809)	Systematic review	48	Mendelian randomisation studies	Not reported	All adults (18y+)	Not reported	-	Weight status	CVD, T2DM, cancer
Lasikiewicz et al., 2014 (810)	Systematic review	36	RCTs, further details regarding study design other than RCTs not reported	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Weight loss	Health-related quality-of-life ratings
Lee et al., 2015 (811)	Systematic review	16	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	58,917	Colorectal Cancer	Weight status	Cancer, mortality from any of the listed diseases
Lei et al., 2021 (812)	Systematic review	15	Longitudinal observational	Australia, US, Netherlands, Sweden, Israel, Denmark, Canada	Young and middle-aged adults (18-<65y), all adults (18y+)	2,536,491	-	Weight status	Cancer
Leoncini et al., 2016 (813)	Systematic review	24	Cross-sectional, longitudinal observational	US, Sweden, Europe, Croatia, Turkey, Italy, Netherlands, Finland, China, Republic of Korea, Greece	Young and middle-aged adults (18-<65y), all adults (18y+)	136,903	-	Weight status	Cancer

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Li et al., 2012 (814)	Systematic review	22	Cross-sectional	China	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	T2DM
Li et al., 2014 (815)	Systematic review	10	Longitudinal observational	Sweden, US, Republic of Korea, Japan, UK	All adults (18y+)	Not reported	-	Weight status	Cancer
Li et al., 2016 (816)	Systematic review	29	Longitudinal observational	Denmark, Sweden, US, Japan, Republic of Korea, Norway, International (unspecified), Austria, Mexico, Australia, Canada, Netherlands, Poland, Chile, China, Czech Republic, Hungary, UK, Pakistan	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	11,448,397	-	Weight status	Cancer
Li et al., 2016 (817)	Systematic review	15	Longitudinal observational	Norway, Japan, Republic of Korea, Denmark, US, Sweden, UK, Hungary, Mexico, Chile, International (unspecified)	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	Cancer
Li et al., 2016 (818)	Systematic review	21	RCTs, longitudinal observational	Italy, Japan, China, Republic of Korea, Israel, US, Denmark	All adults (18y+)	381,655	-	Weight status	NAFLD
Li et al., 2017 (819)	Systematic review	6	Longitudinal observational	China, Japan	Young and middle-aged adults (18-<65y), all adults (18y+)	21,638	-	Weight status	Cancer
Li et al., 2017 (820)	Systematic review	26	Longitudinal observational	US, Canada, Sweden, Finland, Norway, Austria, China, France, Tunisia, Italy, Denmark, Greece, Germany, Italy, Netherlands, Spain, UK	All adults (18y+)	12,971	-	Weight status	Cancer
Li et al., 2021 (821)	Systematic review	12	Longitudinal observational	US, Israel, Italy, Sweden, Switzerland, China	Young and middle-aged adults (18-<65y), all adults (18y+)	242,561	-	Weight status	Cancer

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Lichtenauer et al., 2018 (822)	Systematic review	96	Cross-sectional, longitudinal observational	Not reported	Adolescents (12y to <18y), all children (2-<18y)	994,595	-	Weight status	Blood pressure indicators, blood lipid profile
Lim et al., 2013 (823)	Systematic review	30	Cross-sectional, longitudinal observational	Turkey, Brazil, Italy, Finland, Spain, China (Hong Kong), Germany, Greece, US, Sweden, Denmark, Republic of Korea, UK, India, Iran, Saudi Arabia	Adolescents (12y to <18y), all adults (18y+)	3,344	PCOS	Weight status	Reproductive health
Lin et al., 2020 (824)	Systematic review	7	Longitudinal observational	US, Republic of Korea, Sweden, Japan	Young and middle-aged adults (18-<65y), all adults (18y+)	12,542,390	-	Weight status	Cancer
Liu et al., 2015 (825)	Systematic review	26	Longitudinal observational	China, Sweden, US, Europe, UK, Austria, Japan, Netherlands, France, Australia, Canada	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	34,817	-	Weight status	Cancer
Liu et al., 2016 (826)	Systematic review	14	Longitudinal observational	US, Denmark, Sweden, Norway, Japan, Republic of Korea, Europe	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	10,530,142	-	Weight status	Cancer
Liu et al., 2018 (827)	Systematic review	24	Longitudinal observational	Denmark, US, Canada, Israel, Norway, Sweden, Austria, Japan, Republic of Korea, UK, France, Germany, Greece, Italy, Netherlands, Spain	Adolescents (12y to <18y), young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	8,953,478	-	Weight status	Cancer
Liu et al., 2021 (828)	Systematic review	7	Longitudinal observational	Not reported	All adults (18y+)	2,349,834	-	Weight status	Cancer, mortality from any of the listed diseases

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Llewellyn et al., 2016 (829)	Systematic review	26	Longitudinal observational	Scotland, Australia, England, Wales, China, US, Denmark, India, Finland, Israel, UK, Norway	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	Not reported	-	Weight status	CVD, T2DM, cancer
Lotta et al., 2015 (830)	Systematic review	14	Longitudinal observational	US, Sweden, Iran, Republic of Korea, Italy, Australia, Spain, UK, Japan, Israel	Young and middle-aged adults (18-<65y), all adults (18y+)	140,845	-	Weight status	T2DM
Lungu et al., 2016 (831)	Systematic review	22	Longitudinal observational	Europe, US, Canada, Australia	Older adults (65y+)	12,660	Primary unilateral total hip arthroplasty (THA) for hip osteoarthritis (OA)	Weight status	Musculoskeletal conditions
Ma et al., 2013 (832)	Systematic review	43	Longitudinal observational	UK, Singapore, Japan, Israel, Netherlands, US, Australia, Sweden, Finland, Austria, Republic of Korea, Norway, Canada	All adults (18y+)	8,115,653	-	Weight status	Cancer
Ma et al., 2015 (833)	Systematic review	32	Longitudinal observational	Not reported	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y), young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	12,620,676	-	Weight status	Cancer
Majumder et al., 2016 (834)	Systematic review	13	Longitudinal observational	US, UK, Asia	All adults (18y+)	6,869,474	-	Weight status	Cancer, mortality from any of the listed diseases

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Mandic et al., 2023 (835)	Umbrella review of reviews	18	Systematic reviews, meta-analyses	Not reported	All adults (18y+)	Not reported	-	Weight status	Cancer
Mann et al., 2019 (836)	Systematic review	21	RCTs	US, Italy, China, Turkey, Iran, Poland, Canada	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	1,307	NAFLD	Weight loss, Weight status	NAFLD
McPhee et al., 2019 (837)	Systematic review	19	Cross-sectional, longitudinal observational	UK, US, France, Canada, Australia, Ireland, Netherlands, Republic of Korea	All adults (18y+)	Not reported	Cerebral palsy	Weight status	CVD
Merlotti et al., 2014 (838)	Systematic review	18	RCTs, NRCTs	Not reported	All adults (18y+)	43,669	-	Weight loss	T2DM
Merlotti et al., 2014 (839)	Systematic review	71	RCTs, NRCTs	Not reported	All adults (18y+)	490,813	-	Weight loss, Weight status	T2DM
Milone et al., 2016 (840)	Systematic review	8	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	589	Infertility	Weight loss	Reproductive health
Mirzababaei et al., 2019 (841)	Systematic review	21	Longitudinal observational	US, Canada, Sweden, Iran, Australia, UK, Denmark, China, Israel, Republic of Korea, Greece, Norway, Spain	All adults (18y+)	778,401	-	Weight status	CVD
Moghaddasifar et al., 2016 (842)	Systematic review	23	Cross-sectional	Iran	Children (2y to <12y), all children (2-<18y), young and middle-aged adults (18-<65y), all adults (18y+)	25,865	-	Weight status	NAFLD
Mohammadian Khonsari et al., 2023 (843)	Systematic review	42	Longitudinal observational	Denmark, Sweden, Norway, UK, Finland, Israel, US, Australia	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	Not reported	-	Weight status	Cancer

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Mongraw-Chaffin et al., 2015 (844)	Systematic review	32	Longitudinal observational	US, Norway, Netherlands, Denmark, UK, Fiji, Finland, Japan, Sweden, Germany, Scotland, Iceland, Spain, Australia	Adolescents (12y to <18y), all adults (18y+)	1,219,187	-	Weight status	CVD
Moran et al., 2013 (845)	Systematic review	5	RCTs, NRCTs	US, Australia	All adults (18y+)	137	PCOS	Weight loss	Reproductive health
Namazi et al., 2019 (846)	Systematic review	12	Longitudinal observational	UK, US, Sweden, Denmark, Australia, Sweden, Iran, Malaysia, Brazil, Uruguay	All adults (18y+)	245,722	-	Weight status	Cancer
Namiranian et al., 2014 (847)	Systematic review	30	Longitudinal observational	Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Qatar, Syria, Sudan, Somalia, Saudi Arabia, Tunisia, United Arab Emirates, Yemen, Iran, Iraq, Bahrain, Israel, Afghanistan, Palestine, Jordan, Djibouti, Egypt	All adults (18y+)	44,909	-	Weight status	Cancer
Natamba et al., 2019 (848)	Systematic review	33	Cross-sectional, longitudinal observational	South Africa, Nigeria, Tanzania, Ethiopia, Democratic Republic of Congo, Cameroon, Djibouti, Ghana, Rwanda, Kenya, Uganda, Zimbabwe	All adults (18y+)	31,821	-	Weight status	T2DM, reproductive health
Noubiap et al., 2017 (849)	Systematic review	51	Cross-sectional, longitudinal observational	Algeria, Angola, Congo, Côte D'Ivore, Democratic Republic of Congo, Egypt, Morocco, Nigeria, Senegal, Seychelles, South Africa, Tunisia, Uganda	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	54,196	-	Weight status	Blood pressure indicators
Nucci et al., 2021 (850)	Systematic review	106	Cross-sectional, longitudinal observational	Canada, China, Czech Republic, Norway, Germany, Greece, Ireland, Netherlands, Romania, Russia, Sweden, UK, US, France, Spain, Australia, Poland, North America, Italy	All adults (18y+)	16,497,140	-	Weight status	Cancer

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Opio et al., 2020 (851)	Systematic review	23	Longitudinal observational	Australia, Sweden, US, Italy, UK, Netherlands, Denmark, Iran, Republic of Korea, Canada, France, Germany, Greece, Norway, Spain, China, Israel	All adults (18y+)	4,492,723	-	Weight status	CVD
O'Sullivan et al., 2022 (852)	Systematic review	20	Cross-sectional, longitudinal observational	US, Israel, Italy, Switzerland, Denmark	Young and middle-aged adults (18-<65y)	47,692	-	Weight status	Cancer
Pack et al., 2014 (853)	Systematic review	14	Longitudinal observational	US, Europe, Republic of Korea	All adults (18y+)	35,335	Coronary artery disease (CAD)	Weight loss	CVD
Pang et al., 2015 (854)	Systematic review	20	Cross-sectional, longitudinal observational	Israel, Republic of Korea, Taiwan, Japan, India, Sri Lanka, China, Germany, US, Iran, Malaysia	Older adults (65y+), all adults (18y+)	45,757	-	Weight status	NAFLD
Panunzi et al., 2021 (855)	Systematic review	30	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	2,356	NASH	Weight loss	NAFLD
Papavasileiou et al., 2023 (856)	Systematic review	30	Cross-sectional, longitudinal observational, mendelian randomisation studies	Not reported	All adults (18y+)	155,209,641	-	Weight status	Cancer
Parekh et al., 2012 (857)	Systematic review	47	RCTs, longitudinal observational	US, Austria, Norway, Canada, France, Australia, China, Italy, Republic of Korea, Sweden, Denmark, UK, Netherlands	All adults (18y+)	146,466	Breast Cancer	Weight status	Cancer, mortality from any of the listed diseases

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Park et al., 2012 (858)	Systematic review	39	Longitudinal observational	Scotland, UK, US, Finland, Sweden, Netherlands, Israel	Infants (12 months to <2y), children (2y to <12y), adolescents (12y to <18y), all children (2-<18y), all adults (18y+)	2,279,007	-	Weight status	CVD, T2DM
Paulis et al., 2014 (859)	Systematic review	40	Cross-sectional, longitudinal observational	US, Belgium, Australia, Sweden, Brazil, Canada, New Zealand, Denmark, Netherlands, Greece, Israel, Iran, Norway, Italy, Finland, France, China	Infants (12 months to <2y), all children (2-<18y)	1,109,290	-	Weight status	Musculoskeletal conditions
Peiris et al., 2021 (860)	Systematic review	56	Cross-sectional, longitudinal observational	Japan, Egypt, India, Australia, Brazil, Nigeria, Finland, US, Netherlands, Mexico, Sweden, Greece, Slovenia, UK, Norway, Republic of Korea, Turkey, China	All adults (18y+)	Not reported	-	Weight status	Musculoskeletal conditions
Peterson et al., 2012 (861)	Systematic review	37	Longitudinal observational, meta-analysis, pooled analysis	Australia, Europe, France, China, Japan, Asia-Pacific, US, New Caledonia	All adults (18y+)	Not reported	-	Weight status	Cancer
Pierobon & Frankenfeld, 2013 (862)	Systematic review	11	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	184,262	-	Weight status	Cancer
Poorolajal & Jenabi, 2016 (863)	Systematic review	9	Cross-sectional, longitudinal observational	UK, Italy, US, Mexico, Czech, Thailand, Australia	Adolescents (12y to <18y), young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	128,233	-	Weight status	Cancer

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Poorolajal et al., 2014 (864)	Systematic review	19	Longitudinal observational	US, France, Australia, Norway, Japan, Europe, Netherland, Sweden	All adults (18y+)	29,334,184	-	Weight status	Cancer
Poorolajal et al., 2021 (865)	Systematic review	197	Longitudinal observational	US, UK, Norway, Iran, Denmark, Australia, Europe, Sweden, Norway, Austria, Italy, Israel, Singapore, Canada, Taiwan, France, China, Columbia, Japan, Thailand, Republic of Korea, Brazil, Turkey, Netherlands, Finland, Iceland, Vietnam	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	19,413,702	-	Weight status	Cancer
Pourghazi et al., 2023 (866)	Systematic review	7	Longitudinal observational	Sweden, US, Australia, Finland, Denmark	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y), young and middle-aged adults (18-<65y), all adults (18y+)	498,980	-	Weight status	Reproductive health
Pozzobon et al., 2018 (867)	Systematic review	62	Longitudinal observational	Australia, Canada, China, Denmark, England, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Scotland, Republic of Korea, Spain, Switzerland, UK, US	All adults (18y+)	Not reported	Knee or Hip OA	Weight status	Musculoskeletal conditions
Psaltopoulou et al., 2019 (868)	Systematic review	44	Longitudinal observational	US, Europe, Asia, Australia	All adults (18y+)	Not reported	-	Weight status	Cancer
Qin et al., 2013 (869)	Systematic review	11	Longitudinal observational	Norway, Austria, Sweden, US, Republic of Korea, UK	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	14,689,202	-	Weight status	Cancer

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Riaz et al., 2018 (870)	Systematic review	7	Mendelian randomisation studies	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	881,692	-	Weight status	CVD, T2DM
Ricci et al., 2015 (871)	Systematic review	22	RCTs, longitudinal observational	Switzerland, US, Italy, Greece, Spain, Luxembourg, Chile, Australia, Brazil, Netherlands, India, France	Young and middle-aged adults (18-<65y), all adults (18y+)	4,160	-	Weight loss	T2DM
Rittenberg et al., 2011 (872)	Systematic review	33	Cross-sectional, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	47,967	-	Weight status	Reproductive health
Robsahm et al., 2013 (873)	Systematic review	30	Longitudinal observational	US, Japan, Sweden, Australia, Canada	All adults (18y+)	3,832,855	-	Weight status	Cancer
Romero et al., 2017 (874)	Systematic review	13	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	15,906	-	Weight status	Musculoskeletal conditions
Rui et al., 2012 (875)	Systematic review	8	Longitudinal observational	Japan, Austria, Republic of Korea, Taiwan, US, France, Sweden	Young and middle-aged adults (18-<65y), all adults (18y+)	1,779,471	-	Weight status	Cancer
Sadeghi et al., 2018 (876)	Systematic review	17	Longitudinal observational	UK, US, Norway, Israel, Republic of Korea, Iceland, Ukraine, New Zealand	All adults (18y+)	10,201,632	-	Weight status	Cancer
Safaei et al., 2021 (877)	Systematic review	110	Cross-sectional, longitudinal observational	Not reported	All adults (18y+)	Not reported	-	Weight status	CVD, T2DM

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Salas-Huetos et al., 2021 (878)	Systematic review	60	Cross-sectional, longitudinal observational	Argentina, Australia, Austria, Brazil, China, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia, Germany, Hungary, Iceland, India, Iran, Italy, Netherlands, New Zealand, Nigeria, Norway, Pakistan, Saudi Arabia, Sweden, Taiwan, Tunisia, Turkey, UK, US	Adolescents (12y to <18y), young and middle-aged adults (18-<65y), all adults (18y+)	87,406	-	Weight status	Reproductive health
Sanders et al., 2015 (879)	Systematic review	47	Cross-sectional, longitudinal observational	Australia	Infants (12 months to <2y), children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	Not reported	-	Weight status	NAFLD, mental health, health-related quality-of-life ratings, blood pressure indicators, blood glucose level, blood lipid profile
Saunders et al., 2010 (880)	Systematic review	13	Longitudinal observational	US, Taiwan, Republic of Korea, Japan, Sweden, UK, Austria, Denmark, Canada, Italy	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	>7million	-	Weight status	Cancer
Schmid et al., 2015 (881)	Systematic review	21	Longitudinal observational	US, UK, Norway, Israel, Republic of Korea, Austria, Europe, Sweden, Iceland, French Polynesia, New Caledonia, Japan, China, Italy, Switzerland, Greece, Germany	All adults (18y+)	12,622,525	-	Weight status	Cancer

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Seo et al., 2017 (882)	Systematic review	23	Longitudinal observational	US, Brazil, Finland, UK, Germany, Japan, France	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	259,200	-	Weight status	T2DM
Sergentanis et al., 2013 (883)	Systematic review	21	Longitudinal observational	Australia, Canada, US, Italy, Greece, Denmark, Sweden, UK, Norway, Austria	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	6,379,473	-	Weight status	Cancer
Sergentanis et al., 2015 (884)	Systematic review	22	Longitudinal observational	Sweden, US, Puerto Rico, Columbia, Republic of Korea, UK, Australia, Asia, New Zealand, Canada, Europe	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	10,156,370	-	Weight status	Cancer
Sermondade et al., 2013 (885)	Systematic review	21	Cross-sectional, longitudinal observational	Australia, Saudi Arabia, China, Brazil, Argentina, US, Denmark, Hungary, Iceland, Italy, Netherlands, UK, Slovenia, France	Young and middle-aged adults (18-<65y), all adults (18y+)	13,077	-	Weight status	Reproductive health
Shalimar et al., 2022 (886)	Systematic review	50	Cross-sectional, longitudinal observational	India	All children (2-<18y)	26,484	-	Weight status	NAFLD
Shanmugalingam et al., 2014 (887)	Umbrella review of reviews	32	Meta-analyses	Norway, US, UK, Saudi Arabia, Thailand, Spain, Mexico, Turkey	All adults (18y+)	Not reported	-	Weight status	Cancer
Sharma et al., 2019 (888)	Systematic review	52	Cross-sectional, longitudinal observational	Iran, US, Brazil, Italy, Israel, Taiwan, Mexico, China, Jordan, Portugal, Greece, Croatia, Turkey, India, Thailand, Germany, Austria, United Arab Emirates, Australia	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	1,553,683	-	Weight status	NAFLD, blood pressure indicators, blood glucose level, blood lipid profile

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Shi et al., 2021 (889)	Umbrella review of reviews	31	Systematic reviews	Europe, Asia, North America	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	Cancer
Si et al., 2015 (890)	Systematic review	28	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	20,988	Primary total knee arthroplasty (TKA)	Weight status	Musculoskeletal conditions
Singh et al., 2013 (891)	Systematic review	40	Cross-sectional, longitudinal observational	Japan, Republic of Korea, Taiwan, Poland, Ireland, China, US, Australia	All adults (18y+)	324,319	-	Weight status	Cancer
Sohn et al., 2021 (892)	Systematic review	28	Longitudinal observational	US, UK, Japan, Austria, Taiwan, Scotland, China, Europe, Sweden, Republic of Korea, France	All adults (18y+)	8,135,906	-	Weight status	Cancer, mortality from any of the listed diseases
Soltani et al., 2021 (893)	Systematic review	13	Longitudinal observational	US, Sweden, China, Japan, UK, Republic of Korea, Netherlands	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	3,345,031	T2DM	Weight status	T2DM, cancer
Sommer & Twig, 2018 (894)	Systematic review	85	Longitudinal observational	Not reported	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	Not reported	-	Weight status	CVD, T2DM, mortality from any of the listed diseases
Sookoian & Pirola, 2018 (895)	Systematic review	8	Cross-sectional, longitudinal observational	Turkey, India, Italy, Japan, China (Hong Kong), Greece, Argentina	All adults (18y+)	2,702	NAFLD	Weight status	NAFLD
Sun et al., 2015 (896)	Systematic review	15	Longitudinal observational	Sweden, US, Japan, Norway, Austria, UK, Republic of Korea, Finland	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	14,201,500	-	Weight status	Cancer

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Sun et al., 2020 (897)	Systematic review	22	Longitudinal observational	China, US, Japan, Turkey, Australia	Young and middle-aged adults (18-<65y), all adults (18y+)	11,182	PCOS	Weight status	Reproductive health
Sutaria et al., 2019 (898)	Systematic review	22	Cross-sectional, longitudinal observational	US, Finland, England, Australia, Scotland, Norway, Iran, Netherlands, Taiwan	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	143,603	-	Weight status	Mental health
Tajik et al., 2019 (899)	Systematic review	19	Longitudinal observational	US, Sweden, Iran, Republic of Korea, Taiwan, Italy, Australia, Spain, Japan, Israel, UK, China	All adults (18y+)	199,403	-	Weight status	T2DM
Tan et al., 2015 (900)	Systematic review	20	Longitudinal observational	Mexico, Bolivia, Australia, Canada, Netherlands, Poland, Chile, Czech Republic, China, UK, Hungary, Pakistan, Denmark, Sweden, US, Norway, Japan, Republic of Korea	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	44,604	-	Weight status	Cancer
Tanaka et al., 2012 (901)	Systematic review	12	Longitudinal observational	Japan	All adults (18y+)	Not reported	-	Weight status	Cancer
Tian et al., 2020 (902)	Systematic review	25	Longitudinal observational	Japan, Republic of Korea, US, UK, Australia, Sweden, Austria, Norway, Netherlands, Israel, Canada	All adults (18y+)	11,970,722	-	Weight status	Cancer
Turati et al., 2013 (903)	Systematic review	22	Longitudinal observational	US, China, Sweden, UK, Germany, Taiwan, Ireland, Canada, Australia, Netherlands	All adults (18y+)	Not reported	-	Weight status	Cancer
Tzelves et al., 2021 (904)	Systematic review	27	Longitudinal observational	Australia, US, Canada, Europe, East Asia	All adults (18y+)	49,647,098	-	Weight status	Cancer
Tzenios et al., 2022 (905)	Systematic review	23	Longitudinal observational	US, Sweden, Germany, UK, Republic of Korea, Denmark, Italy, Australia, Netherlands, Norway	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	2,702,312	-	Weight status	Cancer

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Ul-Haq et al., 2013 (906)	Systematic review	8	Cross-sectional	US, Australia, Germany, Canada, Sweden, England	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	43,086	-	Weight status	Health-related quality-of-life ratings
van Tilburg & Rathsach Andersen, 2022 (907)	Systematic review	12	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	TKA	Weight status	Musculoskeletal conditions
Vingeliene et al., 2017 (908)	Systematic review	57	Longitudinal observational	US, China, Colombia, Puerto Rico, UK, Japan, Republic of Korea, Norway, Netherlands, Sweden	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	Not reported	-	Weight status	Cancer
Vitaloni et al., 2019 (909)	Systematic review	62	RCTs, Cross-sectional, longitudinal observational	Turkey, Australia, US, Republic of Korea, Japan, Israel, Brazil, Finland, Germany, Spain, Italy, Venezuela, China, UK, France	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	24,706	Knee OA	Weight status	Health-related quality-of-life ratings
Wallin & Larsson, 2011 (910)	Systematic review	19	Longitudinal observational	US, Australia, Republic of Korea, Norway, Sweden, UK, Netherlands, Finland, Japan	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	7,154,881	-	Weight status	Cancer, mortality from any of the listed diseases
Wang et al., 2015 (911)	Systematic review	89	Longitudinal observational	Not reported	All adults (18y+)	1,300,794	CAD	Weight status	CVD, mortality from any of the listed diseases
Wang et al., 2016 (912)	Systematic review	195	Longitudinal observational	Europe, Australia, North America, Asia-Pacific	All adults (18y+)	406,377,291	-	Weight status	Cancer
Wang et al., 2020 (913)	Systematic review	11	RCTs, longitudinal observational	China, Europe, Japan, US, Spain	Older adults (65y+), all adults (18y+)	54,685	Atrial fibrillation	Weight status	CVD, mortality from any of the listed diseases

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Wang et al., 2021 (914)	Systematic review	15	Cross-sectional, longitudinal observational	Spain, Argentina, Sweden, Norway, Greenland, Egypt, Italy, Russia, South Africa, Brazil, China, Denmark, US, Estonia	All adults (18y+)	6,362	-	Weight status	Reproductive health
Wise et al., 2016 (915)	Systematic review	9	Longitudinal observational	Sweden, US, Japan, Italy, China	All adults (18y+)	6,207	-	Weight status	Cancer
Wu et al., 2018 (916)	Systematic review	15	Longitudinal observational	Chile, Greece, Mexico, US, Brazil, India, China, UK, Poland, Serbia, Australia, Republic of Korea	All adults (18y+)	5,164	-	Weight status	NAFLD
Wu et al., 2020 (917)	Systematic review	167	Cross-sectional, longitudinal observational	China	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	1,486,635	-	Weight status	NAFLD
Xia et al., 2014 (918)	Systematic review	25	Longitudinal observational	Netherlands, US, Sweden, Norway, Denmark, China, France, Republic of Korea, North America, Japan	All adults (18y+)	1,155,110	-	Weight status	Cancer
Xue et al., 2021 (919)	Systematic review	31	Longitudinal observational	US, Australia, Finland, Ireland, Scotland, Spain, China, UK, Sweeden	All adults (18y+)	669,560	-	Weight status	CVD
Yan et al., 2014 (920)	Systematic review	8	Longitudinal observational	US, Brazil, Republic of Korea, Spain	All adults (18y+)	1,274	T2DM	Weight loss	T2DM
Yan et al., 2023 (921)	Systematic review	69	Longitudinal observational	Not reported	All adults (18y+)	>30 million	Primary Liver Cancer	Weight status	Cancer
Yang et al., 2011 (922)	Systematic review	10	Longitudinal observational	US, Australia, China, Denmark, Germany, Sweden	All adults (18y+)	4,614	Epithelial Ovarian Cancer	Weight status	Cancer, mortality from any of the listed diseases
Yang et al., 2020 (923)	Systematic review	37	Longitudinal observational	Republic of Korea, Sweden, China, US, Europe, France, Japan, UK, Australia, Denmark	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	12,892,304	-	Weight status	Cancer, mortality from any of the listed diseases

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Yang et al., 2022 (924)	Systematic review	16	Longitudinal observational	UK, US, Turkey, Canada, Belgium, China	All adults (18y+), pregnant women	11,314	PCOS	Weight status	Reproductive health
Yang et al., 2023 (925)	Systematic review	20	Longitudinal observational	UK, Japan, Republic of Korea, Italy, Switzerland, Taiwan, US	All adults (18y+)	3,088,440	-	Weight status	Cancer, mortality from any of the listed diseases
Yeh et al., 2019 (926)	Systematic review	43	Longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), older adults (65y+), all adults (18y+)	4,822,205	-	Weight status	CVD
Youssef et al., 2021 (927)	Systematic review	31	Longitudinal observational	China, Republic of Korea, US, Israel, Italy, Germany, Europe, France, Japan, Norway	All adults (18y+)	24,489,477	-	Weight status	Cancer
Yu et al., 2022 (928)	Systematic review	84	Longitudinal observational	Australia, Sweden, Bangladesh, US, China, Singapore, Republic of Korea, Canada, German, Japan, Spain, Iran, Denmark, Finland, Thailand, Netherlands, Norway, Israel, India, UK	All adults (18y+)	2,690,000	-	Weight status	T2DM
Yu et al., 2023 (929)	Systematic review	94	Longitudinal observational	Australia, Sweden, Bangladesh, Norway, US, China, Singapore, Republic of Korea, France, Germany, Japan, Spain, Iran, Finland, Denmark, Thailand, UK, Canada, India	Young and middle-aged adults (18-<65y), all adults (18y+)	3,400,000	-	Weight status	T2DM
Yuan et al., 2022 (930)	Systematic review	89	Longitudinal observational	Not reported	All adults (18y+)	1,984,552	-	Weight status	CVD

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Zahedi et al., 2020 (931)	Systematic review	80	Cross-sectional, international reports, cancer registry	Jordan, Qatar, Morocco, Pakistan, Egypt, Iran, Tunisia, Lebanon, Oman, Kuwait, Libya, Saudi Arabia, United Arab Emirates, Bahrain, Yemen, Azerbaijan, Iraq, Afghanistan, Sudan, Djibouti, Somalia, Syria	All adults (18y+)	1,283,152,555	-	Weight status	Cancer
Zhang et al., 2014 (932)	Systematic review	18	Longitudinal observational	Sweden, UK, US, Canada, Netherlands, China, Japan, Puerto Rice, Italy	All adults (18y+)	1,506,881	-	Weight status	Cancer
Zhang et al., 2021 (933)	Systematic review	84	Longitudinal observational	UK, US, Sweden, Japan, Israel, Norway, Australia, New Zealand, China, Europe, Austria, Republic of Korea, Iceland, Finland, Denmark, Singapore, Netherlands, Scotland	Adolescents (12y to <18y), young and middle-aged adults (18-<65y), all adults (18y+)	52,348,827	-	Weight status	Cancer
Zhang et al., 2023 (934)	Systematic review	17	Longitudinal observational	China, Japan, Republic of Korea, Norway, Iran, US	Young and middle-aged adults (18-<65y), all adults (18y+)	8,269,123	-	Weight loss, Weight maintenance, Weight status	CVD, T2DM
Zhang et al., 2023 (935)	Systematic review	61	Cross-sectional, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Weight status	Cancer
Zhao et al., 2017 (936)	Systematic review	14	Longitudinal observational	Denmark, Sweden, Germany, Netherlands, UK, France, Italy, Spain, Greece, China, Austria, Sweden, Republic of Korea	All adults (18y+)	12,642	-	Weight status	Cancer
Zhao et al., 2021 (937)	Systematic review	21	Longitudinal observational	US, Poland, Italy, UK, Sweden, Ukraine, Singapore, China, Republic of Korea	All adults (18y+)	1,394,075	T2DM	Weight status	CVD, mortality from any of the listed diseases
Zheng et al., 2016 (938)	Systematic review	22	Longitudinal observational	Asia, Europe, North America	All adults (18y+)	584,799	-	Weight status	CVD

Author, Year	Review type	No. of studies/ reviews included	Individual study designs	Countries or regions of studies in included reviews	Populations of interest	No. of individual participants	Reported pre-existing conditions	Intervention(s)	Outcome(s)
Zhong et al., 2016 (939)	Systematic review	37	Longitudinal observational	US, Sweden, Switzerland, Republic of Korea, Asia-Pacific, Europe, Netherlands, Australia, Sweden, Austria, Germany, France, Belgium, Asia, Saudi Arabia, Denmark	All adults (18y+)	2,738,000	Prostate cancer	Weight status	Cancer, mortality from any of the listed diseases
Zou et al., 2022 (940)	Systematic review	31	Cross-sectional, longitudinal observational	India, China, Israel, Iran, Taiwan, Turkey, Republic of Korea, Japan, China (Hong Kong)	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	Not reported	-	Weight status	NAFLD

CAD, Coronary artery disease; CVD, Cardiovascular disease; NAFLD, Non-alcoholic fatty liver disease; NRCTs, Non-randomised control trials; OA, Osteoarthritis; PAD, Peripheral artery disease; PCOS; Polycystic ovary syndrome; RCTs, Randomised control trials; T2DM, Type 2 diabetes mellitus; THA, Total hip arthroplasty; and TKA, Total knee arthroplasty.

The number of reviews identified, stratified by population, interventions (randomised controlled trials reporting on weight loss or weight maintenance, or prospective cohort studies reporting on weight status), and disease outcomes is presented in Table B5.

Of n=226 included reviews (715-940), n=18 reported on findings from randomised controlled trials that explored disease outcomes associated with weight loss in people living with overweight or obesity. A further three reviews reported on randomised controlled trials aimed at examining disease outcomes resultant of weight maintenance in people living with overweight or obesity. Lastly, the vast majority (n=214) of included reviews examined differences in weight status (overweight or obesity versus healthy weight) and associations with disease outcomes of interest (noting that study numbers do not add to n=226 as there was overlap within reviews).

Most reviews of randomised controlled trials aimed at reducing weight were in young and middle-aged adults experiencing overweight or obesity (n=17). Reported disease outcomes included (in order of frequency) incidence of cardiovascular disease, Type 2 diabetes mellitus, cancer, NAFLD, reproductive health, mortality, and health-related quality-of-life ratings. No reviews reported on results from randomised controlled trials that focussed on older adults. Two reviews of weight-loss RCTs in adolescents (aged 12 to <18y) living with overweight or obesity reported on NAFLD, blood pressure indicators, or blood lipid profile. No reviews of randomised controlled trials were identified in children aged 2 to <12y.

Very few reviews (n=3) examined disease outcomes associated with weight maintenance in children (2 to <18y) or young and middle-aged adults (18 to <65y). The disease outcomes described in these reviews included cardiovascular disease, Type 2 diabetes mellitus, and mental health.

Reviews examining disease outcomes associated with weight status (overweight or obesity versus healthy weight) included cohort studies of the following populations (in order of frequency): young and middle-aged adults (n=105), older adults (≥65y; n=72 reviews), all adults (≥18y, i.e. the review reported findings pooling young and middle-aged adults, and older adults together; n=80 reviews), adolescents (n=19), children (n=16), and all children/ adolescents (2 to <18y, i.e. the review reported pooled analyses for children and adolescents together; n=2 reviews). Reviews of prospective cohort studies reported on most, if not all, disease outcomes of interest in each population age group (see Table B5 for further details).

Only one review reported on studies involving people with disability, and no reviews reported on studies that focussed on other subgroup populations of interest (i.e. Aboriginal and Torres Strait Islander people, culturally and linguistically diverse Australians, people with a mental health condition, or people with an eating disorder).

Table B5: Number of systematic reviews by intervention type and disease outcome in prospective cohort studies*

Population	Blood pressure indicators	Blood lipid profile	Cardiovascular disease	Blood glucose level	Type 2 diabetes mellitus	Non-alcoholic fatty liver disease	Musculo skeletal conditions	Cancer	Mortality	Mental health	Health-related quality of life ratings	Reproductive health
Weight loss interventions (n=18 reviews)												
All children (2 to <18y)†	-	-	-	-	-	-	-	-	-	-	-	-
Children (2 to <12y)	-	-	-	-	-	-	-	-	-	-	-	-
Adolescents (12 to <18y)	1	1	-	-	-	1	-	-	-	-	-	-
All adults (≥18y)	-	-	1	-	3	1	-	-	-	-	-	1
Young and middle-aged adults (18 to <65y)‡	-	-	3	-	3	2	-	-	1	-	1	1
Older adults (≥65y)	-	-	-	-	-	-	-	-	-	-	-	-
Aboriginal and Torres Strait Islander people	-	-	-	-	-	-	-	-	-	-	-	-
Culturally and linguistically diverse Australians	-	-	-	-	-	-	-	-	-	-	-	-
People with disability	-	-	-	-	-	-	-	-	-	-	-	-
People with a mental health condition	-	-	-	-	-	-	-	-	-	-	-	-
People with an eating disorder	-	-	-	-	-	-	-	-	-	-	-	-
Weight maintenance interventions (n=3 reviews)												
All children (2 to <18y)†	-	-	-	-	-	-	-	-	-	1	-	-
Children (2 to <12y)	-	-	-	-	-	-	-	-	-	-	-	-
Adolescents (12 to <18y)	-	-	-	-	-	-	-	-	-	-	-	-
All adults (≥18y)‡	-	-	-	-	-	-	-	-	-	-	-	-
Young and middle-aged adults (18 to <65y)	-	-	1	-	1	-	-	-	-	-	-	-
Older adults (≥65y)	-	-	-	-	-	-	-	-	-	-	-	-
Aboriginal and Torres Strait Islander people	-	-	-	-	-	-	-	-	-	-	-	-
Culturally and linguistically diverse Australians	-	-	-	-	-	-	-	-	-	-	-	-
People with disability	-	-	-	-	-	-	-	-	-	-	-	-
People with a mental health condition	-	-	-	-	-	-	-	-	-	-	-	-
People with an eating disorder	-	-	-	-	-	-	-	-	-	-	-	-
Weight status as reported in prospective cohort studies (n=214 reviews)												
All children (2 to <18y)†	-	-	3	-	2	2	1	3	-	1	-	1
Children (2 to <12y)	5	3	1	3	1	4	-	2	2	2	1	-
Adolescents (12 to <18y)	7	5	1	3	1	4	-	2	4	2	2	-
All adults (≥18y)‡	-	-	11	-	5	5	2	51	10	3	1	1

Population	Blood pressure indicators	Blood lipid profile	Cardiovascular disease	Blood glucose level	Type 2 diabetes mellitus	Non-alcoholic fatty liver disease	Musculo skeletal conditions	Cancer	Mortality	Mental health	Health-related quality of life ratings	Reproductive health
Young and middle-aged adults (18 to <65y)	-	-	13	-	16	3	3	61	15	-	2	6
Older adults (≥65y)	-	-	9	-	7	-	4	50	14	-	1	-
Aboriginal and Torres Strait Islander people	-	-	-	-	-	-	-	-	-	-	-	-
Culturally and linguistically diverse Australians	-	-	-	-	-	-	-	-	-	-	-	-
People with disability	-	-	1	-	-	-	-	-	-	-	-	-
People with a mental health condition	-	-	-	-	-	-	-	-	-	-	-	-
People with an eating disorder	-	-	-	-	-	-	-	-	-	-	-	-

* One review may have reported on multiple populations, interventions, and outcomes; also, only statistically significant findings were extracted from included studies, therefore number of studies may not add up to n=226.

† Participants not stratified by children (2 to <12y) and adolescents (12 to <18y)

‡ Participants not stratified by young and middle-aged adults (18 to <65y) and older adults (≥65y)

- No studies were identified.

Children and Adolescents (5 to <18y)

Reviews of prospective cohort studies and randomised controlled trials showed overweight and obesity were associated with elevated disease biomarkers of blood pressure, blood glucose, and blood lipid profile, and non-alcoholic fatty liver disease; and poorer psychological outcomes (e.g. low self-esteem, increased depression, and poorer health-related quality of life) among children and adolescents. Having overweight or obesity during these early life stages also increased risk of morbidity and mortality in adulthood from a range of diseases including poorer reproductive health, cardiovascular disease, Type 2 diabetes mellitus, musculoskeletal conditions (e.g. pain, injuries, fractures), and cancer. Further details are presented below.

Blood pressure indicators

Prevalence of prehypertension (888), hypertension, and elevated blood pressure (753, 771, 822, 849, 879, 888) were significantly higher in children and adolescents with overweight or obesity, compared to those with a healthy weight. A systematic review of behavioural interventions aimed at treating overweight or obesity in children (5 to <12y) and adolescents (12 to <18y) demonstrated a reduction in mean BMI-SDS significantly improved systolic blood pressure (764). Reviews of longitudinal cohort studies demonstrated that experiencing overweight or obesity during childhood and adolescence was associated with an increased adulthood risk of developing hypertension (829, 894).

Blood lipid profile

Prevalence of dyslipidaemia was greater in children and adolescents living with obesity when compared to those with a healthy weight. Blood triglyceride concentrations, low-density lipoprotein cholesterol, and total cholesterol were all shown to be higher in children with overweight or obesity than those in children with a healthy weight; conversely, high-density lipoprotein cholesterol was lower in children living with overweight or obesity (771, 822, 879, 888). Adolescents living with overweight or obesity who took part in weight loss randomised controlled trials had increased high-density lipoprotein cholesterol after the intervention (764).

Cardiovascular disease

Reviews of longitudinal cohort studies showed that childhood and adolescent overweight or obesity was associated with an increased adulthood risk of morbidity (829, 858) and mortality (858, 894) from coronary heart disease. Men who had experienced overweight during adolescence also had higher mortality from coronary heart disease and stroke in adulthood (894).

Blood glucose level

Elevated fasting plasma glucose was more prevalent among children and adolescents experiencing overweight or obesity compared to those with healthy weight (771, 879, 888). When compared with children and adolescents of a healthy weight, insulin and insulin resistance levels were significantly greater among children and adolescents with obesity (771, 879).

Type 2 diabetes mellitus

Reviews of longitudinal cohort studies demonstrated that experiencing overweight or obesity during childhood and adolescence was associated with an increased adulthood risk of developing Type 2 diabetes mellitus (829, 858, 894).

Non-alcoholic fatty liver disease

Reviews of prospective cohort studies increased biomarker indicators of non-alcoholic fatty liver disease (879) and risk of developing non-alcoholic fatty liver disease (723, 886, 888, 940) were prevalent among children and adolescents living with overweight or obesity. A systematic review examining randomised controlled trials that employed behavioural, nutrition, or pharmacological treatments for paediatric NAFLD in children and adolescents demonstrated that weight loss resulted in decreased biomarker indicators of non-alcoholic fatty liver disease (836).

Musculoskeletal conditions

Reviews of observational cohort studies that tracked incidence of poor health from childhood to adulthood demonstrated that children and adolescents with overweight were more likely to experience musculoskeletal pain, lower back pain, injuries, and fractures in adulthood when compared to those of a healthy weight (859).

Cancer

Reviews of observational cohort studies demonstrated that experiencing overweight or obesity during childhood and adolescence increased the risk of developing endometrial (736), and ovarian (736, 756) cancer during adulthood among women; and colorectal cancer (776) as an adult (men and women); with childhood obesity also associated with higher cancer mortality overall in adulthood (843).

Mental health

Reviews of observational studies showed that overweight and obesity in childhood and adolescence was associated with a greater risk of experiencing poorer psychological outcomes, including low self-esteem (879) and depression (777, 879) when compared to children and adolescents with a healthy weight. Reviews of observational cohort studies that tracked incidence of poor health from childhood to adulthood showed that children and adolescents experiencing obesity, particularly girls, had a significantly greater risk of developing depression, ongoing into adulthood, than children and adolescents with a healthy weight (898). Similarly, increasing weight gain from childhood to adulthood was associated with a higher risk of depression, especially in women (774).

Health-related quality of life ratings

Reviews of observational studies showed that living with overweight or obesity increased the risk of poorer health-related quality of life among children and adolescents (879). The risk of experiencing poorer health-related quality of life was also greater in adolescents with polycystic ovarian syndrome who were living with overweight or obesity compared with healthy-weight adolescents (792).

Reproductive health

Overweight and obesity during childhood and adolescence increased the risk of infertility in adulthood (866). Observational studies demonstrated that having obesity during adolescence was associated with having fewer children, nulliparity, and childlessness in adulthood (866). Childhood obesity led to greater risk of reproductive issues, such as menstrual/ovulatory problems and fertility problems in adult women, while men who had increased BMI during pre-puberty were more likely to have fewer sex-hormone binding globulin proteins (which can indirectly reduce fertility) than those who had healthy body weight during childhood (866).

Young and middle-aged adults (18 to <65y)

Reviews of prospective cohort studies showed that young and middle-aged adults experiencing overweight or obesity were more likely to have greater risk of morbidity and mortality from a range of diseases later in life than healthy weight young and middle-aged adults, including greater risk of depression, musculoskeletal conditions, poorer reproductive health, greater risk of non-alcoholic fatty liver disease, cardiovascular disease, and a range of cancers. Reviews of randomised controlled trials in young and middle-aged adults living with overweight or obesity reported that weight loss resulted in lower disease risk factors (blood pressure indicators, liver biomarkers) and improved health-related quality of life ratings, reproductive health, and lower risk of non-alcoholic fatty liver disease, Type 2 diabetes mellitus, and cardiovascular disease mortality.

Cardiovascular disease

Cardiovascular disease risk was elevated in young and middle-aged adults living with overweight or obesity, when compared to those of a healthy weight (767, 785, 799, 806, 841, 851, 877, 919, 926, 934, 937, 938). Cardiovascular disease mortality increased with increasing weight (732, 807, 911, 937). Reviews of cohort studies demonstrated that young to middle-aged adults living with overweight or obesity had an increased risk of stroke (782, 930), including ischemic stroke (782), and haemorrhagic stroke (782). Risk was also elevated for coronary artery disease (844, 870).

Women surviving breast cancer who experienced obesity had an elevated risk of mortality from cardiovascular disease or ‘other’ causes, compared to healthy weight survivors (744). Reviews reporting on prospective cohort and case-control studies also showed that women with peripheral artery disease and overweight or obesity had increased risk of coronary heart disease and mortality from cardiovascular disease when compared to healthy weight adults (751).

Reviews of randomised controlled trials aimed at reducing weight in young and middle-aged adults living with overweight or obesity demonstrated that with weight loss, participants’ risk of mortality from cardiovascular disease decreased (786, 795, 853, 934).

Blood glucose level

A review of behaviour-based randomised controlled trial interventions aimed at Type 2 diabetes mellitus prevention showed that weight loss in young and middle-aged adults with overweight or obesity was associated with a reduction in fasting blood glucose levels (773).

Type 2 diabetes mellitus

Incidence of Type 2 diabetes mellitus was greater in young and middle-aged adults living with overweight or obesity compared to those with a healthy body weight, as demonstrated in reviews of cohort studies (717, 722, 729, 733, 734, 750, 789, 793, 800, 801, 809, 814, 830, 870, 877, 899, 928, 929).
Reviews of randomised controlled trials demonstrated that weight loss in young and middle-aged adults (aged 18-<65y) living with overweight or obesity led to lower risk of Type 2 diabetes mellitus (773, 838, 839, 871, 920, 934).

Non-alcoholic fatty liver disease

Prevalence of non-alcoholic fatty liver disease increased with increasing body weight (787, 794, 854, 895, 916, 917).
Reviews of randomised controlled trials showed that weight loss in young and middle-aged adults (aged 18-<65y) living with overweight or obesity resulted in a reduction in non-alcoholic fatty liver disease, including presence of non-alcoholic steatohepatitis (804, 805, 855). Weight-loss interventions employing behavioural, pharmacological, or surgical treatments resulted in lowering of liver biomarkers, and improved liver activity score (804).

Musculoskeletal conditions

Observational studies demonstrated that young and middle-aged adults living with overweight or obesity experienced a greater incidence of lower back and knee pain compared to adults with a healthy weight (860). Young to middle-aged adults living with overweight or obesity had increased risk of musculoskeletal pain, disability, and complications post hip/knee arthroplasty versus their healthy-weight counterparts (867).

Cancer

When compared to healthy weight adults, those living with overweight and/or obesity had increased risk of morbidity and/or mortality from a range of cancers, including brain (749, 768), thyroid (749, 833, 861, 876, 881, 912, 927), and blood cancers such as; lympho-haematopoietic (716) and diffuse large B-cell lymphoma (742, 868), multiple myeloma (749, 808, 868, 910), Hodgkin and non-Hodgkin lymphoma (749, 868), and leukemia (758, 820) (obesity only (741)).

Gastrointestinal system cancer risk was also increased among young and middle-aged adults living with overweight or obesity, including oesophageal adenocarcinoma (743, 749, 758, 768, 808, 809, 850, 891, 902, 903, 908, 912), gastroesophageal (761, 887), gastric (728, 745, 749, 903, 912), and stomach (809) cancers; and liver (748, 749, 784, 808, 809, 828, 875, 880, 887, 892, 901, 912, 921, 923, 925), gallbladder (749, 758, 808, 809, 816, 826, 900), bile duct (815), pancreatic (726, 758, 808, 809, 813, 832, 887, 912), small intestinal (813), and colorectal (715, 746, 749, 755, 758-760, 768, 769, 781, 788, 796, 802, 808, 811, 812, 821, 832, 835, 852, 873, 887, 912, 933, 935) cancers. Overweight or obesity were also associated with greater risk of urinary cancers (kidney (719, 749, 758, 768, 779, 796, 808, 809, 827, 856, 887, 889, 912), and bladder (749, 809, 856, 869, 889, 896, 904, 936)).

In all adults (young and middle-aged adults, and older adults combined) risk of malignant melanoma (758) cancers, and total cancer risk was associated with increasing adiposity (893). Increased BMI in adulthood (≥18y) was protective against lung cancer (762, 768, 783), and pre-menopausal breast cancer (747, 768). In contrast, when waist circumference was used to indicate overweight or obesity, a positive association was found for increased central adiposity and lung cancer risk in adults (775). Having increased body weight (in young and middle-age and older adulthood combined) was also predictive of brain and central nervous system tumours, gliomas, and meningiomas (884).

Longitudinal observational studies demonstrated increased risk of morbidity or mortality from gender-specific cancers among women and men living with overweight or obesity. When compared to women with healthy weight, women living with overweight or obesity were more likely to develop ovarian cancer (727, 749, 770, 864, 887, 922) (premenopausal (765, 825, 912) or postmenopausal (796) ovarian cancer diagnosis). Women with overweight or obesity at the time of their ovarian cancer diagnosis had poorer survivability than women of a healthy body weight (730). Risk of other gynaecological cancers also increased, including endometrial (749, 758, 760, 766, 768, 790, 796, 808, 915, 932), uterine (809), and cervical cancers (749) (weak association with obesity (863)), as well as breast cancer (718, 721, 724, 754, 758, 760, 796, 798, 819, 846, 847, 857, 862, 863, 887, 893, 912, 918, 931). There was a greater risk of total and breast cancer mortality among adult women with overweight or obesity who were breast cancer survivors compared to healthy weight survivors (744). While some reviews showed that men were at greater risk of prostate-cancer related morbidity or mortality with increasing BMI (739, 889, 905), the relationship between BMI and prostate cancer incidence in men was less clear when stage of cancer was examined; there was a decreased risk for developing localized prostate cancer as BMI increased (757, 768), while risk increased for development of advanced prostate cancer (757, 856, 887, 939) and prostate cancer mortality (778).

Mental health

Young to middle-aged adults living with overweight or obesity had a greater risk of depression or symptoms of depression (780). Observational studies demonstrated poorer mental health in young and middle-aged adults experiencing overweight or obesity when compared to those with a healthy weight; e.g. physical and mental quality of life (803, 906), or depression (725, 791), including significant increases in depressive symptoms in patients living with obesity and Type 2 diabetes mellitus (780).

Health-related quality of life ratings

Health-related quality of life improved in young and middle-aged adults who lost weight when taking part in randomised controlled trials aimed at weight reduction (810).

Reproductive health

Longitudinal studies demonstrated that women experiencing overweight or obesity had a higher risk of miscarriage and lower rate of pregnancy and live birth post-IVF treatment compared to healthy weight women (872). Women who had polycystic ovary syndrome and a higher BMI experienced a higher rate of spontaneous abortion than those with a healthy body weight (897). Young and middle-aged men with overweight or obesity had increased risk of infertility when compared with men of a healthy body weight (737, 738, 878, 885, 914).

Reviews of randomised controlled trials in young women living with overweight or obesity and diagnosed polycystic ovarian syndrome had improved reproductive outcomes including menstrual regularity and ovulation with weight loss (845). Similarly, weight loss after bariatric surgery treatment resulted in increased pregnancy rates in women (840).

Older adults (≥65y)

Reviews of observational cohort studies illustrated that older adults (aged ≥65y) experiencing overweight or obesity had increased morbidity and premature mortality when compared to healthy-weight older adults. Details are described below. No reviews of weight management randomised controlled trials in older adults living with overweight or obesity were identified in this review.

Cardiovascular disease

The risk of cardiovascular events was associated with obesity in older adults with peripheral artery disease (752). Older adults with rheumatoid arthritis and obesity had a higher risk of cardiovascular morbidity compared to those with healthy weight status (731).

Conversely, among older adults who had atrial fibrillation, excess body weight was associated with protection against all-cause mortality (having obesity provided even greater protection) when compared with healthy body weight (913). Overweight or obesity (as indicated by BMI) in older adults who had atrial fibrillation was also associated with reduced risk of cardiovascular mortality when compared with older adults of a healthy BMI (913).

Type 2 diabetes mellitus

Overweight and obesity were associated with increased Type 2 diabetes mellitus incidence risk in older adults (797, 882).

Musculoskeletal conditions

Observational studies examining joint arthroplasty in older adults showed that those who underwent total hip arthroplasty who had a higher BMI had increased risk of musculoskeletal pain, complications and poor function pre- and post-surgery when compared with healthy weight adults (831, 874). Older adults with obesity undergoing total knee arthroplasty similarly experienced a higher risk of surgery revision, infection, and poorer knee function score post-surgery than their healthy-weight counterparts (890, 907). Observational studies also showed older adults living with overweight or obesity and knee osteoarthritis experienced lower health-related quality of life than healthy weight older adults with knee osteoarthritis (909).

Cancer

A review of prospective cohort studies found a higher risk of breast cancer in postmenopausal older women with overweight or obesity compared to healthy-weight older women (747).

People with disability

Only one systematic review was identified in people with disability, specifically cerebral palsy. No other reviews of people with other disabilities were identified. The review of cross-sectional and cohort studies in adults with cerebral palsy showed that having overweight or obesity was the most commonly cited cardiovascular disease risk factor (837).

Other subgroup populations

No reviews were identified that examined other subgroup populations of interest (i.e. Aboriginal and Torres Strait Islander people, people from culturally and linguistically diverse backgrounds, people with a mental health condition, or people with an eating disorder).

Scoping review 1 references

715. Abar L, Vieira AR, Aune D, Sobiecki JG, Vingeliene S, Polemiti E, et al. Height and body fatness and colorectal cancer risk: an update of the WCRF-AICR systematic review of published prospective studies. Eur J Nutr. 2018;57(5):1701-20. doi: 10.1007/s00394-017-1557-1
716. Abar L, Sobiecki JG, Cariolou M, Nanu N, Vieira AR, Stevens C, et al. Body size and obesity during adulthood, and risk of lympho-haematopoietic cancers: an update of the WCRF-AICR systematic review of published prospective studies. Ann Oncol. 2019;30(4):528-41. doi: 10.1093/annonc/mdz045
717. Abdullah A, Peeters A, de Courten M, Stoelwinder J. The magnitude of association between overweight and obesity and the risk of diabetes: a meta-analysis of prospective cohort studies. Diabetes Res Clin Pract. 2010;89(3):309-19. doi: 10.1016/j.diabres.2010.04.012
718. Akdeniz D, Klaver MM, Smith CZA, Koppert LB, Hooning MJ. The impact of lifestyle and reproductive factors on the risk of a second new primary cancer in the contralateral breast: a systematic review and meta-analysis. Cancer Causes Control. 2020;31(5):403-16. doi: 10.1007/s10552-020-01284-2
719. Al-Bayati O, Hasan A, Pruthi D, Kaushik D, Liss MA. Systematic review of modifiable risk factors for kidney cancer. Urol Oncol. 2019;37(6):359-71. doi: 10.1016/j.urolonc.2018.12.008
720. Alwash SM, McIntyre HD, Mamun A. The association of general obesity, central obesity and visceral body fat with the risk of gestational diabetes mellitus: evidence from a systematic review and meta-analysis. Obes Res Clin Pract. 2021;15(5):425-30. doi: 10.1016/j.orcp.2021.07.005
721. Amadou A, Ferrari P, Muwonge R, Moskal A, Biessy C, Romieu I, Hainaut P. Overweight, obesity and risk of premenopausal breast cancer according to ethnicity: a systematic review and dose-response meta-analysis. Obes Rev. 2013;14(8):665-78. doi: 10.1111/obr.12028
722. Anagnostis P, Paparodis RD, Bosdou JK, Bothou C, Macut D, Goulis DG, Livadas S. Risk of type 2 diabetes mellitus in polycystic ovary syndrome is associated with obesity: a meta-analysis of observational studies. Endocrine. 2021;74(2):245-53. doi: 10.1007/s12020-021-02801-2
723. Anderson EL, Howe LD, Jones HE, Higgins JPT, Lawlor DA, Fraser A. The prevalence of non-alcoholic fatty liver disease in children and adolescents: a systematic review and meta-analysis. PLoS ONE. 2015;10(10):e0140908. doi: 10.1371/journal.pone.0140908
724. Arafat HM, Omar J, Muhamad R, Al-Astani TAD, Shafii N, Al Laham NA, et al. Breast cancer risk from modifiable and non-modifiable risk factors among Palestinian women: a systematic review and meta-analysis. Asian Pac J Cancer Prev. 2021;22(7):1987-95. doi: 10.31557/APJCP.2021.22.7.1987
725. Arango C, Dragioti E, Solmi M, Cortese S, Domschke K, Murray RM, et al. Risk and protective factors for mental disorders beyond genetics: an evidence ‐ based atlas. World Psychiatry. 2021;20(3):417-36. doi: 10.1002/wps.20894
726. Aune D, Greenwood DC, Chan DSM, Vieira R, Vieira AR, Navarro Rosenblatt DA, et al. Body mass index, abdominal fatness and pancreatic cancer risk: a systematic review and non-linear dose-response meta-analysis of prospective studies. Ann Oncol. 2012;23(4):843-52. doi: 10.1093/annonc/mdr398
727. Aune D, Navarro Rosenblatt DA, Chan DSM, Abar L, Vingeliene S, Vieira AR, et al. Anthropometric factors and ovarian cancer risk: a systematic review and nonlinear dose-response meta-analysis of prospective studies. Int J Cancer. 2015;136(8):1888-98. doi: 10.1002/ijc.29207
728. Azizi N, Zangiabadian M, Seifi G, Davari A, Yekekhani E, Safavi-Naini SAA, et al. Gastric cancer risk in association with underweight, overweight, and obesity: a systematic review and meta-analysis. Cancers (Basel). 2023;15(10):2778. doi: 10.3390/cancers15102778
729. Babu GR, Murthy GVS, Ana Y, Patel P, Deepa R, Benjamin-Neelon SE, et al. Association of obesity with hypertension and type 2 diabetes mellitus in India: a meta-analysis of observational studies. World J Diabetes. 2018;9(1):40-52. doi: 10.4239/wjd.v9.i1.40

730. Bae HS, Kim HJ, Hong JH, Lee JK, Lee NW, Song JY. Obesity and epithelial ovarian cancer survival: a systematic review and meta-analysis. J Ovarian Res. 2014;7:41. doi: 10.1186/1757-2215-7-41
731. Baghdadi LR, Woodman RJ, Shanahan EM, Mangoni AA. The impact of traditional cardiovascular risk factors on cardiovascular outcomes in patients with rheumatoid arthritis: a systematic review and meta-analysis. PLoS ONE. 2015;10(2):e0117952. doi: 10.1371/journal.pone.0117952
732. Barry VW, Caputo JL, Kang M. The joint association of fitness and fatness on cardiovascular disease mortality: a meta-analysis. Prog Cardiovasc Dis. 2018;61(2):136-41. doi: 10.1016/j.pcad.2018.07.004
733. Bell JA, Kivimaki M, Hamer M. Metabolically healthy obesity and risk of incident type 2 diabetes: a meta-analysis of prospective cohort studies. Obes Rev. 2014;15(6):504-15. doi: 10.1111/obr.12157
734. Bigna JJ, Nansseu JR, Katte J-C, Noubiap JJ. Prevalence of prediabetes and diabetes mellitus among adults residing in Cameroon: a systematic review and meta-analysis. Diabetes Res Clin Pract. 2018;137:109-18. doi: 10.1016/j.diabres.2017.12.005
735. Burnette CE, Ka'apu K, Scarnato JM, Liddell J. Cardiovascular health among U.S. Indigenous peoples: a holistic and sex-specific systematic review. J Evid Based Soc Work. 2020;17(1):24-48. doi: 10.1080/26408066.2019.1617817
736. Byun D, Hong S, Ryu S, Nam Y, Jang H, Cho Y, et al. Early-life body mass index and risks of breast, endometrial, and ovarian cancers: a dose-response meta-analysis of prospective studies. Br J Canc. 2022;126(4):664-72. doi: 10.1038/s41416-021-01625-1
737. Campbell JM, McPherson NO. Influence of increased paternal BMI on pregnancy and child health outcomes independent of maternal effects: a systematic review and meta-analysis. Obes Res Clin Pract. 2019;13(6):511-21. doi: 10.1016/j.orcp.2019.11.003
738. Campbell JM, Lane M, Owens JA, Bakos HW. Paternal obesity negatively affects male fertility and assisted reproduction outcomes: a systematic review and meta-analysis. Reprod Biomed Online. 2015;31(5):593-604. doi: 10.1016/j.rbmo.2015.07.012
739. Cao Y, Ma J. Body mass index, prostate cancer-specific mortality, and biochemical recurrence: a systematic review and meta-analysis. Cancer Prev Res (Phila). 2011;4(4):486-501. doi: 10.1158/1940-6207.CAPR-10-0229
740. Capristo E, Maione A, Lucisano G, Russo MF, Mingrone G, Nicolucci A. Effects of weight loss medications on mortality and cardiovascular events: a systematic review of randomized controlled trials in adults with overweight and obesity. Nutr Metab Cardiovasc Dis. 2021;31(9):2587-95. doi: 10.1016/j.numecd.2021.05.023
741. Castillo JJ, Reagan JL, Ingham RR, Furman M, Dalia S, Merhi B, et al. Obesity but not overweight increases the incidence and mortality of leukemia in adults: a meta-analysis of prospective cohort studies. Leuk Res. 2012;36(7):868-75. doi: 10.1016/j.leukres.2011.12.020
742. Castillo JJ, Ingham RR, Reagan JL, Furman M, Dalia S, Mitri J. Obesity is associated with increased relative risk of diffuse large B-cell lymphoma: a meta-analysis of observational studies. Clin Lymphoma Myeloma Leuk. 2014;14(2):122-30. doi: 10.1016/j.clml.2013.10.005
743. Castro C, Peleteiro B, Lunet N. Modifiable factors and esophageal cancer: a systematic review of published meta-analyses. J Gastroenterol. 2018;53:37-51. doi: 10.1007/s00535-017-1375-5
744. Chan DSM, Vieira AR, Aune D, Bandera EV, Greenwood DC, McTiernan A, et al. Body mass index and survival in women with breast cancer-systematic literature review and meta-analysis of 82 follow-up studies. Ann Oncol. 2014;25(10):1901-14. doi: 10.1093/annonc/mdu042
745. Chen Y, Liu L, Wang X, Wang J, Yan Z, Cheng J, et al. Body mass index and risk of gastric cancer: a meta-analysis of a population with more than ten million from 24 prospective studies. Cancer Epidemiol Biomarkers Prev. 2013;22(8):1395-408. doi: 10.1158/1055-9965.EPI-13-0042

746. Chen Q, Wang J, Yang J, Jin Z, Shi W, Qin Y, et al. Association between adult weight gain and colorectal cancer: a dose-response meta-analysis of observational studies. Int J Cancer. 2015;136(12):2880-9. doi: 10.1002/ijc.29331
747. Chen Y, Liu L, Zhou Q, Imam MU, Cai J, Wang Y, et al. Body mass index had different effects on premenopausal and postmenopausal breast cancer risks: a dose-response meta-analysis with 3,318,796 subjects from 31 cohort studies. BMC Public Health. 2017;17(1):936. doi: 10.1186/s12889-017-4953-9
748. Chen J, Song S, Li X, Bian D, Wu X. Association of metabolic traits with occurrence of nonalcoholic fatty liver disease-related hepatocellular carcinoma: a systematic review and meta-analysis of longitudinal cohort studies. Saudi J Gastroenterol. 2022;28(2):92-100. doi: 10.4103/sjg.sjg_260_21
749. Chen J, Ke K, Liu Z, Yang L, Wang L, Zhou J, Dong Q. Body mass index and cancer risk: an umbrella review of meta-analyses of observational studies. Nutr Cancer. 2023;75(4). doi: 10.1080/01635581.2023.2180824
750. Cloostermans L, Wendel-Vos W, Doornbos G, Howard B, Craig CL, Kivimäki M, et al. Independent and combined effects of physical activity and body mass index on the development of type 2 diabetes—a meta-analysis of 9 prospective cohort studies. Int J Behav Nutr Phys Act. 2015;12:147. doi: 10.1186/s12966-015-0304-3
751. Colpani V, Baena CP, Jaspers L, van Dijk GM, Farajzadegan Z, Dhana K, et al. Lifestyle factors, cardiovascular disease and all-cause mortality in middle-aged and elderly women: a systematic review and meta-analysis. Eur J Epidemiol. 2018;33(9):831-45. doi: 10.1007/s10654-018-0374-z
752. Cronin O, Morris DR, Walker PJ, Golledge J. The association of obesity with cardiovascular events in patients with peripheral artery disease. Atherosclerosis. 2013;228(2):316-23. doi: 10.1016/j.atherosclerosis.2013.03.002
753. Crouch SH, Soepnel LM, Kolkenbeck-Ruh A, Maposa I, Naidoo S, Davies J, et al. Paediatric hypertension in Africa: a systematic review and meta-analysis. EClinicalMedicine. 2022;43:101229. doi: 10.1016/j.eclinm.2021.101229
754. Dehesh T, Fadaghi S, Seyedi M, Abolhadi E, Ilaghi M, Shams P, et al. The relation between obesity and breast cancer risk in women by considering menstruation status and geographical variations: a systematic review and meta-analysis. BMC Womens Health. 2023;23:392. doi: 10.1186/s12905-023-02543-5
755. Deng Y, Wang L, Huang J, Ding H, Wong MCS. Associations between potential causal factors and colorectal cancer risk: a systematic review and meta-analysis of Mendelian randomization studies. J Dig Dis. 2022;23(8-9):435-45. doi: 10.1111/1751-2980.13130
756. Ding N, Zhan J, Shi Y, Qiao T, Li P, Zhang T. Obesity in children and adolescents and the risk of ovarian cancer: a systematic review and dose-response meta-analysis. PLoS ONE. 2022. doi: 10.1371/journal.pone.0278050
757. Discacciati A, Orsini N, Wolk A. Body mass index and incidence of localized and advanced prostate cancer--a dose-response meta-analysis of prospective studies. Ann Oncol. 2012;23(7):1665-71. doi: 10.1093/annonc/mdr603
758. Dobbins M, Decorby K, Choi BCK. The association between obesity and cancer risk: a meta-analysis of observational studies from 1985 to 2011. ISRN Prev Med. 2013;2013:680536. doi: 10.5402/2013/680536
759. Dong Y, Zhou J, Zhu Y, Luo L, He T, Hu H, et al. Abdominal obesity and colorectal cancer risk: systematic review and meta-analysis of prospective studies. Biosci Rep. 2017;37(6):BSR20170945. doi: 10.1042/BSR20170945
760. Druesne-Pecollo N, Touvier M, Barrandon E, Chan DSM, Norat T, Zelek L, et al. Excess body weight and second primary cancer risk after breast cancer: a systematic review and meta-analysis of prospective studies. Breast Cancer Res Treat. 2012;135(3):647-54. doi: 10.1007/s10549-012-2187-1

761. Du X, Hidayat K, Shi B-M. Abdominal obesity and gastroesophageal cancer risk: systematic review and meta-analysis of prospective studies. Biosci Rep. 2017;37(3):BSR20160474. doi: 10.1042/BSR20160474
762. Duan P, Hu C, Quan C, Yi X, Zhou W, Yuan M, et al. Body mass index and risk of lung cancer: systematic review and dose-response meta-analysis. Sci Rep. 2015;5:16938. doi: 10.1038/srep16938
763. Eckel N, Meidtner K, Kalle-Uhlmann T, Stefan N, Schulze MB. Metabolically healthy obesity and cardiovascular events: a systematic review and meta-analysis. Eur J Prev Cardiol. 2016;23(9):956-66. doi: 10.1177/2047487315623884
764. El-Medany AYM, Birch L, Hunt LP, Matson RIB, Chong AHW, Beynon R, et al. What change in body mass index is required to improve cardiovascular outcomes in childhood and adolescent obesity through lifestyle interventions: a meta-regression. Child Obes. 2020;16(7):449-78. doi: 10.1089/chi.2019.0286
765. Ellwanger B, Schüler-Toprak S, Jochem C, Leitzmann MF, Baurecht H. Anthropometric factors and the risk of ovarian cancer: a systematic review and meta-analysis. Cancer Rep (Hoboken). 2022;5(11):e1618. doi: 10.1002/cnr2.1618
766. Esposito K, Chiodini P, Capuano A, Bellastella G, Maiorino MI, Giugliano D. Metabolic syndrome and endometrial cancer: a meta-analysis. Endocrine. 2014;45:28-36. doi: 10.1007/s12020-013-9973-3
767. Fan J, Song Y, Chen Y, Hui R, Zhang W. Combined effect of obesity and cardio-metabolic abnormality on the risk of cardiovascular disease: a meta-analysis of prospective cohort studies. Int J Cardiol. 2013;168(5):4761-8. doi: 10.1016/j.ijcard.2013.07.230
768. Fang X, Wei J, He X, Lian J, Han D, An P, et al. Quantitative association between body mass index and the risk of cancer: a global meta-analysis of prospective cohort studies. Int J Cancer. 2018;143(7):1595-603. doi: 10.1002/ijc.31553
769. Fardet A, Druesne-Pecollo N, Touvier M, Latino-Martel P. Do alcoholic beverages, obesity and other nutritional factors modify the risk of familial colorectal cancer? A systematic review. Crit Rev Oncol Hematol. 2017;119:94-112. doi: 10.1016/j.critrevonc.2017.09.001
770. Foong KW, Bolton H. Obesity and ovarian cancer risk: a systematic review. Post Reprod Health. 2017;23(4):183-98. doi: 10.1177/2053369117709225
771. Friedemann C, Heneghan C, Mahtani K, Thompson M, Perera R, Ward AM. Cardiovascular disease risk in healthy children and its association with body mass index: systematic review and meta-analysis. BMJ. 2012;345:e4759. doi: 10.1136/bmj.e4759
772. Galati PC, Ribeiro CM, Pereira LTG, Amato AA. The association between excess body weight at diagnosis and pediatric leukemia prognosis: a systematic review and meta-analysis. Blood Rev. 2022;51:100870. doi: 10.1016/j.blre.2021.100870
773. Galaviz KI, Weber MB, Straus A, Haw JS, Narayan KMV, Ali MK. Global diabetes prevention interventions: a systematic review and network meta-analysis of the real-world impact on incidence, weight, and glucose. Diabetes Care. 2018;41(7):1526-34. doi: 10.2337/dc17-2222
774. Gallagher C, Waidyatillake N, Pirkis J, Lambert K, Cassim R, Dharmage S, Erbas B. The effects of weight change from childhood to adulthood on depression and anxiety risk in adulthood: a systematic review. Obes Rev. 2023;24(7):e13566. doi: 10.1111/obr.13566
775. Gao J, Lin X, He Y, Fu Y, Wu Y, Liao J, et al. The comparison of different obesity indexes and the risk of lung cancer: a meta-analysis of prospective cohort studies. Nutr Cancer. 2019;71(6):908-21. doi: 10.1080/01635581.2019.1595037
776. Garcia H, Song M. Early-life obesity and adulthood colorectal cancer risk: a meta-analysis. Rev Panam Salud Publica. 2019;43:e3. doi: 10.26633/RPSP.2019.3
777. Godina-Flores NL, Gutierrez-Gómez YY, García-Botello M, López-Cruz L, Moreno-García CF, Aceves-Martins M. Obesity and its association with mental health among Mexican children and adolescents: systematic review. Nutr Rev. 2023;81(6):658–69. doi: 10.1093/nutrit/nuac083

778. Golabek T, Bukowczan J, Chlosta P, Powroźnik J, Dobruch J, Borówka A. Obesity and prostate cancer incidence and mortality: a systematic review of prospective cohort studies. Urol Int. 2014;92(1):7-14. doi: 10.1159/000351325
779. Golabek T, Bukowczan J, Szopinski T, Chlosta P, Lipczynski W, Dobruch J, Borowka A. Obesity and renal cancer incidence and mortality--a systematic review of prospective cohort studies. Ann Agric Environ Med. 2016;23(1):37-43. doi: 10.5604/12321966.1196850
780. González-Castro TB, Escobar-Chan YM, Fresan A, López-Narváez ML, Tovilla-Zárate CA, Juárez-Rojop IE, et al. Higher risk of depression in individuals with type 2 diabetes and obesity: results of a meta-analysis. J Health Psychol. 2021;26(9):1404-19. doi: 10.1177/1359105319876326
781. Goodarzi G, Mozaffari H, Raeisi T, Mehravar F, Razi B, Ghazi ML, et al. Metabolic phenotypes and risk of colorectal cancer: a systematic review and meta-analysis of cohort studies. BMC Cancer. 2022;22:89. doi: 10.1186/s12885-021-09149-w
782. Guo Y, Yue X-J, Li H-H, Song Z-X, Yan H-Q, Zhang P, et al. Overweight and obesity in young adulthood and the risk of stroke: a meta-analysis. J Stroke Cerebrovasc Dis. 2016;25(12):2995-3004. doi: 10.1016/j.jstrokecerebrovasdis.2016.08.018
783. Gupta A, Majumder K, Arora N, Mayo HG, Singh PP, Beg MS, et al. Premorbid body mass index and mortality in patients with lung cancer: a systematic review and meta-analysis. Lung Cancer. 2016;102:49-59. doi: 10.1016/j.lungcan.2016.10.017
784. Gupta A, Das A, Majumder K, Arora N, Mayo HG, Singh PP, et al. Obesity is independently associated with increased risk of hepatocellular cancer-related mortality: a systematic review and meta-analysis. Am J Clin Oncol. 2018;41(9):874-81. doi: 10.1097/COC.0000000000000388
785. Huang M-Y, Wang M-Y, Lin Y-S, Lin C-J, Lo K, Chang I-J, et al. The association between metabolically healthy obesity, cardiovascular disease, and all-cause mortality risk in Asia: a systematic review and meta-analysis. Int J Environ Res Public Health. 2020;17(4). doi: 10.3390/ijerph17041320
786. Huang S, Shi K, Ren Y, Wang J, Yan W-F, Qian W-L, et al. Association of magnitude of weight loss and weight variability with mortality and major cardiovascular events among individuals with type 2 diabetes mellitus: a systematic review and meta-analysis. Cardiovasc Diabetol. 2022;21(1):78. doi: 10.1186/s12933-022-01503-x
787. Im HJ, Ahn YC, Wang J-H, Lee MM, Son CG. Systematic review on the prevalence of nonalcoholic fatty liver disease in South Korea. Clin Res Hepatol Gastroenterol. 2021;45(4):101526. doi: 10.1016/j.clinre.2020.06.022
788. Jaspan V, Lin K, Popov V. The impact of anthropometric parameters on colorectal cancer prognosis: a systematic review and meta-analysis. Crit Rev Oncol Hematol. 2021;159:103232. doi: 10.1016/j.critrevonc.2021.103232
789. Jayedi A, Soltani S, Motlagh SZ-T, Emadi A, Shahinfar H, Moosavi H, Shab-Bidar S. Anthropometric and adiposity indicators and risk of type 2 diabetes: systematic review and dose-response meta-analysis of cohort studies. BMJ. 2022;376:e067516. doi: 10.1136/bmj-2021-067516
790. Jenabi E, Poorolajal J. The effect of body mass index on endometrial cancer: a meta-analysis. Public Health. 2015;129(7):872-80. doi: 10.1016/j.puhe.2015.04.017
791. Jokela M, Laakasuo M. Obesity as a causal risk factor for depression: systematic review and meta-analysis of Mendelian randomization studies and implications for population mental health. J Psychiatr Res. 2023;163:86-92. doi: 10.1016/j.jpsychires.2023.05.034
792. Kaczmarek C, Haller DM, Yaron M. Health-related quality of life in adolescents and young adults with polycystic ovary syndrome: a systematic review. J Pediatr Adolesc Gynecol. 2016;29(6):551-7. doi: 10.1016/j.jpag.2016.05.006
793. Kakoly NS, Khomami MB, Joham AE, Cooray SD, Misso ML, Norman RJ, et al. Ethnicity, obesity and the prevalence of impaired glucose tolerance and type 2 diabetes in PCOS: a systematic review and meta-regression. Hum Reprod Update. 2018;24(4):455-67. doi: 10.1093/humupd/dmy007
794. Kam LY, Huang DQ, Teng MLP, Takahashi H, Tanaka K, Yasuda S, et al. Clinical profiles of Asians with NAFLD: a systematic review and meta-analysis. Dig Dis. 2022;40(6):734-44. doi: 10.1159/000521662

795. Kane JA, Mehmood T, Munir I, Kamran H, Kariyanna PT, Zhyvotovska A, et al. Cardiovascular risk reduction associated with pharmacological weight loss: a meta-analysis. Int J Clin Res Trials. 2019;4:131. doi: 10.15344/2456-8007/2019/131
796. Keum N, Greenwood DC, Lee DH, Kim R, Aune D, Ju W, et al. Adult weight gain and adiposity-related cancers: a dose-response meta-analysis of prospective observational studies. J Natl Cancer Inst. 2015;107(2):djv088. doi: 10.1093/jnci/djv088
797. Khadra D, Itani L, Tannir H, Kreidieh D, El Masri D, El Ghoch M. Association between sarcopenic obesity and higher risk of type 2 diabetes in adults: a systematic review and meta-analysis. World J Diabetes. 2019;10(5):311-23. doi: 10.4239/wjd.v10.i5.311
798. Khoramdad M, Solaymani-Dodaran M, Kabir A, Ghahremanzadeh N, Hashemi E-o-S, Fahimfar N, et al. Breast cancer risk factors in Iranian women: a systematic review and meta-analysis of matched case-control studies. Eur J Med Res. 2022;27:311. doi: 10.1186/s40001-022-00952-0
799. Kim MS, Kim WJ, Khera AV, Kim JY, Yon DK, Lee SW, et al. Association between adiposity and cardiovascular outcomes: an umbrella review and meta-analysis of observational and Mendelian randomization studies. Eur Heart J. 2021;42(34):3388-403. doi: 10.1093/eurheartj/ehab454
800. Kodama S, Horikawa C, Fujihara K, Yoshizawa S, Yachi Y, Tanaka S, et al. Quantitative relationship between body weight gain in adulthood and incident type 2 diabetes: a meta-analysis. Obes Rev. 2014;15(3):202-14. doi: 10.1111/obr.12129
801. Kodama S, Fujihara K, Ishiguro H, Horikawa C, Ohara N, Yachi Y, et al. Unstable bodyweight and incident type 2 diabetes mellitus: a meta-analysis. J Diabetes Investig. 2017;8(4):501-9. doi: 10.1111/jdi.12623
802. Kokts-Porietis RL, Elmrayed S, Brenner DR, Friedenreich CM. Obesity and mortality among endometrial cancer survivors: a systematic review and meta-analysis. Obes Rev. 2021;22(12):e13337. doi: 10.1111/obr.13337
803. Koutoukidis DA, Knobf MT, Lanceley A. Obesity, diet, physical activity, and health-related quality of life in endometrial cancer survivors. Nutr Rev. 2015;73(6):399-408. doi: 10.1093/nutrit/nuu063
804. Koutoukidis DA, Astbury NM, Tudor KE, Morris E, Henry JA, Noreik M, et al. Association of weight loss interventions with changes in biomarkers of nonalcoholic fatty liver disease: a systematic review and meta-analysis. JAMA Intern Med. 2019;179(7):1262-71. doi: 10.1001/jamainternmed.2019.2248
805. Koutoukidis DA, Koshiaris C, Henry JA, Noreik M, Morris E, Manoharan I, et al. The effect of the magnitude of weight loss on non-alcoholic fatty liver disease: a systematic review and meta-analysis. Metabolism. 2021;115:154455. doi: 10.1016/j.metabol.2020.154455
806. Kramer CK, Zinman B, Retnakaran R. Are metabolically healthy overweight and obesity benign conditions?: a systematic review and meta-analysis. Ann Intern Med. 2013;159(11):758-69. doi: 10.7326/0003-4819-159-11-201312030-00008
807. Kwon Y, Kim HJ, Park S, Park Y-G, Cho K-H. Body mass index-related mortality in patients with type 2 diabetes and heterogeneity in obesity paradox studies: a dose-response meta-analysis. PLoS ONE. 2017;12(1):e0168247. doi: 10.1371/journal.pone.0168247
808. Kyrgiou M, Kalliala I, Markozannes G, Gunter MJ, Paraskevaidis E, Gabra H, et al. Adiposity and cancer at major anatomical sites: umbrella review of the literature. BMJ. 2017;356:j477. doi: 10.1136/bmj.j477
809. Larsson SC, Burgess S. Causal role of high body mass index in multiple chronic diseases: a systematic review and meta-analysis of Mendelian randomization studies. BMC Med. 2021;19(1):320. doi: 10.1186/s12916-021-02188-x
810. Lasikiewicz N, Myrissa K, Hoyland A, Lawton CL. Psychological benefits of weight loss following behavioural and/or dietary weight loss interventions. A systematic research review. Appetite. 2014;72:123-37. doi: 10.1016/j.appet.2013.09.017

811. Lee J, Meyerhardt JA, Giovannucci E, Jeon JY. Association between body mass index and prognosis of colorectal cancer: a meta-analysis of prospective cohort studies. PLoS ONE. 2015;10(3):e0120706. doi: 10.1371/journal.pone.0120706
812. Lei X, Song S, Li X, Geng C, Wang C. Excessive body fat at a young age increases the risk of colorectal cancer: a systematic review and meta-analysis. Nutr Cancer. 2021;73(9):1601-12. doi: 10.1080/01635581.2020.1804951
813. Leoncini E, Carioli G, La Vecchia C, Boccia S, Rindi G. Risk factors for neuroendocrine neoplasms: a systematic review and meta-analysis. Ann Oncol. 2016;27(1):68-81. doi: 10.1093/annonc/mdv505
814. Li H, Oldenburg B, Chamberlain C, O'Neil A, Xue B, Jolley D, et al. Diabetes prevalence and determinants in adults in China mainland from 2000 to 2010: a systematic review. Diabetes Res Clin Pract. 2012;98(2):226-35. doi: 10.1016/j.diabres.2012.05.010
815. Li J-S, Han T-J, Jing N, Li L, Zhang X-H, Ma F-Z, Liu J-Y. Obesity and the risk of cholangiocarcinoma: a meta-analysis. Tumour Biol. 2014;35(7):6831-8. doi: 10.1007/s13277-014-1939-4
816. Li L, Gan Y, Li W, Wu C, Lu Z. Overweight, obesity and the risk of gallbladder and extrahepatic bile duct cancers: a meta-analysis of observational studies. Obesity. 2016;24(8):1786-802. doi: 10.1002/oby.21505
817. Li Z-M, Wu Z-X, Han B, Mao Y-Q, Chen H-L, Han S-F, et al. The association between BMI and gallbladder cancer risk: a meta-analysis. Oncotarget. 2016;7(28):43669-79. doi: 10.18632/oncotarget.9664
818. Li L, Liu DW, Yan HY, Wang ZY, Zhao SH, Wang B. Obesity is an independent risk factor for non-alcoholic fatty liver disease: evidence from a meta-analysis of 21 cohort studies. Obes Rev. 2016;17(6):510-9. doi: 10.1111/obr.12407
819. Li H, Sun X, Miller E, Wang Q, Tao P, Liu L, et al. BMI, reproductive factors, and breast cancer molecular subtypes: a case-control study and meta-analysis. J Epidemiol. 2017;27(4):143-51. doi: 10.1016/j.je.2016.05.002
820. Li S, Chen L, Jin W, Ma X, Ma Y, Dong F, et al. Influence of body mass index on incidence and prognosis of acute myeloid leukemia and acute promyelocytic leukemia: a meta-analysis. Sci Rep. 2017;7(1):17998. doi: 10.1038/s41598-017-18278-x
821. Li H, Boakye D, Chen X, Hoffmeister M, Brenner H. Association of body mass index with risk of early-onset colorectal cancer: systematic review and meta-analysis. Am J Gastroenterol. 2021;116(11):2173-83. doi: 10.14309/ajg.0000000000001393
822. Lichtenauer M, Wheatley SD, Martyn-St James M, Duncan MJ, Cobayashi F, Berg G, et al. Efficacy of anthropometric measures for identifying cardiovascular disease risk in adolescents: review and meta-analysis. Minerva Pediatr. 2018;70(4):371-82. doi: 10.23736/S0026-4946.18.05175-7
823. Lim SS, Norman RJ, Davies MJ, Moran LJ. The effect of obesity on polycystic ovary syndrome: a systematic review and meta-analysis. Obes Rev. 2013;14(2):95-109. doi: 10.1111/j.1467-789X.2012.01053.x
824. Lin C-J, Chang Y-C, Cheng T-Y, Lo K, Liu S-J, Yeh TL. The association between metabolically healthy obesity and risk of cancer: a systematic review and meta-analysis of prospective cohort studies. Obes Rev. 2020;21(10):e13049. doi: 10.1111/obr.13049
825. Liu Z, Zhang T-T, Zhao J-J, Qi S-F, Du P, Liu D-W, Tian Q-B. The association between overweight, obesity and ovarian cancer: a meta-analysis. Jpn J Clin Oncol. 2015;45(12):1107-15. doi: 10.1093/jjco/hyv150
826. Liu H, Zhang Y, Ai M, Wang J, Jin B, Teng Z, et al. Body mass index can increase the risk of gallbladder cancer: a meta-analysis of 14 cohort studies. Med Sci Monit Basic Res. 2016;22:146-55. doi: 10.12659/msmbr.901651
827. Liu X, Sun Q, Hou H, Zhu K, Wang Q, Liu H, et al. The association between BMI and kidney cancer risk: an updated dose-response meta-analysis in accordance with PRISMA guideline. Medicine. 2018;97(44):e12860. doi: 10.1097/MD.0000000000012860

828. Liu X, Ju W, Huo C, Zhang S, Wang X, Huang K. Overweight and obesity as independent factors for increased risk of hepatocellular cancer-related mortality: a meta-analysis. J Am Coll Nutr. 2021;40(3):287-93. doi: 10.1080/07315724.2020.1751007
829. Llewellyn A, Simmonds M, Owen CG, Woolacott N. Childhood obesity as a predictor of morbidity in adulthood: a systematic review and meta-analysis. Obes Rev. 2016;17(1):56-67. doi: 10.1111/obr.12316
830. Lotta LA, Abbasi A, Sharp SJ, Sahlqvist A-S, Waterworth D, Brosnan JM, et al. Definitions of metabolic health and risk of future type 2 diabetes in BMI categories: a systematic review and network meta-analysis. Diabetes Care. 2015;38(11):2177-87. doi: 10.2337/dc15-1218
831. Lungu E, Maftoon S, Vendittoli PA, Desmeules F. A systematic review of preoperative determinants of patient-reported pain and physical function up to 2 years following primary unilateral total hip arthroplasty. Orthop Traumatol Surg Res. 2016;102(3):397-403. doi: 10.1016/j.otsr.2015.12.025
832. Ma Y, Yang Y, Wang F, Zhang P, Shi C, Zou Y, Qin H. Obesity and risk of colorectal cancer: a systematic review of prospective studies. PLoS ONE. 2013;8(1):e53916. doi: 10.1371/journal.pone.0053916
833. Ma J, Huang M, Wang L, Ye W, Tong Y, Wang H. Obesity and risk of thyroid cancer: evidence from a meta-analysis of 21 observational studies. Med Sci Monit. 2015;21:283-91. doi: 10.12659/MSM.892035
834. Majumder K, Gupta A, Arora N, Singh PP, Singh S. Premorbid obesity and mortality in patients with pancreatic cancer: a systematic review and meta-analysis. Clin Gastroenterol Hepatol. 2016;14(3):355-68.e2. doi: 10.1016/j.cgh.2015.09.036
835. Mandic M, Li H, Safizadeh F, Niedermaier T, Hoffmeister M, Brenner H. Is the association of overweight and obesity with colorectal cancer underestimated? An umbrella review of systematic reviews and meta-analyses. Eur J Epidemiol. 2023;38:135–44. doi: 10.1007/s10654-022-00954-6
836. Mann JP, Tang GY, Nobili V, Armstrong MJ. Evaluations of lifestyle, dietary, and pharmacologic treatments for pediatric nonalcoholic fatty liver disease: a systematic review. Clin Gastroenterol Hepatol. 2019;17(8):1457-76.e7. doi: 10.1016/j.cgh.2018.05.023
837. McPhee PG, Claridge EA, Noorduyn SG, Gorter JW. Cardiovascular disease and related risk factors in adults with cerebral palsy: a systematic review. Dev Med Child Neurol. 2019;61(8):915-23. doi: 10.1111/dmcn.14028
838. Merlotti C, Morabito A, Ceriani V, Pontiroli AE. Prevention of type 2 diabetes in obese at-risk subjects: a systematic review and meta-analysis. Acta Diabetol. 2014;51(5):853-63. doi: 10.1007/s00592-014-0624-9
839. Merlotti C, Morabito A, Pontiroli AE. Prevention of type 2 diabetes; a systematic review and meta-analysis of different intervention strategies. Diabetes Obes Metab. 2014;16(8):719-27. doi: 10.1111/dom.12270
840. Milone M, De Placido G, Musella M, Sosa Fernandez LM, Sosa Fernandez LV, Campana G, et al. Incidence of successful pregnancy after weight loss interventions in infertile women: a systematic review and meta-analysis of the literature. Obes Surg. 2016;26(2):443-51. doi: 10.1007/s11695-015-1998-7
841. Mirzababaei A, Djafarian K, Mozafari H, Shab-Bidar S. The long-term prognosis of heart diseases for different metabolic phenotypes: a systematic review and meta-analysis of prospective cohort studies. Endocrine. 2019;63(3):439-62. doi: 10.1007/s12020-019-01840-0
842. Moghaddasifar I, Lankarani KB, Moosazadeh M, Afshari M, Ghaemi A, Aliramezany M, et al. Prevalence of non-alcoholic fatty liver disease and its related factors in Iran. Int J Organ Transplant Med. 2016;7(3):149-60.
843. Mohammadian Khonsari N, Shahrestanaki E, Ehsani A, Asadi S, Sokoty L, Mohammadpoor Nami S, et al. Association of childhood and adolescence obesity with incidence and mortality of adulthood cancers. A systematic review and meta-analysis. Front Endocrinol. 2023;14:1069164. doi: 10.3389/fendo.2023.1069164

844. Mongraw-Chaffin ML, Peters SAE, Huxley RR, Woodward M. The sex-specific association between BMI and coronary heart disease: a systematic review and meta-analysis of 95 cohorts with 1.2 million participants. Lancet Diabetes Endocrinol. 2015;3(6):437-49. doi: 10.1016/S2213-8587(15)00086-8
845. Moran LJ, Ko H, Misso M, Marsh K, Noakes M, Talbot M, et al. Dietary composition in the treatment of polycystic ovary syndrome: a systematic review to inform evidence-based guidelines. J Acad Nutr Diet. 2013;113(4):520-45. doi: 10.1016/j.jand.2012.11.018
846. Namazi N, Irandoost P, Heshmati J, Larijani B, Azadbakht L. The association between fat mass and the risk of breast cancer: a systematic review and meta-analysis. Clin Nutr. 2019;38(4):1496-503. doi: 10.1016/j.clnu.2018.09.013
847. Namiranian N, Moradi-Lakeh M, Razavi-Ratki SK, Doayie M, Nojomi M. Risk factors of breast cancer in the Eastern Mediterranean Region: a systematic review and meta-analysis. Asian Pac J Cancer Prev. 2014;15(21):9535-41. doi: 10.7314/APJCP.2014.15.21.9535
848. Natamba BK, Namara AA, Nyirenda MJ. Burden, risk factors and maternal and offspring outcomes of gestational diabetes mellitus (GDM) in sub-Saharan Africa (SSA): a systematic review and meta-analysis. BMC Pregnancy Childbirth. 2019;19(1):450. doi: 10.1186/s12884-019-2593-z
849. Noubiap JJ, Essouma M, Bigna JJ, Jingi AM, Aminde LN, Nansseu JR. Prevalence of elevated blood pressure in children and adolescents in Africa: a systematic review and meta-analysis. Lancet Public Health. 2017;2(8):e375-e86. doi: 10.1016/S2468-2667(17)30123-8
850. Nucci D, Marino A, Realdon S, Nardi M, Fatigoni C, Gianfredi V. Lifestyle, WCRF/AICR recommendations, and esophageal adenocarcinoma risk: a systematic review of the literature. Nutrients. 2021;13(10). doi: 10.3390/nu13103525
851. Opio J, Croker E, Odongo GS, Attia J, Wynne K, McEvoy M. Metabolically healthy overweight/obesity are associated with increased risk of cardiovascular disease in adults, even in the absence of metabolic risk factors: a systematic review and meta-analysis of prospective cohort studies. Obes Rev. 2020;21(12):e13127. doi: 10.1111/obr.13127
852. O'Sullivan DE, Sutherland RL, Town S, Chow K, Fan J, Forbes N, et al. Risk factors for early-onset colorectal cancer: a systematic review and meta-analysis. Clin Gastroenterol Hepatol. 2022;20(6):1229-40.e5. doi: 10.1016/j.cgh.2021.01.037
853. Pack QR, Rodriguez-Escudero JP, Thomas RJ, Ades PA, West CP, Somers VK, Lopez-Jimenez F. The prognostic importance of weight loss in coronary artery disease: a systematic review and meta-analysis. Mayo Clin Proc. 2014;89(10):1368-77. doi: 10.1016/j.mayocp.2014.04.033
854. Pang Q, Zhang J-Y, Song S-D, Qu K, Xu X-S, Liu S-S, Liu C. Central obesity and nonalcoholic fatty liver disease risk after adjusting for body mass index. World J Gastroenterol. 2015;21(5):1650-62. doi: 10.3748/wjg.v21.i5.1650
855. Panunzi S, Maltese S, Verrastro O, Labbate L, De Gaetano A, Pompili M, et al. Pioglitazone and bariatric surgery are the most effective treatments for non-alcoholic steatohepatitis: a hierarchical network meta-analysis. Diabetes Obes Metab. 2021;23(4):980-90. doi: 10.1111/dom.14304
856. Papavasileiou G, Tsilingiris D, Spyrou N, Vallianou NG, Karampela I, Magkos F, Dalamaga M. Obesity and main urologic cancers: current systematic evidence, novel biological mechanisms, perspectives and challenges. Semin Cancer Biol. 2023;91:70-98. doi: 10.1016/j.semcancer.2023.03.002
857. Parekh N, Chandran U, Bandera EV. Obesity in cancer survival. Annu Rev Nutr. 2012;32:311-42. doi: 10.1146/annurev-nutr-071811-150713
858. Park MH, Falconer C, Viner RM, Kinra S. The impact of childhood obesity on morbidity and mortality in adulthood: a systematic review. Obes Rev. 2012;13(11):985-1000. doi: 10.1111/j.1467-789X.2012.01015.x
859. Paulis WD, Silva S, Koes BW, van Middelkoop M. Overweight and obesity are associated with musculoskeletal complaints as early as childhood: a systematic review. Obes Rev. 2014;15(1):52-67. doi: 10.1111/obr.12067

860. Peiris WL, Cicuttini FM, Hussain SM, Estee MM, Romero L, Ranger TA, et al. Is adiposity associated with back and lower limb pain? A systematic review. PLoS ONE. 2021;16(9):e0256720. doi: 10.1371/journal.pone.0256720
861. Peterson E, De P, Nuttall R. BMI, diet and female reproductive factors as risks for thyroid cancer: a systematic review. PLoS ONE. 2012;7(1):e29177. doi: 10.1371/journal.pone.0029177
862. Pierobon M, Frankenfeld CL. Obesity as a risk factor for triple-negative breast cancers: a systematic review and meta-analysis. Breast Cancer Res Treat. 2013;137(1):307-14. doi: 10.1007/s10549-012-2339-3
863. Poorolajal J, Jenabi E. The association between BMI and cervical cancer risk: a meta-analysis. Eur J Cancer Prev. 2016;25(3):232-8. doi: 10.1097/CEJ.0000000000000164
864. Poorolajal J, Jenabi E, Masoumi SZ. Body mass index effects on risk of ovarian cancer: a meta-analysis. Asian Pac J Cancer Prev. 2014;15(18):7665-71. doi: 10.7314/APJCP.2014.15.18.7665
865. Poorolajal J, Heidarimoghis F, Karami M, Cheraghi Z, Gohari-Ensaf F, Shahbazi F, et al. Factors for the primary prevention of breast cancer: a meta-analysis of prospective cohort studies. J Res Health Sci. 2021;21(3):e00520. doi: 10.34172/jrhs.2021.57
866. Pourghazi F, Eslami M, Mohammadi S, Ghoreshi R, Ejtahed H-S, Qorbani M. Association between childhood obesity and infertility in later life: a systematic review of cohort studies. BMC Endocr Disord. 2023;23:235. doi: 10.1186/s12902-023-01490-4
867. Pozzobon D, Ferreira PH, Blyth FM, Machado GC, Ferreira ML. Can obesity and physical activity predict outcomes of elective knee or hip surgery due to osteoarthritis? A meta-analysis of cohort studies. BMJ Open. 2018;8(2):e017689. doi: 10.1136/bmjopen-2017-017689
868. Psaltopoulou T, Sergentanis TN, Ntanasis-Stathopoulos I, Tzanninis I-G, Riza E, Dimopoulos MA. Anthropometric characteristics, physical activity and risk of hematological malignancies: a systematic review and meta-analysis of cohort studies. Int J Cancer. 2019;145(2):347-59. doi: 10.1002/ijc.32109
869. Qin Q, Xu X, Wang X, Zheng X-Y. Obesity and risk of bladder cancer: a meta-analysis of cohort studies. Asian Pac J Cancer Prev. 2013;14(5):3117-21. doi: 10.7314/APJCP.2013.14.5.3117
870. Riaz H, Khan MS, Siddiqi TJ, Usman MS, Shah N, Goyal A, et al. Association between obesity and cardiovascular outcomes: a systematic review and meta-analysis of Mendelian randomization studies. JAMA Netw Open. 2018;1(7):e183788. doi: 10.1001/jamanetworkopen.2018.3788
871. Ricci C, Gaeta M, Rausa E, Asti E, Bandera F, Bonavina L. Long-term effects of bariatric surgery on type II diabetes, hypertension and hyperlipidemia: a meta-analysis and meta-regression study with 5-year follow-up. Obes Surg. 2015;25(3):397-405. doi: 10.1007/s11695-014-1442-4
872. Rittenberg V, Seshadri S, Sunkara SK, Sobaleva S, Oteng-Ntim E, El-Toukhy T. Effect of body mass index on IVF treatment outcome: an updated systematic review and meta-analysis. Reprod Biomed Online. 2011;23(4):421-39. doi: 10.1016/j.rbmo.2011.06.018
873. Robsahm TE, Aagnes B, Hjartaker A, Langseth H, Bray FI, Larsen IK. Body mass index, physical activity, and colorectal cancer by anatomical subsites: a systematic review and meta-analysis of cohort studies. Eur J Cancer Prev. 2013;22(6):492-505. doi: 10.1097/CEJ.0b013e328360f434
874. Romero JA, Jones R, Brown TS, Shahrestani SN, Huo MH. Morbid obesity in total hip arthroplasty: what does it mean? Semin Arthroplasty. 2017;28(4):254-8. doi: 10.1053/j.sart.2018.02.013
875. Rui R, Lou J, Zou L, Zhong R, Wang J, Xia D, et al. Excess body mass index and risk of liver cancer: a nonlinear dose-response meta-analysis of prospective studies. PLoS ONE. 2012;7(9):e44522. doi: 10.1371/journal.pone.0044522
876. Sadeghi H, Rafei M, Bahrami M, Haghdoost A, Shabani Y. Attributable risk fraction of four lifestyle risk factors of thyroid cancer: a meta-analysis. J Public Health (Oxf). 2018;40(2):e91-e8. doi: 10.1093/pubmed/fdx088
877. Safaei M, Sundararajan EA, Driss M, Boulila W, Shapi'i A. A systematic literature review on obesity: understanding the causes & consequences of obesity and reviewing various machine learning

approaches used to predict obesity. Comput Biol Med. 2021;136:104754. doi: 10.1016/j.compbiomed.2021.104754
878. Salas-Huetos A, Maghsoumi-Norouzabad L, James ER, Carrell DT, Aston KI, Jenkins TG, et al. Male adiposity, sperm parameters and reproductive hormones: an updated systematic review and collaborative meta-analysis. Obes Rev. 2021;22(1):e13082. doi: 10.1111/obr.13082
879. Sanders RH, Han A, Baker JS, Cobley S. Childhood obesity and its physical and psychological co-morbidities: a systematic review of Australian children and adolescents. Eur J Pediatr. 2015;174(6):715-46. doi: 10.1007/s00431-015-2551-3
880. Saunders D, Seidel D, Allison M, Lyratzopoulos G. Systematic review: the association between obesity and hepatocellular carcinoma - epidemiological evidence. Aliment Pharmacol Ther. 2010;31(10):1051-63. doi: 10.1111/j.1365-2036.2010.04271.x
881. Schmid D, Ricci C, Behrens G, Leitzmann MF. Adiposity and risk of thyroid cancer: a systematic review and meta-analysis. Obes Rev. 2015;16(12):1042-54. doi: 10.1111/obr.12321
882. Seo D-C, Choe S, Torabi MR. Is waist circumference ≥102/88cm better than body mass index ≥30 to predict hypertension and diabetes development regardless of gender, age group, and race/ethnicity? Meta-analysis. Prev Med. 2017;97:100-8. doi: 10.1016/j.ypmed.2017.01.012
883. Sergentanis TN, Antoniadis AG, Gogas HJ, Antonopoulos CN, Adami H-O, Ekbom A, Petridou ET. Obesity and risk of malignant melanoma: a meta-analysis of cohort and case-control studies. Eur J Cancer. 2013;49(3):642-57. doi: 10.1016/j.ejca.2012.08.028
884. Sergentanis TN, Tsivgoulis G, Perlepe C, Ntanasis-Stathopoulos I, Tzanninis I-G, Sergentanis IN, Psaltopoulou T. Obesity and risk for brain/CNS tumors, gliomas and meningiomas: a meta-analysis. PLoS ONE. 2015;10(9):e0136974. doi: 10.1371/journal.pone.0136974
885. Sermondade N, Faure C, Fezeu L, Shayeb AG, Bonde JP, Jensen TK, et al. BMI in relation to sperm count: an updated systematic review and collaborative meta-analysis. Hum Reprod Update. 2013;19(3):221-31. doi: 10.1093/humupd/dms050
886. Shalimar, Elhence A, Bansal B, Gupta H, Anand A, Singh TP, Goel A. Prevalence of non-alcoholic fatty liver disease in India: a systematic review and meta-analysis. J Clin Exp Hepatol. 2022;12(3):818-29. doi: 10.1016/j.jceh.2021.11.010
887. Shanmugalingam T, Crawley D, Bosco C, Melvin J, Rohrmann S, Chowdhury S, et al. Obesity and cancer: the role of vitamin D. BMC Cancer. 2014;14:712. doi: 10.1186/1471-2407-14-712
888. Sharma V, Coleman S, Nixon J, Sharples L, Hamilton-Shield J, Rutter H, Bryant M. A systematic review and meta-analysis estimating the population prevalence of comorbidities in children and adolescents aged 5 to 18 years. Obes Rev. 2019;20(10):1341-9. doi: 10.1111/obr.12904
889. Shi J, Zhao L, Gao Y, Niu M, Yan M, Chen Y, et al. Associating the risk of three urinary cancers with obesity and overweight: an overview with evidence mapping of systematic reviews. Syst Rev. 2021;10(1):58. doi: 10.1186/s13643-021-01606-8
890. Si H-b, Zeng Y, Shen B, Yang J, Zhou Z-k, Kang P-d, Pei F-x. The influence of body mass index on the outcomes of primary total knee arthroplasty. Knee Surg Sports Traumatol Arthrosc. 2015;23(6):1824-32. doi: 10.1007/s00167-014-3301-1
891. Singh S, Sharma AN, Murad MH, Buttar NS, El-Serag HB, Katzka DA, Iyer PG. Central adiposity is associated with increased risk of esophageal inflammation, metaplasia, and adenocarcinoma: a systematic review and meta-analysis. Clin Gastroenterol Hepatol. 2013;11(11):1399-412.e7. doi: 10.1016/j.cgh.2013.05.009
892. Sohn W, Lee HW, Lee S, Lim JH, Lee MW, Park CH, Yoon SK. Obesity and the risk of primary liver cancer: a systematic review and meta-analysis. Clin Mol Hepatol. 2021;27(1):157-74. doi: 10.3350/cmh.2020.0176
893. Soltani S, Abdollahi S, Aune D, Jayedi A. Body mass index and cancer risk in patients with type 2 diabetes: a dose-response meta-analysis of cohort studies. Sci Rep. 2021;11(1):2479. doi: 10.1038/s41598-021-81671-0
894. Sommer A, Twig G. The impact of childhood and adolescent obesity on cardiovascular risk in adulthood: a systematic review. Curr Diabetes Rep. 2018;18(10):91. doi: 10.1007/s11892-018-1062-9

895. Sookoian S, Pirola CJ. Systematic review with meta-analysis: the significance of histological disease severity in lean patients with nonalcoholic fatty liver disease. Aliment Pharmacol Ther. 2018;47(1):16-25. doi: 10.1111/apt.14401
896. Sun J-W, Zhao L-G, Yang Y, Ma X, Wang Y-Y, Xiang Y-B. Obesity and risk of bladder cancer: a dose-response meta-analysis of 15 cohort studies. PLoS ONE. 2015;10(3):e0119313. doi: 10.1371/journal.pone.0119313
897. Sun Y-F, Zhang J, Xu Y-M, Cao Z-Y, Wang Y-Z, Hao G-M, Gao B-L. High BMI and insulin resistance are risk factors for spontaneous abortion in patients with polycystic ovary syndrome undergoing assisted reproductive treatment: a systematic review and meta-analysis. Front Endocrinol. 2020;11:592495. doi: 10.3389/fendo.2020.592495
898. Sutaria S, Devakumar D, Yasuda SS, Das S, Saxena S. Is obesity associated with depression in children? Systematic review and meta-analysis. Arch Dis Child. 2019;104(1):64-74. doi: 10.1136/archdischild-2017-314608
899. Tajik S, Mirzababaei A, Ghaedi E, Kord-Varkaneh H, Mirzaei K. Risk of type 2 diabetes in metabolically healthy people in different categories of body mass index: an updated network meta-analysis of prospective cohort studies. J Cardiovasc Thorac Res. 2019;11(4):254-63. doi: 10.15171/jcvtr.2019.43
900. Tan W, Gao M, Liu N, Zhang G, Xu T, Cui W. Body mass index and risk of gallbladder cancer: systematic review and meta-analysis of observational studies. Nutrients. 2015;7(10):8321-234. doi: 10.3390/nu7105387
901. Tanaka K, Tsuji I, Tamakoshi A, Matsuo K, Ito H, Wakai K, et al. Obesity and liver cancer risk: an evaluation based on a systematic review of epidemiologic evidence among the Japanese population. Jpn J Clin Oncol. 2012;42(3):212-21. doi: 10.1093/jjco/hyr198
902. Tian J, Zuo C, Liu G, Che P, Li G, Li X, Chen H. Cumulative evidence for the relationship between body mass index and the risk of esophageal cancer: an updated meta-analysis with evidence from 25 observational studies. J Gastroenterol Hepatol. 2020;35(5):730-43. doi: 10.1111/jgh.14917
903. Turati F, Tramacere I, La Vecchia C, Negri E. A meta-analysis of body mass index and esophageal and gastric cardia adenocarcinoma. Ann Oncol. 2013;24(3):609-17. doi: 10.1093/annonc/mds244
904. Tzelves L, Xenou D, Skolarikos A, Varkarakis I, Deliveliotis C, Terpos E, et al. Association of obesity and other anthropometric characteristics with bladder cancer risk: a systematic review and meta-analysis of longitudinal cohort studies. J BUON. 2021;26(3):1040-55.
905. Tzenios N, Tazanios ME, Chahine M. The impact of body mass index on prostate cancer: an updated systematic review and meta-analysis. Medicine. 2022;101(45):e30191. doi: 10.1097/MD.0000000000030191
906. Ul‐Haq Z, Mackay DF, Fenwick E, Pell JP. Meta‐analysis of the association between body mass index and health‐related quality of life among adults, assessed by the SF‐36. Obesity. 2013;21(3):E322-E7. doi: 10.1002/oby.20107
907. van Tilburg J, Rathsach Andersen M. Mid- to long-term complications and outcome for morbidly obese patients after total knee arthroplasty: a systematic review and meta-analysis. EFORT Open Rev. 2022;7(5):295-304. doi: 10.1530/EOR-21-0090
908. Vingeliene S, Chan DSM, Vieira AR, Polemiti E, Stevens C, Abar L, et al. An update of the WCRF/AICR systematic literature review and meta-analysis on dietary and anthropometric factors and esophageal cancer risk. Ann Oncol. 2017;28(10):2409-19. doi: 10.1093/annonc/mdx338
909. Vitaloni M, Botto-van Bemden A, Sciortino Contreras RM, Scotton D, Bibas M, Quintero M, et al. Global management of patients with knee osteoarthritis begins with quality of life assessment: a systematic review. BMC Musculoskelet Disord. 2019;20(1):493. doi: 10.1186/s12891-019-2895-3
910. Wallin A, Larsson SC. Body mass index and risk of multiple myeloma: a meta-analysis of prospective studies. Eur J Cancer. 2011;47(11):1606-15. doi: 10.1016/j.ejca.2011.01.020

911. Wang ZJ, Zhou YJ, Galper BZ, Gao F, Yeh RW, Mauri L. Association of body mass index with mortality and cardiovascular events for patients with coronary artery disease: a systematic review and meta-analysis. Heart. 2015;101(20):1631-8. doi: 10.1136/heartjnl-2014-307119
912. Wang J, Yang D-L, Chen Z-Z, Gou B-F. Associations of body mass index with cancer incidence among populations, genders, and menopausal status: a systematic review and meta-analysis. Cancer Epidemiol. 2016;42:1-8. doi: 10.1016/j.canep.2016.02.010
913. Wang T, Zhang Q, Shi C, Gui S, Cao Z, Wang R, et al. Correlation between body mass index and mortality of patients with atrial fibrillation: a meta-analysis. Chin Nurs Res. 2020(20):3572-9. doi: 10.12102/j.issn.1009-6493.2020.20.002
914. Wang S, Sun J, Wang J, Ping Z, Liu L. Does obesity based on body mass index affect semen quality?-A meta-analysis and systematic review from the general population rather than the infertile population. Andrologia. 2021;53(7):e14099. doi: 10.1111/and.14099
915. Wise MR, Jordan V, Lagas A, Showell M, Wong N, Lensen S, Farquhar CM. Obesity and endometrial hyperplasia and cancer in premenopausal women: a systematic review. Am J Obstet Gynecol. 2016;214(6):689.e1-.e17. doi: 10.1016/j.ajog.2016.01.175
916. Wu J, Yao X-Y, Shi R-X, Liu S-F, Wang X-Y. A potential link between polycystic ovary syndrome and non-alcoholic fatty liver disease: an update meta-analysis. Reprod Health. 2018;15(1):77. doi: 10.1186/s12978-018-0519-2
917. Wu Y, Zheng Q, Zou B, Yeo YH, Li X, Li J, et al. The epidemiology of NAFLD in Mainland China with analysis by adjusted gross regional domestic product: a meta-analysis. Hepatol Int. 2020;14(2):259-69. doi: 10.1007/s12072-020-10023-3
918. Xia X, Chen W, Li J, Chen X, Rui R, Liu C, et al. Body mass index and risk of breast cancer: a nonlinear dose-response meta-analysis of prospective studies. Sci Rep. 2014;4:7480. doi: 10.1038/srep07480
919. Xue R, Li Q, Geng Y, Wang H, Wang F, Zhang S. Abdominal obesity and risk of CVD: a dose-response meta-analysis of thirty-one prospective studies. Br J Nutr. 2021;126(9):1420-30. doi: 10.1017/S0007114521000064
920. Yan Y-x, Wang G-f, Xu N, Wang F-l. Correlation between postoperative weight loss and diabetes mellitus remission: a meta-analysis. Obes Surg. 2014;24(11):1862-9. doi: 10.1007/s11695-014-1285-z
921. Yan L-J, Yang L-S, Yan Y-C, Tan S-Y, Ding Z-N, Liu H, et al. Anthropometric indicators of adiposity and risk of primary liver cancer: a systematic review and dose-response meta-analysis. Eur J Cancer. 2023;185:150-63. doi: 10.1016/j.ejca.2023.03.005
922. Yang H-S, Yoon C, Myung S-K, Park SM. Effect of obesity on survival of women with epithelial ovarian cancer: a systematic review and meta-analysis of observational studies. Int J Gynecol Cancer. 2011;21(9):1525-32. doi: 10.1097/IGC.0b013e31822eb5f8
923. Yang C, Lu Y, Xia H, Liu H, Pan D, Yang X, Sun G. Excess body weight and the risk of liver cancer: systematic review and a meta-analysis of cohort studies. Nutr Cancer. 2020;72(7):1085-97. doi: 10.1080/01635581.2019.1664602
924. Yang S-T, Liu C-H, Ma S-H, Chang W-H, Chen Y-J, Lee W-L, Wang P-H. Association between pre-pregnancy overweightness/obesity and pregnancy outcomes in women with polycystic ovary syndrome: a systematic review and meta-analysis. Int J Environ Res Public Health. 2022;19(15). doi: 10.3390/ijerph19159094
925. Yang L-S, Yan L-J, Yan Y-C, Ding Z-N, Liu H, Tan S-Y, et al. Regional and sex differences in the mortality risk associated with primary liver cancer in obesity: a systematic review and meta-analysis. Nutrition. 2023;113:112097. doi: 10.1016/j.nut.2023.112097
926. Yeh T-L, Chen H-H, Tsai S-Y, Lin C-Y, Liu S-J, Chien K-L. The relationship between metabolically healthy obesity and the risk of cardiovascular disease: a systematic review and meta-analysis. J Clin Med. 2019;8(8). doi: 10.3390/jcm8081228
927. Youssef MR, Reisner ASC, Attia AS, Hussein MH, Omar M, LaRussa A, et al. Obesity and the prevention of thyroid cancer: impact of body mass index and weight change on developing thyroid

cancer - pooled results of 24 million cohorts. Oral Oncol. 2021;112:105085. doi: 10.1016/j.oraloncology.2020.105085
928. Yu H-J, Ho M, Liu X, Yang J, Chau PH, Fong DYT. Association of weight status and the risks of diabetes in adults: a systematic review and meta-analysis of prospective cohort studies. Int J Obes. 2022;46(6):1101-13. doi: 10.1038/s41366-022-01096-1
929. Yu H-j, Ho M, Liu X, Yang J, Chau PH, Fong DYT. Incidence and temporal trends in type 2 diabetes by weight status: a systematic review and meta-analysis of prospective cohort studies. J Glob Health. 2023;13:04088. doi: 10.7189/jogh.13.04088
930. Yuan W, Wu B, Lou M, Song B, Han X, Sheng F, Xu W. Identification of risk factors for stroke in China: a meta-analysis of prospective cohort studies. Front Neurol. 2022;13:847304. doi: 10.3389/fneur.2022.847304
931. Zahedi R, Molavi Vardanjani H, Baneshi MR, Haghdoost AA, Malekpour Afshar R, Ershad Sarabi R, et al. Incidence trend of breast cancer in women of eastern Mediterranean region countries from 1998 to 2019: a systematic review and meta-analysis. BMC Womens Health. 2020;20(1):53. doi: 10.1186/s12905-020-00903-z
932. Zhang Y, Liu H, Yang S, Zhang J, Qian L, Chen X. Overweight, obesity and endometrial cancer risk: results from a systematic review and meta-analysis. Int J Biol Markers. 2014;29(1):e21-e9. doi: 10.5301/jbm.5000047
933. Zhang C, Cheng Y, Luo D, Wang J, Liu J, Luo Y, et al. Association between cardiovascular risk factors and colorectal cancer: a systematic review and meta-analysis of prospective cohort studies. EClinicalMedicine. 2021;34:100794. doi: 10.1016/j.eclinm.2021.100794
934. Zhang X, Zhu J, Kim JH, Sumerlin TS, Feng Q, Yu J. Metabolic health and adiposity transitions and risks of type 2 diabetes and cardiovascular diseases: a systematic review and meta-analysis. Diabetol Metab Syndr. 2023;15:50.
935. Zhang R, Boakye D, Yang N, Zhou X, Zhou Y, Jiang F, et al. Field synopsis of environmental and genetic risk factors of sporadic early-onset colorectal cancer and advanced adenoma. Cancer Epidemiol Biomarkers Prev. 2023;32(8):1048–60. doi: 10.1158/1055-9965.EPI-22-1316
936. Zhao L, Tian X, Duan X, Ye Y, Sun M, Huang J. Association of body mass index with bladder cancer risk: a dose-response meta-analysis of prospective cohort studies. Oncotarget. 2017;8(20):33990-4000. doi: 10.18632/oncotarget.16722
937. Zhao Y, Qie R, Han M, Huang S, Wu X, Zhang Y, et al. Association of BMI with cardiovascular disease incidence and mortality in patients with type 2 diabetes mellitus: a systematic review and dose-response meta-analysis of cohort studies. Nutr Metab Cardiovasc Dis. 2021;31(7):1976-84. doi: 10.1016/j.numecd.2021.03.003
938. Zheng R, Zhou D, Zhu Y. The long-term prognosis of cardiovascular disease and all-cause mortality for metabolically healthy obesity: a systematic review and meta-analysis. J Epidemiol Community Health. 2016;70(10):1024-31. doi: 10.1136/jech-2015-206948
939. Zhong S, Yan X, Wu Y, Zhang X, Chen L, Tang J, Zhao J. Body mass index and mortality in prostate cancer patients: a dose-response meta-analysis. Prostate Cancer Prostatic Dis. 2016;19(2):122-31. doi: 10.1038/pcan.2015.64
940. Zou Z-Y, Zeng J, Ren T-Y, Huang L-J, Wang M-Y, Shi Y-W, et al. The burden and sexual dimorphism with nonalcoholic fatty liver disease in Asian children: a systematic review and meta-analysis. Liver Int. 2022;42(9):1969-80. doi: 10.1111/liv.15080

Scoping review 2 – What are the lived experiences of individuals with overweight or obesity receiving weight management treatment?

The aim of this scoping review was to identify the lived experience of people living with overweight or obesity as they underwent weight management treatment. Review methods are described below. Findings informed the person-centred focus of the Guidelines and were utilised in the 'desirable' and 'undesirable' effects sections of the Evidence-to-Decision frameworks. The results presented here are a summary of the findings extracted for these Evidence-to-Decision framework sections.

Methods

The PICOT ('Population, Intervention, Comparator, Outcome, Time') framework for scoping review 2 is presented in Table B6.

Table B6: Scoping review 2 PICOT framework

PICOT Category	Details
Population	• People living with overweight or obesity
Interventions/Exposures	The following methods of weight management: • Non-pharmacological management (nutrition, physical activity, sedentary behaviour, psychological, family-centred interventions/exposures, sleep) • Pharmacological interventions for weight management (on- and off-label) • Bariatric surgery management
Comparators	Degree of weight loss or weight maintenance: • Percentage relative change in body weight • Change in BMI or BMI z-score/ BMI for age centiles • Change in waist circumference • Weight gain • No treatment
Outcomes	Qualitative outcomes: • Qualitative views • Descriptive experiences Quantitative outcomes: • Health-related quality of life • Mental health indicators
Time: intervention length and follow-up duration	Systematic reviews that have any length of intervention/exposure and any length of follow up
Study /publication type	Systematic or scoping reviews including qualitative and/or quantitative (including mixed-method) study types. Systematic reviews published in peer-reviewed journals, excluding conference abstracts, editorials, and letters to the editor.
Publication date range	Start date from database inception
Databases searched	• Ovid MEDLINE (all years) • APA PsycINFO via EBSCOHost (all years) • CINAHL Complete via EBSCOHost (all years) • Cochrane Library (all years)

Notes	* Weight management includes weight maintenance as well as weight loss, including mapping against growth charts, as defined by the authors of each publication, and cross-checked by the authors of the current review.

Search terms

Search terms used in scoping review 2 are presented in Table B7 (only the Ovid MEDLINE version is presented for simplicity). If a MeSH heading used in the Ovid MEDLINE search could not be substituted with an equivalent term in another database, that heading was dropped from the search for that database.

Table B7: Scoping review 2 Ovid MEDLINE search terms

Search number	Search terms
1	exp obesity/
2	(obes* or overweight* or over weight*).ab,ti.
3	Body Mass Index/
4	Weight Loss/
5	exp Obesity Management/
6	(obesity adj4 management).ab,ti.
7	Body Weight Maintenance/
8	(weight management or weight control or weight maintenance).ab,ti.
9	Pediatric Obesity/
10	((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese)).ab,ti.
11	1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 or 10
12	meta-analysis.pt.
13	systematic review.pt.
14	(scoping adj4 (review or study)).ab,ti.
15	12 OR 13 OR 14
16	Qualitative Research/
17	(theme* or perspective* or qualitative or interview* or phenomeno* or experience* or view or views or focus group*).ab,ti.
18	((mixed or multi*) adj5 method*).ab,ti.
19	exp mental disorders/
20	(depress* or anxiety or eating disorders or suicide).ab,ti
21	Quality of life/
22	(“quality of life” or “life quality” or HRQoL or HRQL or QoL).ab,ti.
23	16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22
24	11 AND 15 AND 23
25	Date limit: All years

Inclusion criteria

Publication types

Publications were included if:

- overweight or obesity was a topic for study reviews, including qualitative and/or quantitative (including mixed-method) study types;

- studies reported in English or a language other than English (note, only studies in English were identified, therefore translation was not required); and
- full-text papers published in peer-reviewed publications.

Types of participants

- Studies involving participants aged 2 years and older with any degree of overweight or obesity were considered for inclusion.

Types of outcome measures

Articles were eligible for inclusion if they:

- were systematic or scoping reviews where overweight and obesity was the topic under study, and published in peer-reviewed journals;
- included qualitative and/or quantitative (including mixed-methods) study types;
- involved participants aged 2 years and older with any degree of overweight or obesity;
- were reviews of studies that examined participants' qualitative views and/or descriptive experiences (e.g., experiences of weight stigma, or weight bias); and/or
- were reviews of studies that included a measure of health-related quality of life or any validated measure of depression and anxiety, eating disorders, or suicide.

Due to the special health needs of pregnant and postpartum women, these results were not included in this analysis.

Exclusion criteria

Publication types

Types of studies that were excluded were:

- study protocols;
- conference abstracts;
- editorials; and
- letters to the Editor.

Types of participants

Studies with participants living with overweight or obesity due to a specific genetic condition, e.g., Prader Willi Syndrome; or animals were excluded.

Study selection

The search was conducted on 13 September 2023. Database searches were exported to Covidence for screening by title and abstract then by full text. This process was conducted independently and in duplicate by two reviewers. A summary of the search yield is presented in Table B8.

Table B8: Scoping review 2 literature yield

Database	Yield (n)	
Ovid MEDLINE	2,664	
APA PsycINFO via EBSCOHost	67	
CINAHL Complete via EBSCOHost	1,648	
Cochrane Library	140	

		Duplicates removed (n)
Before duplicates removed	4,519	
After duplicates removed in EndNote	3,641	878
After duplicates removed in Covidence	3,618	23
		Excluded (n)
Title/abstract screening	3,618	3,405
Full-text screening	214	65 Exclusion reasons: - 24 Ineligible outcome - 14 Ineligible population - 11 Ineligible publication type - 7 Ineligible study design - 5 Ineligible intervention - 2 Full text unavailable for review - 2 Ineligible comparator
Included full texts	**149**	

Data extraction and synthesis

Data extraction was conducted using REDCap® software (EDC software, USA). This included: publication details, study population characteristics (sample size, age, and sex of participants), intervention or exposure types (nutrition, physical activity, sedentary behaviour, psychological, family-centred, sleep, pharmacological, or bariatric surgery), study type, and study outcomes (qualitative views or descriptive experiences of participants' lived experience during weight management treatment; or validated health-related quality of life measures, or mental health indicators) reporting the lived experiences of people living with overweight or obesity.

Narrative results data (i.e., qualitative views or descriptive experiences of participants' lived experience during weight management treatment) were exported from REDCap® software into Excel spreadsheets and checked for transcription errors. Data were divided by age into two subgroups: adults (includes those aged ≥18y); and children (aged 2 to <12y) and adolescents (aged 12 to <18y) combined. Leximancer Desktop 5.0 (Leximancer Pty Ltd, Brisbane) was used for qualitative analysis to examine the textual content and visually display the analysed information. Leximancer algorithms used word frequency and co-occurrence counts of concepts; i.e. terms that were used consistently with a more common term were grouped as term classifiers in the program thesaurus and were referred to as concepts. Concept maps showed frequently used concepts graphically through heat-mapping (using different colours) to indicate level of importance (i.e., the most important themes were shown in red, less important themes in blue). The strength of relationships between concepts was graphically represented by proximity (the closer a mapped theme to another, the stronger the relationship). Overlapping concept bubbles indicated complex interconnectivity between those themes. A Topic Guide was also generated to assist efficient review and analysis of narrative data (941). Leximancer has been shown to have stability, reproducibility, and correlative validity (942). No additional manual thematic analyses of this data were performed.

Initial experimental concept maps were generated using the Leximancer default program settings (941), and several settings were adjusted iteratively to optimise and refine analysis, resulting in the final analysis settings. The 'Number of Sentences' analysed per block was increased from the automatic setting (two) to ten to reflect the nature of the results extracted (e.g. paragraphs, lengthy quotations). The 'Total Number of Concepts' field was set to 100 for the children/adolescent analysis due to the relatively small data pool for that population. The Leximancer Concept seeds were screened, and related words closely located within a theme bubble were merged (e.g. singular and plural words; such as ‘barrier’ and ‘barriers’, ‘family’ and ‘families’). To prevent distortion of concept maps due to inclusion of irrelevant themes or concepts, terms related to individual study methodology (e.g., ‘control’, ‘intervention’, ‘months’, ‘participants’, ‘patients’) were removed, along with words unrelated to publication aims (e.g., ‘certain’, ‘due’, ‘having’). ‘User Defined Concept Seeds’ were created to assist clustering of concepts. Concept maps were generated using settings of 100% for visible concepts. Theme sizes were set at 50% for each population group to clarify concepts within themes. Selection of a larger theme size resulted in the concept map visually depicting fewer themes encompassing a broader group of concepts. Theme size (and associated extracted text) was selected to best represent the data. Leximancer-generated text extracts relating to each theme was reviewed in conjunction with the Leximancer Topic Guide to support analysis.

Results

The PRISMA flow diagram for scoping review 2 is shown in Figure B2. A summary of the results is presented in Table B9. Of the n=3618 abstracts identified, n=214 full texts were screened, resulting in n=149 included publications.

Summary of findings

Publications that met inclusion criteria were 136 systematic reviews (943-1078), 10 scoping reviews (1079-1088) and 3 umbrella reviews (1089-1091). Forty-seven studies included a meta-analysis (952, 956-959, 962, 963, 965, 971-973, 975, 977, 978, 987, 993-996, 999, 1008-1010, 1013-1015, 1020, 1026, 1030, 1033, 1041, 1048, 1049, 1051-1054, 1059, 1061, 1063, 1066, 1067, 1070, 1073, 1075, 1077, 1078) and 16 were narrative reviews (946, 966, 976, 981, 986, 988, 998, 1003, 1006, 1016-1018, 1024, 1027, 1032, 1046).

Age groups examined in included publications were children and adolescents (2 to <18y, n=44), young and middle-aged adults (18 to <65y, n=108 publications), older adults (≥65y, n=26 publications), or all adults (>18y, n=125 publications), and people with mental health conditions (n=1). No reviews were identified that examined the lived experiences of population subgroups of interest, including Aboriginal and Torres Strait Islander people, culturally and linguistically diverse Australians, people with disability, or people with an eating disorder.

Most reviews reported multimodal interventions (n=86, 54.4%). As such they included combinations of nutrition, physical activity, sedentary behaviour, psychological, family-centred, sleep, pharmacological, or surgical interventions. Reviews exploring the experiences of surgical patients were most common single mode of intervention (n=47, 29.7%).

Qualitative data included perspectives and lived experiences, health-related quality of life or mental health indicators, as well as quantitative validated measures of health-related quality of life, mental health indicators, and eating disorders.

A total of 346 narrative results were extracted from 59 reviews of people with overweight or obesity undergoing weight loss or management interventions, and synthesised in the Leximancer analysis.

These included 79 results for children and adolescents, and 267 results for adults. Results were analysed separately for children and adolescents (combined), and all adults (including older adults). Quantitative data were extracted from 36 systematic reviews and meta-analyses. Validated measures of health-related quality of life, depression, and eating disorders only were examined in children and adolescents. In adults, anxiety, depression, suicide, health-related quality of life, and eating disorders was identified.

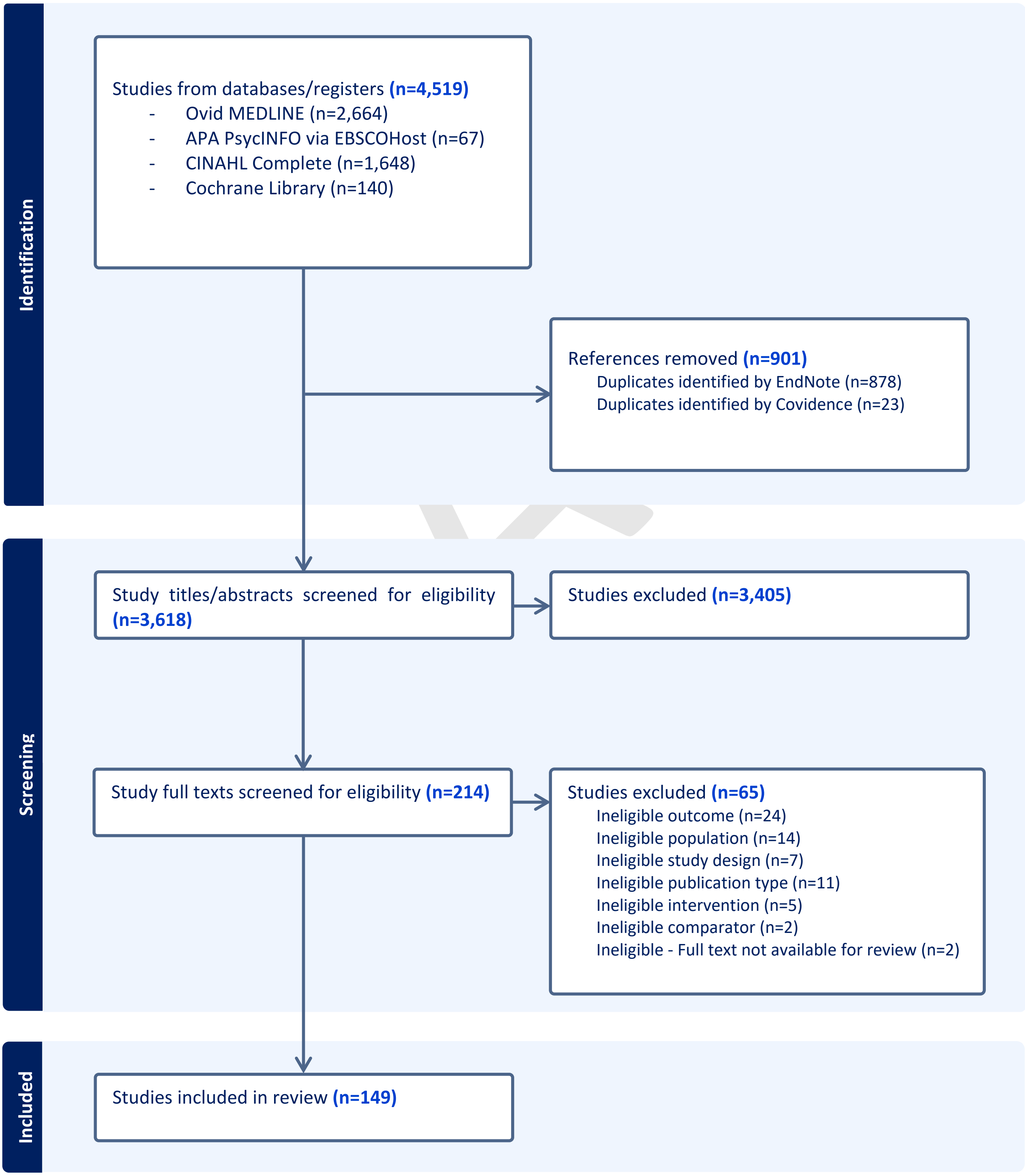

Figure B2: Scoping review 2 PRISMA flow diagram

Table B9: Summary of characteristics of reviews included in scoping review 2

The following abbreviations are used in the table below: 'NRCT', non-randomised controlled trials; and 'RCT', randomised controlled trials.

Author, Year	Review type	No. of studies/reviews included	Study designs included in the review	Countries or regions of studies included in the review	Populations of interest defined by review authors	Aggregate number of participants	Intervention(s)	Outcome(s)
Ajie & Chapman-Novakofski, 2014 (943)	Systematic	15	Randomised controlled trials (RCTs), quasi-experimental	Not reported	Adolescents (12y to <18y)	7183	Nutrition	Mental health
Alberga et al., 2019 (1079)	Scoping	21	Qualitative	US, UK, Canada, Sweden, Germany, Australia, New Zealand	Young and middle-aged adults (18 to <65y), older adults (65y+)	24972	No structured intervention	Qualitative views, descriptive experiences
Al-Khudairy et al., 2017 (944)	Systematic	44	RCTs	Not reported	Adolescents (12y to <18y)	4718	Nutrition, physical activity, psychological	Mental health
Anand et al., 2023 (945)	Systematic	26	Qualitative	East Asia, Middle East, South Asia, Southeast Asia	Young and middle-aged adults (18 to <65y)	1072	No structured intervention	Qualitative views, descriptive experiences
Ananthakumar et al., 2020 (946)	Systematic	21	Qualitative	North America, Europe, Australia, New Zealand	Young and middle-aged adults (18 to <65y), older adults (65y+)	466	No structured intervention	Qualitative views, descriptive experiences
Andersen et al., 2015 (947)	Systematic	7	Cross-sectional	Sweden, Netherlands, Finland, US, Norway	Young and middle-aged adults (18 to <65y)	1113	Surgical	Health-related quality of life
Ansari & Serjeant, 2023 (948)	Systematic	9	Qualitative	US, Sweden, Portugal, Denmark, UK, Taiwan, Turkey	Young and middle-aged adults (18 to <65y)	154	Surgical	Qualitative views, descriptive experiences
Arai et al., 2015 (949)	Systematic	4	RCTs	Australia, UK	Children (2y to <12y)	Not reported	Nutrition, physical activity, family-centred	Qualitative views

Author, Year	Review type	No. of studies/reviews included	Study designs included in the review	Countries or regions of studies included in the review	Populations of interest defined by review authors	Aggregate number of participants	Intervention(s)	Outcome(s)
Asiah et al., 2023 (950)	Systematic	15	RCTs, cross-sectional	Not reported	Young and middle-aged adults (18 to <65y), older adults (65y+)	1161	Physical activity	Health-related quality of life, mental health
Athanasiadis et al., 2021 (951)	Systematic	32	Cross-sectional, longitudinal observational, case studies	US, Spain, Europe, Asia, Africa	All adults (18y+)	13263	Surgical	Mental health
Avenell et al., 2018 (952)	Systematic	33	RCTs, longitudinal observational, qualitative	US, UK, Norway, Spain, Canada, Australia, Mexico	Young and middle-aged adults (18 to <65y)	644	Nutrition, physical activity, pharmacological	Qualitative views, descriptive experiences, health-related quality of life, mental health
Baillot et al., 2015 (954)	Systematic	56	RCTs, cross-sectional, longitudinal observational	US, Italy, Sweden, Australia, Norway, Brazil, Italy, Switzerland	Young and middle-aged adults (18 to <65y)	10844	Nutrition, physical activity, psychological	Health-related quality of life
Baillot et al., 2017 (1080)	Scoping	24	Cross-sectional, longitudinal observational, qualitative	US, UK, Norway, Denmark, Canada, Brazil, Saudia Arabia, Sweden, Finland, Austria, Portugal	All adults (18y+)	2380	Surgical	Qualitative views, descriptive experiences
Baillot et al., 2021 (953)	Systematic	27	Cross-sectional, qualitative	Australia, US, UK, Ireland, France, Denmark, Finland, Norway, Sweden, Italy	Young and middle-aged adults (18 to <65y)	70922	Physical activity	Qualitative views
Bennett et al., 2022 (955)	Systematic	29	Cross-sectional, longitudinal observational	Not reported	Adolescents (12y to <18y), young and	Not reported	Surgical	Qualitative views, descriptive experiences

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					middle-aged adults (18 to <65y)			
Black et al., 2013 (956)	Systematic	23	RCTs, cross-sectional, longitudinal observational	Not reported	Children (2y to <12y), adolescents (12y to <18y)	637	Surgical	Health-related quality of life
Blaine & Rodman, 2007 (957)	Systematic	32	Not reported	Not reported	All adults (18y+)	853	Psychological, pharmacological, surgical	Mental health, eating disorders
Blaine et al., 2007 (958)	Systematic	117	Not reported	Not reported	All adults (18y+)	5715	Psychological, pharmacological, surgical	Mental health
Buckell et al., 2021 (959)	Systematic	5	RCTs	US, UK	Young and middle-aged adults (18 to <65y), older adults (65y+)	8881	Nutrition, physical activity, psychological	Health-related quality of life
Cantor et al., 2022 (960)	Systematic	7	RCTs	US, Australia, New Zealand	Young and middle-aged adults (18 to <65y), older adults (65y+)	51636	Nutrition, physical activity, psychological	Health-related quality of life
Cao et al., 2022 (961)	Systematic	19	RCTs	US, Australia, Iran, Germany, Spain, UK, Netherlands	Adolescents (12y to <18y), young and middle-aged adults (18 to <65y), older adults (65y+)	3408	Nutrition, psychological, pharmacological	Mental health
Carraca et al., 2021 (962)	Systematic	36	RCTs, longitudinal observational	Not reported	Young and middle-aged adults (18 to <65y)	3536	Nutrition, physical activity	Health-related quality of life, mental health

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Castaneda et al., 2019 (963)	Systematic	32	RCTs, cross-sectional, case studies	Australia, Belgium, Brazil, Canada, Denmark, Italy, Netherlands, Sweden, Switzerland, US	Young and middle-aged adults (18 to <65y)	148643	Surgical	Mental health
Cheroutre et al., 2020 (964)	Systematic	11	Cross-sectional, longitudinal observational	US, Canada, Spain, Norway	Young and middle-aged adults (18 to <65y)	818	Nutrition, psychological, surgical	Mental health, eating disorders
Chew et al., 2023 (965)	Systematic	11	RCTs, cross-sectional	US, UK, Finland, Portugal	Young and middle-aged adults (18 to <65y)	1480	Psychological	Health-related quality of life, mental health, eating disorders
Cohn et al., 2019 (966)	Systematic	28	Qualitative	US, UK, Norway, Sweden, Canada, Denmark, Italy, Portugal, Brazil, Australia, Saudi Arabia	Young and middle-aged adults (18 to <65y)	587	Surgical	Qualitative views, descriptive experiences
Colquitt et al., 2014 (967)	Systematic	22	RCTs	Norway, Sweeden, Italy, Egypt, Australia, Belgium, Taiwan, US, Greece, Israel, China, Spain, Poland, Switzerland, India, France	All adults (18y+)	1798	Nutrition, physical activity, surgical	Health-related quality of life
Coulman et al., 2017 (968)	Systematic	33	Qualitative	US, Canada, Scandinavia, Brazil, UK, Netherlands, New Zealand	Young and middle-aged adults (18 to <65y)	363	Surgical	Qualitative views, descriptive experiences

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David et al., 2020 (969)	Systematic	36	RCTs, cross-sectional, longitudinal observational	Canada, Italy, US, Brazil, Germany, Norway, Mexico, Spain, Iran, Sweden, Greece	Young and middle-aged adults (18 to <65y)	2582	Psychological, surgical	Health-related quality of life, mental health, eating disorders
de Jong et al., 2023 (970)	Systematic	28	RCTs, longitudinal observational	New Zealand, Norway, UK, Turkey, US, Netherlands, Australia	Children (2y to <12y), adolescents (12y to <18y), young and middle-aged adults (18 to <65y)	895	Nutrition, physical activity, psychological	Qualitative views, descriptive experiences
Dehghan Ghahfarokhi et al., 2022 (971)	Systematic	26	RCTs	US, Belgium, UK, Australia, Canada, Spain, Ireland	Young and middle-aged adults (18 to <65y)	2373	Physical activity	Health-related quality of life
Doni et al., 2020 (1081)	Scoping	8	Qualitative	Italy, US, Denmark, Norway, Brazil	Young and middle-aged adults (18 to <65y)	101	Surgical	Qualitative views, descriptive experiences
Driscoll et al., 2016 (972)	Systematic	9	Cross-sectional, longitudinal observational	Sweden, Norway, US, Netherlands, Brazil, Spain	All adults (18y+)	7361	Surgical	Health-related quality of life, mental health
Dugmore et al., 2020 (973)	Systematic	10	RCTs	US, Canada	Young and middle-aged adults (18 to <65y)	1194	Nutrition, physical activity, psychological	Health-related quality of life, mental health, eating disorders
Er et al., 2023 (974)	Systematic	5	Qualitative	US, Ireland, UK	Young and middle-aged adults (18 to <65y)	70	Surgical	Qualitative views, descriptive experiences
Fabricatore et al., 2011 (975)	Systematic	31	RCTs	Not reported	Young and middle-aged adults (18 to <65y)	7937	Nutrition, physical activity, psychological, pharmacological	Mental health

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Farrell et al., 2021 (976)	Systematic	32	Qualitative	New Zealand, US, Norway, UK, Canada, Sweden, Italy, Ireland, Denmark, Australia	Young and middle-aged adults (18 to <65y), older adults (65y+)	503	No structured intervention	Qualitative views, descriptive experiences
Fidjeland & Oen, 2022 (1082)	Scoping	15	RCTs, qualitative	US, Australia, Sweden, China	Children (2y to <12y)	1238	Nutrition, physical activity, sedentary behaviour, family-centred	Qualitative views, descriptive experiences
Fu et al., 2022 (977)	Systematic	33	RCTs, longitudinal observational	Australia, Austria, Canada, Denmark, France, Germany, Iran, Israel, Malaysia, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, US	Young and middle-aged adults (18 to <65y)	12556	Surgical	Mental health
Gadd et al., 2020 (978)	Systematic	20	RCTs, longitudinal observational	Not reported	Young and middle-aged adults (18 to <65y), older adults (65y+)	876	Surgical	Health-related quality of life, mental health
Gibbons et al., 2017 (1083)	Scoping	16	Case studies	Not reported	Adolescents (12y to <18y), young and middle-aged adults (18 to <65y)	49	Surgical	Health-related quality of life
Gill et al., 2019 (979)	Systematic	13	Cross-sectional, longitudinal observational	Not reported	Young and middle-aged adults (18 to <65y)	1590	Surgical	Mental health
Gilmartin et al., 2016 (980)	Systematic	9	Cross-sectional, longitudinal observational, case studies	Brazil, US, Turkey, Switzerland, Austria, Italy, Netherlands	All adults (18y+)	305	Surgical	Health-related quality of life

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Greaves et al., 2017 (981)	Systematic	26	Qualitative	Australia, Finland, Greece, Ireland, Sweden, US, UK	Young and middle-aged adults (18 to <65y), older adults (65y+)	710	Nutrition, physical activity, psychological, no structured intervention	Qualitative views, descriptive experiences
Griffiths et al., 2010 (982)	Systematic	7	RCTs, cross-sectional, longitudinal observational	Belgium, UK, Australia, South Korea, Sweden, US, Netherlands, Israel	Children (2y to <12y), adolescents (12y to <18y)	832	Nutrition, physical activity, psychological, family-centred	Health-related quality of life
Hachem & Brennan, 2016 (983)	Systematic	13	RCTs, quasi-group, cohort	US, Israel, Norway, Australia, Sweden, France, Taiwan	Young and middle-aged adults (18 to <65y)	4904	Nutrition, physical activity, pharmacological, surgical	Health-related quality of life
Harris et al., 2018 (984)	Systematic	6	RCTs	US, UK	Young and middle-aged adults (18 to <65y)	400	Nutrition, physical activity	Health-related quality of life
Hartmann-Boyce et al., 2014 (987)	Systematic	8	RCTs	US, UK, Germany, Australia, Switzerland	Young and middle-aged adults (18 to <65y)	3700	Nutrition, physical activity, psychological	Health-related quality of life, mental health, eating disorders
Hartmann-Boyce et al., 2017 (986)	Systematic	31	Qualitative	Iran, United Arab Emirates, US, UK, Australia, Greece, Canada, Taiwan	Young and middle-aged adults (18 to <65y)	828	No structured intervention	Qualitative views, descriptive experiences
Hartmann-Boyce et al., 2018 (988)	Systematic	23	Qualitative	US, UK, Australia, Greece, Switzerland	Young and middle-aged adults (18 to <65y)	723	Nutrition, physical activity, no structured intervention	Qualitative views, descriptive experiences

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Hartmann-Boyce et al., 2019 (985)	Systematic	22	Qualitative	Iran, US, UK, Australia, Greece, Canada, Taiwan	Young and middle-aged adults (18 to <65y), older adults (65y+)	681	Nutrition, physical activity, sedentary behaviour	Qualitative views, descriptive experiences
Hegland et al., 2018 (1089)	Umbrella	5	Systematic review	Saudi Arabia, Canada, UK, China	Young and middle-aged adults (18 to <65y), older adults (65y+)	16956	Nutrition, physical activity, psychological	Health-related quality of life
Herget et al., 2014 (989)	Systematic	12	Cross-sectional, case studies	US, Austria, Portugal, Sweden	Adolescents (12y to <18y)	363	Psychological, surgical	Health-related quality of life, mental health
Herpertz et al., 2003 (990)	Systematic	171	Cross-sectional, longitudinal observational	Not reported	All adults (18y+)	Not reported	Surgical	Descriptive experiences, health-related quality of life, mental health, eating disorders
Hillstrom & Graves, 2015 (991)	Systematic	10	RCTs, cross-sectional	Austria, Australia, Sweden, US	Adolescents (12y to <18y)	322	Surgical	Health-related quality of life, mental health
House et al., 2021 (992)	Systematic	23	RCTs, cross-sectional, longitudinal observational	Australia, Netherlands, US, Belgium, UK, Germany, Romania, France, Iran	Children (2y to <12y), adolescents (12y to <18y)	2455	Nutrition, physical activity, psychological	Health-related quality of life, mental health, eating disorders
Hu et al., 2020 (993)	Systematic	23	RCTs, cross-sectional	Not reported	Young and middle-aged adults (18 to <65y), older adults (65y+)	7443	Surgical	Health-related quality of life

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Jebeile et al., 2019 (994)	Systematic	36	RCTs, non-randomised controlled trials (NRCTs), pre-post	US, Belgium, Brazil, Australia, UK, Netherlands, Canada, Iran, Israel, Romania, Spain	Children (2y to <12y), adolescents (12y to <18y)	2589	Nutrition, physical activity, psychological	Eating disorders
Jebeile et al., 2019 (995)	Systematic	45	RCTs, longitudinal observational	US, UK, Norway, Brazil, Australia, Israel, Portugal, Canada, Belgium, Korea, Switzerland, Germany, Iran	Children (2y to <12y)	3702	Nutrition, physical activity, psychological	Mental health
Jebeile et al., 2023 (996)	Systematic	49	RCTs	US, UK, Australia, Netherlands, Italy, New Zealand, Canada, Finland, Brazil, Greece	Young and middle-aged adults (18 to <65y)	6337	Nutrition, physical activity, psychological	Mental health
Jiang et al., 2021 (997)	Systematic	24	RCTs, cross-sectional, longitudinal observational	US, Austria, Italy, Netherlands, Switzerland, Sweden, Germany, Canada, UK, Denmark, Poland	Adolescents (12y to <18y), all children (2-<18y), young and middle-aged adults (18 to <65y)	6867	Surgical	Qualitative views, descriptive experiences, health-related quality of life
Jones et al., 2019 (998)	Systematic	28	Cross-sectional, longitudinal observational, qualitative	UK, US, Australia, China, Europe, Canada	Adolescents (12y to <18y)	735	Nutrition, physical activity	Qualitative views, descriptive experiences
Jones et al., 2021 (999)	Systematic	42	RCTs	US, UK, Australia, Portugal, Finland, Germany, Malaysia, Canada, Greece, India, New Zealand	Young and middle-aged adults (18 to <65y), older adults (65y+)	9385	Nutrition, physical activity	Health-related quality of life

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Jumbe et al., 2016 (1000)	Systematic	11	RCTs, longitudinal observational	Not reported	Young and middle-aged adults (18 to <65y), older adults (65y+)	5887	Surgical	Health-related quality of life
Kitson et al., 2018 (1001)	Systematic	3	RCTs	Not reported	All adults (18y+)	161	Nutrition, physical activity, pharmacological, surgical	Health-related quality of life
Kolotkin & Andersen, 2017 (1090)	Umbrella	12	Systematic review, meta-analysis	US, UK, France, Netherlands, Germany, Italy, Spain, Portugal	Young and middle-aged adults (18 to <65y)	Not reported	Nutrition, physical activity, psychological, pharmacological, surgical	Health-related quality of life
Kroes et al., 2016 (1002)	Systematic	32	RCTs, cross-sectional, longitudinal observational	Not reported	Young and middle-aged adults (18 to <65y)	Not reported	Nutrition, physical activity, psychological, pharmacological, surgical	Qualitative views, health-related quality of life
Kubik et al., 2013 (1091)	Umbrella	Not reported	RCTs, literature review, systematic review	Not reported	Children (2y to <12y), adolescents (12y to <18y), young and middle-aged adults (18 to <65y)	Not reported	Surgical	Qualitative views
Lang et al., 2021 (1003)	Systematic	16	Longitudinal observational, qualitative	Australia, Denmark, Taiwan, UK, US	Children (2y to <12y), adolescents (12y to <18y)	317	Nutrition, physical activity, family-centred, no structured intervention	Qualitative views, descriptive experiences

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Lasikiewicz et al., 2014 (1004)	Systematic	36	Longitudinal observational	Not reported	Young and middle-aged adults (18 to <65y),	4639	Nutrition, physical activity, psychological	Health-related quality of life
Layton et al., 2020 (1005)	Systematic	9	Case studies	Not reported	Young and middle-aged adults (18 to <65y),	15	Surgical	Qualitative views, descriptive experiences, health-related quality of life
Lee et al., 2022 (1006)	Systematic	20	RCTs	US, UK, Australia, New Zealand, India	Young and middle-aged adults (18 to <65y), older adults (65y+), people with a mental disorder	515	Psychological	Qualitative views, descriptive experiences
Li et al., 2022 (1007)	Systematic	24	Qualitative	US, Sweden, Portugal, Australia, Norway, Denmark, UK, Canada, China, Turkey	Young and middle-aged adults (18 to <65y), older adults (65y+)	383	Nutrition, surgical	Qualitative views, descriptive experiences
Ligthart et al., 2015 (1008)	Systematic	3	RCTs	US, Netherlands, UK, Brazil, Malaysia, Australia	Children (2y to <12y), adolescents (12y to <18y)	997	Nutrition, physical activity, psychological, family-centred	Health-related quality of life
Lindekilde et al., 2015 (1009)	Systematic	72	RCTs, longitudinal observational	Not reported	Young and middle-aged adults (18 to <65y)	9433	Surgical	Health-related quality of life
Loh et al., 2021 (1010)	Systematic	49	Cross-sectional, longitudinal observational	Australia, US, Greece, Germany, Austria, Sweden, Norway, Switzerland, Spain, Italy, Brazil, Canada, Mexico, Portugal.	All adults (18y+)	11255	Surgical	Mental health

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Loveman et al., 2015 (1011)	Systematic	20	RCTs	US, Iran, Belgium, Australia, Netherlands, Switzerland, Israel	Children (2y to <12y), all adults (18y+)	3057	Nutrition, physical activity, sedentary behaviour, psychological, family-centred	Health-related quality of life
Lv et al., 2022 (1012)	Systematic	7	RCTs	Not reported	Young and middle-aged adults (18 to <65y), older adults (65y+), all adults (18y+)	1031	Psychological	Mental health
Magallares & Schomerus, 2015 (1013)	Systematic	21	Longitudinal observational	US, Australia, Norway, Denmark, Taiwan, Sweden, Greece	Adolescents (12y to <18y), young and middle-aged adults (18 to <65y)	2251	Surgical	Health-related quality of life
Malczak et al., 2021 (1014)	Systematic	47	RCTs, cross-sectional	US, Switzerland, Taiwan, Norway, Sweden, Poland, Brazil, India, Czech Republic, Germany, France, Italy, Netherlands, Finland, Portugal, Egypt	Young and middle-aged adults (18 to <65y)	26629	Surgical	Health-related quality of life
Marshall et al., 2020 (1015)	Systematic	18	RCTs	US, Norway, Italy, UK, Canada, Brazil, Denmark, Belgium	Young and middle-aged adults (18 to <65y)	1533	Nutrition, physical activity, psychological, surgical	Health-related quality of life, mental health
Martenstyn et al., 2020 (1016)	Systematic	23	RCTs	Australia, US, UK, Scotland, New Zealand, Finland, Denmark, Netherlands, China	All adults (18y+)	17001	Nutrition, physical activity, psychological, pharmacological, surgical	Health-related quality of life, mental health

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McDowell et al., 2018 (1017)	Systematic	11	RCTs, longitudinal observational	US, Italy	Young and middle-aged adults (18 to <65y), older adults (65y+)	646	Nutrition, physical activity, pharmacological, surgical	Health-related quality of life
McMaster et al., 2020 (1018)	Systematic	17	Cross-sectional, longitudinal observational, qualitative	US, Belgium, Chile, Canada, UK	Children (2y to <12y), adolescents (12y to <18y)	983	Nutrition, physical activity, psychological	Qualitative views, descriptive experiences
McPherson et al., 2017 (1084)	Scoping	32	RCTs, cross-sectional, longitudinal observational, qualitative	US, Sweden, New Zealand, France, Iran, UK, Australia, Canada, Norway	Children (2y to <12y), adolescents (12y to <18y)	Not reported	Family-centred	Qualitative views, descriptive experiences
Mead et al., 2016 (1019)	Systematic	21	RCTs	Turkey, US, Canada, Brazil, Mexico, UK, Chile, Iran, Australia, Netherlands, Germany, Switzerland	Children (2y to <12y), adolescents (12y to <18y)	2484	Nutrition, physical activity, pharmacological	Health-related quality of life
Mead et al., 2017 (1020)	Systematic	70	RCTs	US, Canada, Denmark, Spain, New Zealand, UK, Italy, Australia, Netherlands, Sweden, Iceland, Malaysia, Greece, Mexico, Brazil, Scotland, Germany, Finland, Israel, Japan, China (Hong Kong)	Children (2y to <12y)	8461	Nutrition, physical activity, psychological	Health-related quality of life
Meany et al., 2014 (1021)	Systematic	15	Not reported	UK, Finland, US, Spain, Netherlands, Australia, Sweden, Denmark	All adults (18y+)	1804	Surgical	Eating disorders

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Melendez-Torres et al., 2018 (1022)	Systematic	30	RCTs, cross-sectional, qualitative	US, Sweden, Belgium, UK, Switzerland, Netherlands	Young and middle-aged adults (18 to <65y), older adults (65y+)	8481	Nutrition, physical activity, psychological	Qualitative views
Mento et al., 2022 (1023)	Systematic	15	Cross-sectional, longitudinal observational, qualitative	Not reported	Young and middle-aged adults (18 to <65y)	5564	Surgical	Health-related quality of life, mental health, eating disorders
Mold & Forbes, 2013 (1024)	Systematic	32	Qualitative	US, UK, Australia, Canada	Young and middle-aged adults (18 to <65y)	Not reported	No structured intervention	Qualitative views, descriptive experiences
Mori et al., 2021 (1085)	Scoping	15	RCTs, cross-sectional, longitudinal observational, qualitative	US, Spain, Norway, Brazil, Denmark, Canada, France, UK	Young and middle-aged adults (18 to <65y)	Not reported	Surgical	Qualitative views, descriptive experiences
Moustafa et al., 2021 (1025)	Systematic	26	RCTs, longitudinal observational, case studies	US, Belgium, Sweden, Germany, Brazil	Children (2y to <12y), adolescents (12y to <18y)	2856	Nutrition, physical activity, psychological, family-centred, pharmacological, surgical	Eating disorders
Murray et al., 2018 (1026)	Systematic	9	RCTs	UK, Australia, US, Iran	Adolescents (12y to <18y)	782	Nutrition, physical activity, psychological	Health-related quality of life
Neve & Isaacs, 2022 (1027)	Systematic	26	Qualitative	New Zealand, Saudi Arabia, Canada, Australia, US, Sweden, UK, Greece, Norway,	Young and middle-aged adults (18 to <65y)	679	Nutrition	Qualitative views, descriptive experiences

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				Denmark, Ireland, South Korea				
O'Connor et al., 2017 (1028)	Systematic	59	RCTs	Spain, Germany, US, Netherlands, Finland, UK, Israel, Australia, Sweden, New Zealand, Italy, Canada, Switzerland, Mexico	Children (2y to <12y), adolescents (12y to <18y)	6956	Nutrition, physical activity, sedentary behaviour, pharmacological	Health-related quality of life
Opozda et al., 2016 (1029)	Systematic	23	Cross-sectional, longitudinal observational	Sweden, US, Italy, Australia, Switzerland, Iran, Spain, Lithuania, UK, Greece	Young and middle-aged adults (18 to <65y)	1735	Surgical	Eating disorders
Palavras et al., 2017 (1030)	Systematic	19	RCTs	US, Sweden, Switzerland, Italy, Netherlands	Young and middle-aged adults (18 to <65y)	1214	Psychological	Health-related quality of life, mental health
Pietrabissa et al., 2022 (1031)	Systematic	16	Longitudinal observational, case studies	Spain, Belgium, Iraq, Italy, Netherlands, Brazil, China, Scotland	Young and middle-aged adults (18 to <65y)	493	Psychological, surgical	Health-related quality of life
Raaijmakers et al., 2017 (1032)	Systematic	36	Longitudinal observational	Not reported	Young and middle-aged adults (18 to <65y)	7720	Surgical	Health-related quality of life
Rajaie et al., 2022 (1033)	Systematic	15	RCTs	US, Canada, Iran, Australia, Netherlands	All adults (18y+)	1294	Nutrition, physical activity	Health-related quality of life, mental health
Rajeev et al., 2023 (1034)	Systematic	27	Cross-sectional, longitudinal observational, qualitative	US, Portugal, Singapore, Canada, Germany, Saudi Arabia, UK, France, Italy, China	Young and middle-aged adults (18 to <65y)	7448	Surgical	Qualitative views, descriptive experiences

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Rausa et al., 2019 (1035)	Systematic	11	RCTs, cross-sectional	Not reported	Young and middle-aged adults (18 to <65y)	3145	Surgical	Health-related quality of life
Roberts et al., 2021 (1086)	Scoping	12	Cross-sectional, qualitative	US, England, Scotland, Portugal	Children (2y to <12y), adolescents (12y to <18y), young and middle-aged adults (18 to <65y)	Not reported	No structured intervention	Descriptive experiences
Robertson et al., 2014 (1036)	Systematic	22	RCTs, longitudinal observational	US, UK, Australia	Young and middle-aged adults (18 to <65y), older adults (65y+)	Not reported	Nutrition, physical activity, psychological, pharmacological	Qualitative views, Health-related quality of life, mental health
Schurmans et al., 2022 (1037)	Systematic	20	RCTs	US, Denmark	Young and middle-aged adults (18 to <65y)	507	Nutrition, physical activity, surgical	Health-related quality of life
Seyhan Ak et al., 2020 (1038)	Systematic	8	RCTs, longitudinal observational	Canada, US, Brazil, England, Germany	Young and middle-aged adults (18 to <65y)	2980	Psychological, surgical	Health-related quality of life, mental health
Shaikh et al., 2020 (1039)	Systematic	20	RCTs	US, Iran, Canada, France, Australia, UK	Young and middle-aged adults (18 to <65y)	2028	Nutrition, physical activity, pharmacological	Health-related quality of life
Sierzantowicz et al., 2022 (1040)	Systematic	10	RCTs, longitudinal observational, qualitative, case studies	Not reported	Young and middle-aged adults (18 to <65y)	4445	Surgical	Health-related quality of life, mental health
Silverii et al., 2023 (1041)	Systematic	9	RCTs	US, Norway, Australia, China, Brazil	Young and middle-aged adults (18 to	540	Nutrition	Health-related quality of life,

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					<65y), older adults (65y+)			mental health, eating disorders
Skea et al., 2019 (1042)	Systematic	33	RCTs, cross-sectional, qualitative	US, UK, Norway, Spain, Canada, Australia, Mexico	Young and middle-aged adults (18 to <65y)	644	Nutrition, physical activity	Qualitative views, descriptive experiences
Skelton et al., 2014 (1043)	Systematic	18	RCTs, cross-sectional, longitudinal observational, qualitative	US, Australia	Children (2y to <12y), adolescents (12y to <18y)	7002	Nutrition, physical activity, psychological	Qualitative views, health-related quality of life
Spadaccini et al., 2022 (1044)	Systematic	36	RCTs, longitudinal observational	Germany, Italy, US, Taiwan, France, Brazil, Norway, Czech Republic, Belgium, Switzerland	Children (2y to <12y), adolescents (12y to <18y), young and middle-aged adults (18 to <65y)	2030	Nutrition, physical activity, psychological, family-centred	Qualitative views, health-related quality of life, mental health
Spirou et al., 2020 (1045)	Systematic	48	Cross-sectional	Not reported	Young and middle-aged adults (18 to <65y)	2855	Surgical	Mental health, eating disorders
Spreckley et al., 2021 (1046)	Systematic	15	Qualitative	US, Switzerland, UK, Australia, Greece, Norway, Denmark, Ireland, Finland	Young and middle-aged adults (18 to <65y)	294	Nutrition, physical activity	Qualitative views, descriptive experiences
Stankov et al., 2012 (1047)	Systematic	15	Qualitative	Taiwan, Canada, US, UK, South Africa	Adolescents (12y to <18y)	367	Physical activity	Qualitative views, descriptive experiences
Steele et al., 2016 (1048)	Systematic	22	RCTs, cross-sectional, longitudinal observational	Not reported	Children (2y to <12y), adolescents (12y to <18y)	1332	Nutrition, physical activity, psychological,	Health-related quality of life

Author, Year	Review type	No. of studies/reviews included	Study designs included in the review	Countries or regions of studies included in the review	Populations of interest defined by review authors	Aggregate number of participants	Intervention(s)	Outcome(s)
							pharmacological, surgical	
Storman et al., 2022 (1049)	Systematic	9	RCTs	US, Norway, UK, Germany, Netherlands	Young and middle-aged adults (18 to <65y)	1112	Nutrition, physical activity, psychological, surgical	Health-related quality of life
Sutcliffe et al., 2018 (1050)	Systematic	21	Qualitative	Not reported	Young and middle-aged adults (18 to <65y), older adults (65y+)	507	Nutrition, physical activity, psychological	Qualitative views, descriptive experiences
Swierz et al., 2020 (1051)	Systematic	9	RCTs	Iran, Taiwan, Brazil, Israel, US	Young and middle-aged adults (18 to <65y)	226	Nutrition, surgical	Health-related quality of life
Szmulewicz et al., 2019 (1052)	Systematic	11	RCTs	Not reported	Adolescents (12y to <18y), young and middle-aged adults (18 to <65y)	731	Surgical	Health-related quality of life
Taba et al., 2021 (1053)	Systematic	14	RCTs, cross-sectional, longitudinal observational, case studies	Netherlands, Germany, US, New Zealand, Australia, UK	Young and middle-aged adults (18 to <65y)	5774	Surgical	Health-related quality of life, mental health
Taghavi et al., 2021 (1054)	Systematic	10	RCTs	Egypt, UK, Netherlands, US, Sweden, New Zealand, Slovenia, Australia	Young and middle-aged adults (18 to <65y)	1490	Nutrition, physical activity, psychological, pharmacological	Health-related quality of life, mental health
Tamayo et al., 2021 (1055)	Systematic	9	RCTs, non-experimental pre-post-test	US	Children (2y to <12y)	2373	Nutrition, physical activity, sedentary behaviour, family-centred, checked	Health-related quality of life

Author, Year	Review type	No. of studies/reviews included	Study designs included in the review	Countries or regions of studies included in the review	Populations of interest defined by review authors	Aggregate number of participants	Intervention(s)	Outcome(s)
			design, quasi-experimental					
Tamin et al., 2018 (1056)	Systematic	4	RCTs	Not reported	All adults (18y+)	734	Nutrition, physical activity, pharmacological	Health-related quality of life
Tay et al., 2023 (1057)	Systematic	14	RCTs, qualitative	New Zealand, US, England, Sweden, Denmark, Australia	Young and middle-aged adults (18 to <65y)	466	Nutrition, physical activity	Qualitative views, descriptive experiences
Ten Hoor et al., 2017 (1058)	Systematic	17	RCTs, cross-sectional	Not reported	Children (2y to <12y), adolescents (12y to <18y), young and middle-aged adults (18 to <65y)	11796	Nutrition, physical activity	Health-related quality of life, mental health, eating disorders
Termannsen et al., 2023 (1087)	Scoping	28	RCTs, qualitative	Canada, Netherlands, India, Australia, China, Poland, Norway, Germany, US, UK, Denmark, Turkey, Brazil	All adults (18y+)	949	Nutrition	Descriptive experiences
Theodoulou et al., 2023 (1059)	Systematic	47	RCTs	US, UK, Brazil, Australia, New Zealand, Europe	Young and middle-aged adults (18 to <65y), older adults (65y+)	Not reported	Nutrition, physical activity, psychological	Mental health
Toft & Uhrenfeldt, 2015 (1060)	Systematic	8	RCTs	England, Australia, US, Sweden, Norway	Young and middle-aged adults (18 to <65y)	212	Physical activity	Qualitative views, descriptive experiences
Toledo et al., 2023 (1061)	Systematic	10	RCTs	US, Germany	Children (2y to <12y), adolescents (12y to <18y), young and middle-	1093	Psychological	Mental health, eating disorders

Author, Year	Review type	No. of studies/reviews included	Study designs included in the review	Countries or regions of studies included in the review	Populations of interest defined by review authors	Aggregate number of participants	Intervention(s)	Outcome(s)
					aged adults (18 to <65y)			
Toma et al., 2018 (1062)	Systematic	13	Cross-sectional, longitudinal observational	Not reported	Adolescents (12y to <18y), all adults (18y+)	796	Surgical	Health-related quality of life
Trooboff et al., 2019 (1063)	Systematic	14	RCTs, cross-sectional	US, United Arab Emirates, Sweden, Egypt, Australia, Italy, France, Austria	Adolescents (12y to <18y)	573	Surgical	Health-related quality of life, mental health
Ulian et al., 2018 (1064)	Systematic	14	RCTs	US, Canada, UK, Brazil	Young and middle-aged adults (18 to <65y)	Not reported	Nutrition, physical activity, psychological	Qualitative views, mental health
Väisänen et al., 2013 (1065)	Systematic	6	Qualitative	US, Denmark, UK	Children (2y to <12y), adolescents (12y to <18y)	Not reported	Nutrition, physical activity, family-centred	Health-related quality of life
van Dammen et al., 2018 (1066)	Systematic	5	RCTs	US, UK	Young and middle-aged adults (18 to <65y)	571	Nutrition, physical activity, psychological	Mental health
Van den Eynde et al., 2021 (1088)	Scoping	4	Longitudinal observational, systematic review	Not reported	Young and middle-aged adults (18 to <65y), older adults (65y+)	61445	Surgical	Mental health, eating disorders
van den Hoek et al., 2017 (1068)	Systematic	9	RCTs	Not reported	All adults (18y+)	882	Nutrition, physical activity	Health-related quality of life
van Nunen et al., 2007 (1067)	Systematic	54	RCTs	Not reported	Young and middle-aged adults (18 to <65y)	Not reported	Surgical, no structured intervention	Health-related quality of life

Author, Year	Review type	No. of studies/reviews included	Study designs included in the review	Countries or regions of studies included in the review	Populations of interest defined by review authors	Aggregate number of participants	Intervention(s)	Outcome(s)
Van Zyl et al., 2020 (1069)	Systematic	10	RCTs, cross-sectional	US, Germany, Sweden, Greece, Canada	Young and middle-aged adults (18 to <65y)	382	Psychological, surgical	Health-related quality of life
Warkentin et al., 2014 (1070)	Systematic	53	RCTs	US, Australia, Denmark, China, Italy, France, Sweden, Greece, UK, Finland, Korea, New Zealand, Norway, Netherlands, Canada	Young and middle-aged adults (18 to <65y)	12105	Nutrition, physical activity, psychological, pharmacological, surgical	Health-related quality of life
White et al., 2015 (1071)	Systematic	21	RCTs, cross-sectional, longitudinal observational	US, Austria, Australia, Israel, Saudi Arabia, Sweden	Children (2y to <12y), adolescents (12y to <18y)	405	Surgical	Health-related quality of life, mental health
Willcox & Brennan, 2014 (1072)	Systematic	11	RCTs, longitudinal observational, case studies	US, Europe, Israel, Australia	Adolescents (12y to <18y)	457	Surgical	Health-related quality of life, mental health
Witham & Avenell, 2010 (1073)	Systematic	9	RCTs	US, UK	Older adults (65y+)	1954	Nutrition, physical activity	Health-related quality of life
Wright et al., 2021 (1074)	Systematic	14	RCTs, cross-sectional	Australia, New Zealand, Canada, Europe, US, Korea	Young and middle-aged adults (18 to <65y), older adults (65y+)	1633	Psychological	Health-related quality of life, mental health
Wu et al., 2020 (1075)	Systematic	10	RCTs, cross-sectional, longitudinal observational	China, Finland, France, Germany, Netherlands, Poland, Switzerland	Young and middle-aged adults (18 to <65y)	2327	Surgical	Health-related quality of life

Author, Year	Review type	No. of studies/reviews included	Study designs included in the review	Countries or regions of studies included in the review	Populations of interest defined by review authors	Aggregate number of participants	Intervention(s)	Outcome(s)
Zenlea et al., 2023 (1076)	Systematic	8	Cross-sectional, qualitative	US, Canada, UK, Australia, Netherlands	Adolescents (12y to <18y)	93	Family-centred, pharmacological, surgical	Qualitative views, descriptive experiences
Zhong et al., 2022 (1077)	Systematic	4	RCTs	Not reported	Young and middle-aged adults (18 to <65y)	3447	Pharmacological	Health-related quality of life
Zhu et al., 2020 (1078)	Systematic	6	RCTs	US, Brazil, China, Iran, Israel	Young and middle-aged adults (18 to <65y)	269	Surgical	Health-related quality of life

Abbreviations: 'NRCT', non-randomised controlled trials; and 'RCT', randomised controlled trials.

Children and adolescents

Quantitative Results

Fifteen reviews measured health-related quality of life measures or mental health indicators for children and adolescents participating in weight management interventions (944, 956, 982, 989, 991, 994, 995, 1008, 1020, 1026, 1048, 1061, 1063, 1071, 1072). The intervention types are summarised in Table B10. The age of participants in these reviews ranged from 3 to 18.6y. Seven reviews included studies conducted in adolescents only (≥12y) (944, 956, 989, 991, 1063, 1071, 1072), of which 6 reviewed those who had undergone weight loss surgery (956, 989, 991, 1063, 1071, 1072). Eight reviews included studies of both children and adolescents (982, 995, 996, 1008, 1020, 1026, 1048, 1061). Six reviews (982, 995, 996, 1008, 1020, 1048) of studies in younger children (<10y) included multimodal weight management interventions combining nutrition, physical activity, and psychological treatments with (n=2) (982, 1008) or without (n=4) (994, 995, 1020, 1048) family-centred interventions.

Table B10: Intervention types for children and adolescents

Intervention type	Number of reviews
Surgery only	5
Psychological treatment only	1
Surgery and Psychological	1
Nutrition, Physical activity, and Psychological	5
Nutrition, Physical activity, Family-centred care, and Psychological	2
Nutrition, Physical activity, Psychological, Pharmacology, and Surgery	1
Total	15

Behavioural interventions

Reviews reported outcomes from multimodal weight management treatments that included nutrition, physical activity, and psychological treatments with or without family-centred intervention. Children, adolescents, and their caregivers reported on child or adolescent health-related quality of life, mental health (anxiety and depression) or eating disorders. Overall, the outcomes related to health-related quality of life were mixed, with few studies showing some benefit, while others showed no benefit. Reduction in adverse mental health-related outcomes, including depression and anxiety, and eating disorder symptoms (bulimia, emotional eating, and binge eating) were also identified.

Five reviews (two with, and three without, the addition of family-centred care interventions) reported on health-related quality-of-life outcomes (944, 982, 1008, 1020, 1026). The reviews reported mixed results, with three indicating some benefit, and two reporting no change post-intervention. One review reported an increase in health-related quality of life reported by children (mean difference: 0.20 [95% CIs: 0.11, 0.29]) (1026). One review found an increase in parent-reported health-related quality of life (SMD: 0.13 [95% CIs: 0.06, 0.32]), but no substantial improvement in child-reported health-related quality of life measures (SMD: 0.15 [95% CI: -0.34 to 0.64]) or self-esteem (SMD: 0.19 [95% CI: -0.04 to 0.42], n=2 trials) (1020). One review reported an increase in health-related quality of life (SMD: 0.44 [95% CIs: 0.09-0.79]), and self-esteem (SMD: 0.09 [95% CIs: 0.08-0.27], n=6 trials) (944). Conversely, two reviews found no change in health-related quality of life outcomes following multimodal interventions (982, 1008).

One review reported a decrease in anxiety and depressive symptoms following treatment with multimodal nutrition, physical activity, and psychological interventions, with the largest decrease in depressive symptoms following inpatient weight management treatment (994). The review found a reduction in depressive symptoms with nutrition interventions (SMD: −0.36 [95% CI: 0.05], n=27 studies) and physical activity interventions with a structured exercise component (SMD: −0.33 [95% CI: 0.06], n=18 studies) (995). The same review also found a reduction in anxiety symptoms post-intervention for interventions combining nutrition, physical activity, and psychological treatments (SMD: −0.32 [95% CI: 0.15], n=23 studies) (995).

Two reviews (992, 994) reported change in eating disorder behaviours in children and adolescents (7-18 years) following interventions that combined nutrition, physical activity and psychological treatments. Eating disorder risk, bulimic symptoms, emotional eating, and binge eating were reduced post-intervention in one review (994). A second review (992) reported mixed results. Disordered eating behaviour (including dietary restraint, binge eating) decreased or were unchanged, while dietary restraint was increased or unchanged. However, no change in the number of binge eating days or depressive symptoms was observed following single-modal psychological treatment interventions (1061). One additional review found binge eating and loss of control (BE/LOC) behaviours significantly decreased following weight-loss interventions (all types of interventions), and a greater decrease in BE/LOC was associated with improved weight loss (1025).

Bariatric surgery interventions

Seven reviews reported health-related quality of life, mental health (anxiety and depression), and eating disorder outcomes in adolescent bariatric surgery patients (956, 989, 991, 1048, 1063, 1071, 1072). Five validated tools of health-related quality of life were used by studies included in the reviews: Pediatric Quality of Life Inventory (PedsQL), Moorehead–Ardelt Quality of Life Questionnaire (M-A QoLQll), Medical Outcomes Study Short Form 36 (SF-36), Child Health Questionnaire– Child Form (CHQ CF-50), DisabKids Questionnaire, and Impact of Weight on Quality of Life Kids (IWQOL-Kids) (956, 991, 1048, 1063, 1071, 1072). Depressive disorders and/or depressive disorder symptoms in adolescent patients who received bariatric surgery to treat obesity were assessed using the Beck Depression Inventory (BDI or BDI-II) and Beck Youth Inventory Depression subscale (BYI-D), or in interviews conducted by mental health professionals, or retrospective analysis of clinical patient charts (989, 991, 1063, 1071). Anxiety in adolescent bariatric surgery patients was measured using validated clinical interviews, semi-structured clinical interviews, and the Beck Youth Inventory (BYI) (989). Eating disorders (e.g., binge eating disorder) and eating disorder symptoms (e.g., loss of control eating) were measured through retrospective analysis of clinical patient charts and patients' life records (989).

Pre-operatively, adolescent bariatric surgery candidates were found to have heightened symptoms of depression (up to 50% of surgical candidates) and anxiety (up to 33% of surgical candidates) compared to adolescents not receiving surgery (989, 991, 1071). Overall, health-related quality of life (956, 1048, 1063, 1071, 1072) and depressive disorder symptoms (989, 991, 1063, 1071) improved post-surgery, and were associated with successful weight loss in adolescents. Evidence of outcomes in relation to anxiety and eating disorder symptoms after bariatric surgery was not found.

Qualitative Results

Fifteen reviews (949, 970, 998, 1003, 1018, 1025, 1043, 1044, 1047, 1055, 1065, 1076, 1082, 1084, 1086) analysed the lived experiences of children and adolescents living with overweight or obesity who were actively participating in a weight loss or maintenance programme at the time of reviewed studies, or who had done so previously. Of these fifteen reviews, 11 reviews (949, 970, 1003, 1018, 1025, 1043, 1044, 1076, 1082, 1084, 1086) included studies undertaken in both children and adolescents, 3 reviews (998, 1047, 1065) included adolescents only, and one only included studies of children (1055). Children and adolescents included in studies across all 15 reviews were aged 1-22y. The majority of reviews (n=13) included studies where children or adolescents had undergone a behavioural intervention only (949, 970, 998, 1003, 1018, 1043, 1044, 1047, 1055, 1065, 1082, 1084), and two reviews additionally included pharmacological and surgical interventions (1025, 1076).

In reviews including studies of younger children (<10y; n=12 reviews), ten reviews focussed on behavioural weight management treatments, including, in isolation or in combination: nutrition, physical activity, sedentary behaviour, psychological, family-centred, or sleep interventions (949, 970, 1003, 1018, 1043, 1044, 1047, 1055, 1065, 1082, 1084).

A total of 79 narrative results were extracted from 15 reviews (949, 970, 998, 1003, 1018, 1025, 1043, 1044, 1047, 1055, 1065, 1076, 1082, 1084, 1086), relating to the qualitative views and descriptive experiences of children and adolescents with overweight or obesity participating in a weight management program. The lived experience data included self-reported experiences and opinions from children and adolescents, as well as the perspectives of their parents or caregivers.

The Leximancer concept map identified four themes and 23 concepts (see Figure B3, and Table B11).

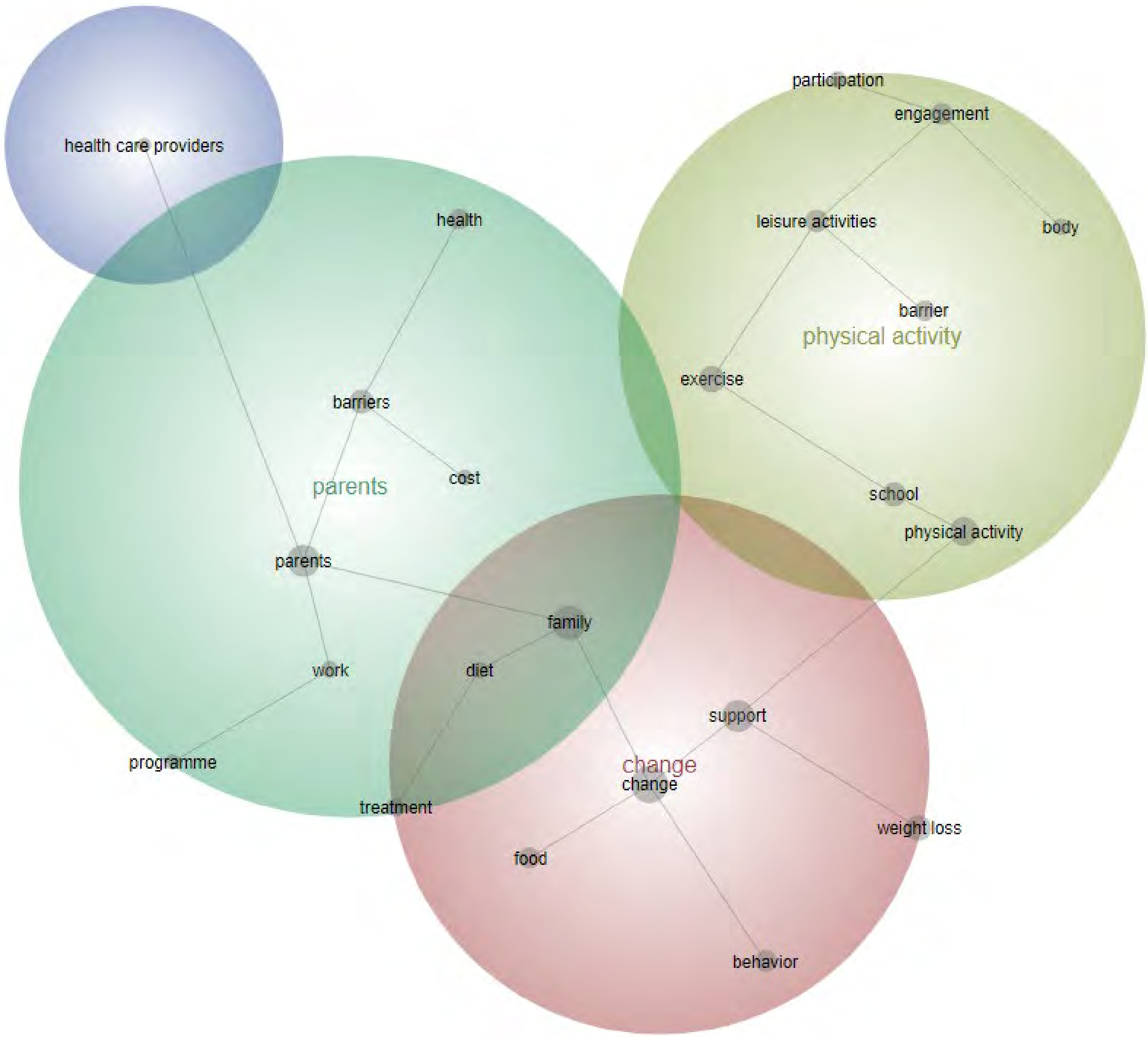


Figure B3: Leximancer concept map of children and adolescents receiving behavioural interventions; narrative results

Table B11: Leximancer generated concepts for children and adolescents receiving behavioural interventions

Concept	Count	Relevance %
Change	33	100
Support	31	94
Family	28	85
Parents	28	85
Physical Activity	23	70
Loss	23	70
Exercise	20	61
Barriers	18	55
School	17	52
Health	17	52
Activities	16	48
Behaviour	15	45
Engagement	14	42
Food	11	33
Barrier	11	33
Treatment	9	27
Body	8	24
Participation	8	24
Diet	7	21
Health Care Providers	6	18
Work	6	18
Programme	6	18
Cost	5	15

Theme: Change

The highest-ranked theme was ‘change’, with eight included concepts and 58 linked text segments. The motivations and strategies for behavioural change related to weight loss and maintenance were described, and facilitators and barriers were identified. Overlap with the theme ‘parents’ highlighted the important role of family support in making and sustaining healthy changes, especially dietary changes, for weight loss and maintenance among children and adolescents (949, 970, 998, 1003, 1018, 1055, 1076, 1082, 1084).

Primary motivations for initiating weight loss among adolescents included improved health, fitness, body image, self-esteem, confidence, and social acceptance (970, 998, 1076). Witnessing the lived experience of family members living with overweight or obesity motivated some young participants to lose weight (1076). Reduction of obesity-related comorbidity (e.g., asthma, back pain, and Type 2 diabetes mellitus) risk was also reported as motivation (1076).

> *“I realised that I wasn’t changing my body, I was changing my life. And I was in essence saving my life, because I had grown up seeing my family, all of my family, every single member of my family is morbidly obese. They have diabetes and heart disease, and there have been so many issues. I always have felt like I’ve been missing out and my family has been missing out on life in general. So I realised a few years back that I needed to change my life and to save my life and to live life.” (1003)*

Success from behavioural change (e.g., improved health, fitness, and weight loss) and enjoyment of changes being made facilitated weight loss and maintenance. Furthermore, successful weight loss was shown to improve self-esteem and self-efficacy that further increased behavioural change, particularly adherence to weight management programmes (1003, 1086).

> *"I've lost quite a bit of weight, haven't I, since starting [the programme] last year. So, now, like when I'm wearing clothes, I don't say it doesn't really suit me. So it's good to build up that confidence." (970)*

The analysis identified connections between support and weight loss, indicating greater support results in greater weight loss. Furthermore, evidence of weight loss may lead to further increased support for behavioural change. Practical strategies implemented by families created a positive framework and enabled young participants to make and sustain changes, as young participants were dependent on their parents or caregivers to implement changes within the home environment and provide resources to implement change (1003, 1076). Young participants relied on parents to role model healthy eating and behaviours, collaboratively change dietary behaviours, and arrange resources for physical activity (970, 998).

Periods of increased stress, difficulty coping with hunger, and a dislike of the behavioural changes required to maintain weight challenged adherence in young people (1003). Inaccurate or unsafe beliefs around weight loss were reported by young people in the reviews, including skipping meals, fad dieting, and impractical or overly vigorous exercise (1003, 1018).

> *"…in actual fact I probably wasn't eating as- as well as I should. Or as much as I should. Like I was only getting two meals a day rather than three. And stuff like that… which helped me lose weight quite fast but not in a sustainable kinda way because… once I did start eating properly and regularly again, it kinda went up and then it kind of levelled." (1003)*

Theme: Parents

The theme 'parents' was associated with six concepts and 48 linked text segments. The role of parents in successful weight management and behavioural change was highlighted. Supportive family dynamics were found to be beneficial for weight loss and behavioural change, particularly with respect to dietary changes. Parents also facilitated appointments with health care providers and treatment programmes.

> *"I decided to try to get in better shape, and because my mom introduced me to the program. I thought it would help my health and weight and, at the same time, help with the study as well." (998)*

Concerns about low self-esteem, followed by the child's health or weight status were the primary motivations among caregivers in seeking obesity management for their child or adolescent (1065, 1076). The importance of encouragement and motivation provided by supportive parents and families was highlighted by the reviews. Engagement of the broader family unit, including siblings, grandparents, and stepparents, with supporting behavioural change was helpful, especially when family members also adopted supportive behavioural changes (1003, 1055).

> *"I took a picture of my Mom because she always reminds me to exercise and says, 'Oh make sure you're eating healthy.' My Mom's the only person who really helps me." (998)*

Challenging family dynamics and absence of support from caregivers was a barrier to weight loss and weight maintenance (1003, 1018). Implementation of behavioural change could cause intra-familial conflict, sibling rivalry, parental guilt over food restriction, aggravate cultural sensitivities around food, and highlight conflicting parenting approaches (especially in divorced or separated families) (1055). Behavioural change efforts could be undermined by the other parent or other family members (970).

> *"When [her son] stays with his Dad ... they buy [food] ... [her son] is not supposed to eat ... It's misguided kindness." (1003)*

> *"'I'll explain to my mum when she uses so much oil I say, 'Mum, don't use so much oil because you could use half of that quantity of oil and still make it,' and she'll say, 'Well I've had it all my life darling, nothing's happened to me.'"* (949)

Despite positive family support benefitting behavioural change in young people, lack of knowledge around weight management, healthy eating and behavioural change from parents and caregivers was identified as a barrier to weight loss and was commonly reported among adolescents reporting no weight loss success (998, 1003). Additional barriers to behavioural change reported by participants within the context of family included conflict over school absences, competing schedules, parental work and finances, and other commitments (e.g., religious, or cultural commitments by young people) (949, 1018, 1086).

> *"...he [father] tended to have a whinge a little bit [about taking his daughter] because he was a contractor, and if he takes times off work, he doesn't get paid. So more often than not it was me."* (949)

Theme: Health care providers

The theme 'health care providers' explored the preferences of children, adolescents, and their caregivers, while engaging with health care services. Engaging young people and their caregivers in supportive, culturally sensitive ways regarding weight status was important to facilitating an ongoing therapeutic relationship. The theme overlapped only with the theme 'parents' and the 'health care provider' concept was linked to the rest of the concept map through the 'parents' concept. The Leximancer analysis highlighted the strong connectivity between parents and health care providers, as parent support and engagement are necessary for children and adolescents to access health care services for weight management.

The reviews found that health care providers have a responsibility to the patients in their care to address childhood obesity with their patients and their families. Families were found to engage better with these discussions when they were raised by providers with an existing long-term, trusted relationship and knowledge of the family (970, 1003, 1084). Collaboration with families to find mutual agreements on decisions and goals, encouraging dialogue and allowing discussions, particularly with adolescent patients was recommended (970, 1082, 1084). Exchanging information, asking open questions, active listening, providing affirmation to parents, avoiding assumptions, exploring barriers, setting mutually acceptable goals and supporting families to develop self-efficacy were key to successful weight loss and weight maintenance (970). The reviews recommended providing non-judgemental support and advice, that emphasized health, constructive 'non-nonsense' conversations about weight and a sense of collaboration between patient and provider within healthcare settings (970, 998, 1018). Engaging young people and their caregivers in fun, supportive, culturally sensitive ways regarding weight status was important to facilitating an ongoing therapeutic relationship (998, 1018, 1082).

"'Your kid should exercise'. Really? I know that. Or, like, 'Drink water'. Come on; we know that. Give me something interesting, like there was a new study out, and your kids should eat more of this." (1082)

"She [the exercise physiologist] was fun about it. She made sure we got a really good work out, but yet she would try to incorporate, you know, little fun activities, and she made it more than just going in to work out and sweat. She made it into more fun so that we would be interested in doing it." (998)

Tailored advice regarding diet and physical activity for the participant and their family (e.g., specific meal plans), regular monitoring of health and weight status, and 24-hour accessible programme tools (e.g., websites or apps) were desirable for families (970, 998, 1018, 1043, 1082). Customisation of literature, including use of the participant's name, age, gender, neighbourhood, health conditions, preferred goals, and current knowledge to tailor interventions was preferred (1043, 1086).

Theme: Physical activity

The theme 'physical activity' was associated with eight concepts and 53 linked text segments. The experiences of young people during physical activity, including leisure activity, physical education classes and school-based interventions, were identified and explored. Facilitators and barriers to participation and engagement with physical activity among children and adolescents were identified. The role of peers in supporting weight loss or maintenance, as well as negative experiences with bullying were found.

Several areas of difficulty or discomfort around engaging with school-based physical education classes were identified by young participants with overweight or obesity, including lack of privacy in change rooms at school, inappropriate teaching practices, lack of allowance for a variety of fitness or ability levels during lessons, and perceptions of being negatively judged by others during lessons (1047). The perception of being on display or heightened visibility before, during or after PE lessons was found to be a barrier to engagement (1047). Adolescents with overweight or obesity struggled with feeling as though their body and lack of success was on display to others leaving them open to bullying or victimisation (998, 1047).

"And I don't want to wear a swimsuit. I asked him [teacher] nicely, 'please do I have to wear a swimsuit?', 'Yes, you got to wear a swimsuit...' And the only swimsuit I got is one that shows my back and I don't want it to show my rolls. That's gross. And then people going to call me Free Willy or something." (1047)

Young participants reported enjoyment or fun during physical activities as motivation for participation and engagement (998). Adolescents believed physical activity improved both their physical and mental health, which created that sense of accomplishment (998, 1044, 1047). Peer support for physical activity and weight loss was valued by adolescents (998, 1003, 1047). During behavioural interventions, adolescents valued engagement with participants in similar situations, as it made them feel less isolated, and increased their comfort and confidence (998). Collaboration with friends to increase physical activity was reported to enhance motivation, however, it could also challenge newly adopted healthy habits (e.g., eating breakfast) if they were challenged or dismissed by their peers (998, 1003, 1047).

"I sat there, and watched other people play... they sweat a lot, but they don't get tired, and I get tired... I was like, I don't wanna be like that for the rest of my life." (1003)

Low self-efficacy and confidence around organising and participating in exercise were reported among adolescents with overweight or obesity. Furthermore, perceptions of reduced athletic ability or success compared to peers deterred engagement (1047). Lack of knowledge, over-exercising, pursuing inappropriate or unhealthy exercise, inaccurate beliefs and setting unrealistic goals around physical activity were commonly reported (1003, 1047).

> *"During that period, we were really crazy! We didn't eat dinner or sometimes only drank rapid fat-burning drinks. We ran on the treadmill like crazy and exercised for an hour every day. We felt our body fat melting away."* (1003)

Structural barriers to engagement with physical activity included lack of facilities, transportation, finances, and desirable options, particularly for adolescent girls (949, 1003, 1086). These barriers were exacerbated in rural areas, or areas of low socioeconomic status (1047). The seasonal nature of many organised sports was reported to increase sedentary behaviours during times of the year where desired activities were not offered.

Adults (≥18 years)

Quantitative Results

Health-related quality of life measures, mental health indicators (e.g., anxiety, depression, self-harm and suicidality), and eating disorder symptoms (e.g. binge eating, loss of control eating) for adults participating in weight management/loss interventions were extracted from 69 systematic reviews and meta-analyses (947, 950, 951, 954, 955, 957-960, 962, 963, 965, 967, 969, 971-973, 975, 977-980, 983, 984, 987, 993, 996, 997, 999-1002, 1009, 1010, 1013-1017, 1029, 1030, 1032, 1033, 1035, 1037-1039, 1041, 1049, 1051-1054, 1056, 1059, 1062, 1066-1068, 1070, 1073-1075, 1077, 1078, 1083, 1089-1091). Table B12 lists the types of interventions identified in the reviews. Analyses were divided into behavioural, pharmacological, and bariatric surgery interventions.

Table B12: Scoping review intervention types for adults (>18y)

Behavioural interventions	**Count**
Nutrition only	1
Physical activity only	2
Psychological only	3
Nutrition and Physical activity	7
Nutrition, Physical activity, Psychological	9
Total	22
Pharmacological interventions	**Count**
Pharmacological only	1
Nutrition, Physical activity, Psychological, Pharmacological	2
Total	3
Bariatric surgery interventions	**Count**
Bariatric surgery only	27
Bariatric surgery and Nutrition	1
Bariatric surgery and Psychological	2
Bariatric surgery, Nutrition, Physical activity	2
Bariatric surgery, Pharmacological, Psychological	2
Bariatric surgery, Nutrition, Physical activity, Psychological	2
Bariatric surgery, Nutrition, Physical activity, Pharmacological	4
Bariatric surgery, Nutrition, Physical activity, Psychological, Pharmacological	4
Total	44

Behavioural interventions

Twenty-two reviews reported health-related quality of life outcomes, mental health indicators (e.g., depression and anxiety and eating disorder symptoms (e.g., binge eating disorder, loss of control eating) in adults living with overweight or obesity following behavioural interventions that included nutrition, physical activity, and psychological treatments or combinations of these (950, 954, 960, 962, 965, 971, 973, 984, 987, 996, 999, 1030, 1033, 1041, 1054, 1056, 1059, 1066, 1067, 1073, 1074, 1089).

Fourteen reviews (950, 954, 959, 960, 962, 971, 984, 987, 1041, 1067, 1073, 1089) reported on measures of health-related quality of life in adults living with overweight or obesity participating in weight management programmes, that included combinations of nutrition, physical activity and psychological interventions. Health-related quality of life was measured using different tools, including the Short Form-36 Health Survey (SF-36), Impact of Weight on Quality Of Life (IWQOL), EuroQol Five-Dimension Scale Questionnaire (EQ-5D, EQVAS), Assessment of Quality of Life (AQoL8D), Profile of Mood Scores, Feelings Thermometer, and the General Well-being Schedule (GWB) (950, 954, 959, 960, 962, 971, 984, 987, 1041, 1073). Overall, the outcomes related to health-related quality of life are mixed, with some studies showing benefit and others no benefit. Reduction in mental health-related outcomes including depression and anxiety, and eating disorder symptoms (bulimia, emotional eating, and binge eating were also identified.

The results were heterogeneous, however, all reviews found either no statistically significant differences in health-related quality of life outcomes or improvements in outcomes following interventions (950, 954, 959, 960, 962, 971, 984, 987, 1041, 1073). One review found that physical activity could have a significant positive effect on health-related quality of life, including vitality (SMD: 0.41, [95% CI: 0.15–0.68], n=13), mental health (SMD: 0.22 [95%CI 0.08–0.37], n=12) and physical components (SMD: 0.90 [95% CI: 0.29–1.51], n=10) (962). This outcome was supported by findings from a review of change in health-related quality of life following wearable and smartphone-based interventions promoting physical activity (SMD: 0.33 [95%CI: 0.14-0.52], n=7) (971). One review found decreases in BMI were positively associated with increases in HRQoL (change in BMI = -0.09 [95% CI: -0.10 to -0.08]) and became increasingly strong with increased BMI (959). Additionally, one review found an increase was associated with a 0.15 lower HRQoL (95% CI: 0.23 to 0.07) (959). One review reported improvements in several health-related quality of life domains (physical function, body pain, general health) following weight management interventions among participants with class II and III obesity with obstructive sleep apnoea (954).

Depressive disorders and depressive disorder symptoms in adults living with overweight or obesity participating in weight management programmes were reported by three reviews (1033, 1059, 1066). The behavioural interventions were multimodal, including nutrition, physical activity, and psychology treatments. The reviews reported measures of depressive disorder and depressive disorder symptoms in adults living with overweight or obesity using five different tools, including the Beck Depression Inventory (BDI, BDI-II), Medical Outcomes Study Short Form 36 (SF36-MCS, SF36-PCS), General Well-Being (GWB) Questionnaire, Center for Epidemiological Studies Depression (CES-D) scale, and Profile of Mood States (POMS) (1033, 1059, 1066). Two reviews (1033, 1059) reported no significant change in symptoms following intervention. One review (1066) reported decreases in depression (SMD: -1.35 [95% CI: -2.36 to -0.35], n=5) and anxiety scores (SMD: -1.74 [95% CI: -2.62 to -0.87], n=4) following interventions.

Two reviews reported anxiety outcomes in adults living with overweight or obesity following weight management programmes (999, 1066). The reviews measured anxiety using four different tools, including the Hospital Anxiety and Depression Scale (HADS), Spielberger State–Trait Anxiety Inventory

(STAI), Depression Anxiety Stress Scale (DASS) and a bespoke 4-item questionnaire (999, 1066). One review (1066) showed behavioural interventions reduced symptoms of anxiety in women of reproductive age with overweight or obesity (pooled estimate: -1.74 [95% CI: -2.62 to -0.87], n=5). One additional review reported no change in anxiety symptoms following nutrition and physical activity interventions (SMD: −0.02 [95% CI: −0.25, 0.21] n = 11) (999).

Five reviews (965, 973, 996, 1030, 1074) reported eating disorder outcomes (e.g., binge eating, emotional eating, loss of control) in adults living with overweight or obesity following psychological interventions (e.g., cognitive behavioural therapy, intrinsic motivation theory, acceptance, and commitment therapy). Two reviews included nutrition and physical activity interventions (973, 996). Disordered eating symptoms were measured using the Structured Clinical Interview for DSM-IV Axis I Disorders Patient Version (SCID-I/P), the Binge Eating Scale (BES), the Eating Disorder Diagnostic Scale (EDDS), the Eating Disorder Examination Questionnaire (EDE-Q), the Dutch Eating Behaviour Questionnaire (DEBQ), the Three Factor Eating Questionnaire (TFEQ), the Eating Inventory [32] and the Three Factor Eating Questionnaire (TFEQ) (965, 973, 996, 1030, 1074). The reviews found psychological treatment interventions resulted in neutral or small decreases in binge eating and emotional eating that co-occurred with decreases in depressive symptoms (965, 973, 996, 1030, 1074). Cognitive behavioural therapy (CBT) was found to reduce short-term binge eating compared to behavioural weight loss therapy (BWLT) (1030). Non-significant changes were found for binge eating, emotional eating, external eating and restraint eating following acceptance based therapy (ACT) (965). Additionally, decreases in bulimia were reported in one review (1074). Overall, no evidence was found for behavioural weight management interventions increased eating disorder symptoms (996).

Pharmacological interventions

Three systematic reviews and meta-analyses (975, 1070, 1077) reported outcomes related to health-related quality of life and depressive disorders in adults living with overweight or obesity following pharmacological treatment interventions. Health-related quality of life was measured using the Short Form-36 Health Survey (SF-36), General Health Questionnaire, Five-Dimension Scale Questionnaire (EQ-5D, EQVAS), and a visual analogue scale (1070, 1077). Depression was measured using the Beck Depression Inventory (BDI), Hospital Anxiety and Depression Score (HADS), Profile of Moods (POMS) subscale, General Well-being (GWBS) subscale and Cener for Epidemiological Studies-Depression (CES-D) (975).

One review found significantly improved SF-36 physical functioning scores (WMD: 1.75 [95% CI: 0.91–2.58], n=3), SF-36 physical component summary score (WMD: 1.24 [95% CI: 0.27–2.22], n=2) and SF-36 mental component summary score (WMD: 2.90 [95% CI: 1.54–4.26], n=2) with once-weekly semaglutide treatment compared to placebo (1077). One review (975) found that pharmacological interventions (orlistat, sibutramine and rimonabant) produced similar changes in depressive symptoms compared with placebo controls (SMD: 0.01 [95% CI: -0.07, 0.08], n=5).

Bariatric surgery interventions

Forty-four reviews reported outcomes from bariatric surgery interventions, 19 reviews included nutrition, physical activity, and psychological treatment comparators. Adult participants living with overweight or obesity reported outcomes of validated measures of health-related quality of life, mental health (anxiety and depression) and eating disorders during weight management interventions.

Twenty-five reviews (947, 967, 972, 978, 980, 983, 993, 1000-1002, 1009, 1014, 1016, 1017, 1032, 1035, 1037, 1051, 1067, 1070, 1075, 1078, 1090) reported validated measures of health-related quality of life in adults living with overweight or obesity. The reviews were highly heterogenous, reporting varied health-related quality of life domains at different time-points in the post-operative period. However, most reviews reported improvements in overall health-related quality of life following surgery. Eight studies (947, 967, 1000-1002, 1014, 1016, 1070) reported improved health-related quality of life in the short term (i.e., 1 year) postoperatively.

Seven reviews (951, 957, 958, 969, 977, 979, 1038) reported depression outcomes decreased following surgery and were most likely linked to successful weight loss in the short term. A further two reviews (1010, 1015) reported decreases in anxiety following surgery using validated measures.

Seven reviews (964, 969, 990, 1021, 1029, 1045, 1053) reported eating disorder behaviours among bariatric surgery patients. While a substantial percentage of bariatric surgery patients suffered from binge eating disorder or binge eating symptoms (990), most studies reported reductions in eating disorders post-operatively (1029, 1045, 1053). However, problem and disordered eating, especially BED and binge episodes may occur post-surgery (969, 1021, 1029, 1045) and are often associated with less weight loss and/or more weight regain post-bariatric surgery (1021). Adjunct psychological interventions (e.g., CBT) initiated early in the post-operative period were shown to improve eating behaviours (e.g., binge eating and emotional eating) (964, 969).

Psychological problems were found to persist in some patients after surgery despite weight loss, leading to a higher rate of suicide (event rate: 0.0027 [95% CI: 0.0019-0.0038]) and self-harm (Odds Ratio: 1.9 [95% CI 1.23-2.95]) among bariatric patients compared to age-, sex- and BMI-matched controls (963).

Qualitative results

Behavioural interventions

A total of 176 narrative results (i.e., qualitative views and descriptive experiences of participants' lived experience during weight management treatment) were extracted from 25 review studies (945, 946, 952, 953, 976, 981, 985, 986, 988, 1004, 1006, 1012, 1022, 1024, 1027, 1036, 1042, 1046, 1050, 1057, 1060, 1064, 1079, 1087) relating to adults with overweight or obesity participating in a behavioural intervention for weight loss or maintenance. A Leximancer concept map was generated using a theme size of 60%, Figure B4. Five themes and 32 concepts were identified (Table B13). Overall, the qualitative results indicated participants experienced many benefits from engaging in behavioural interventions such as perceived improvements in self-esteem, peer relationships, physical fitness, and mental health. Other barriers and enablers to engaging in behavioural interventions included family dynamics, peer perceptions, and healthcare provision.

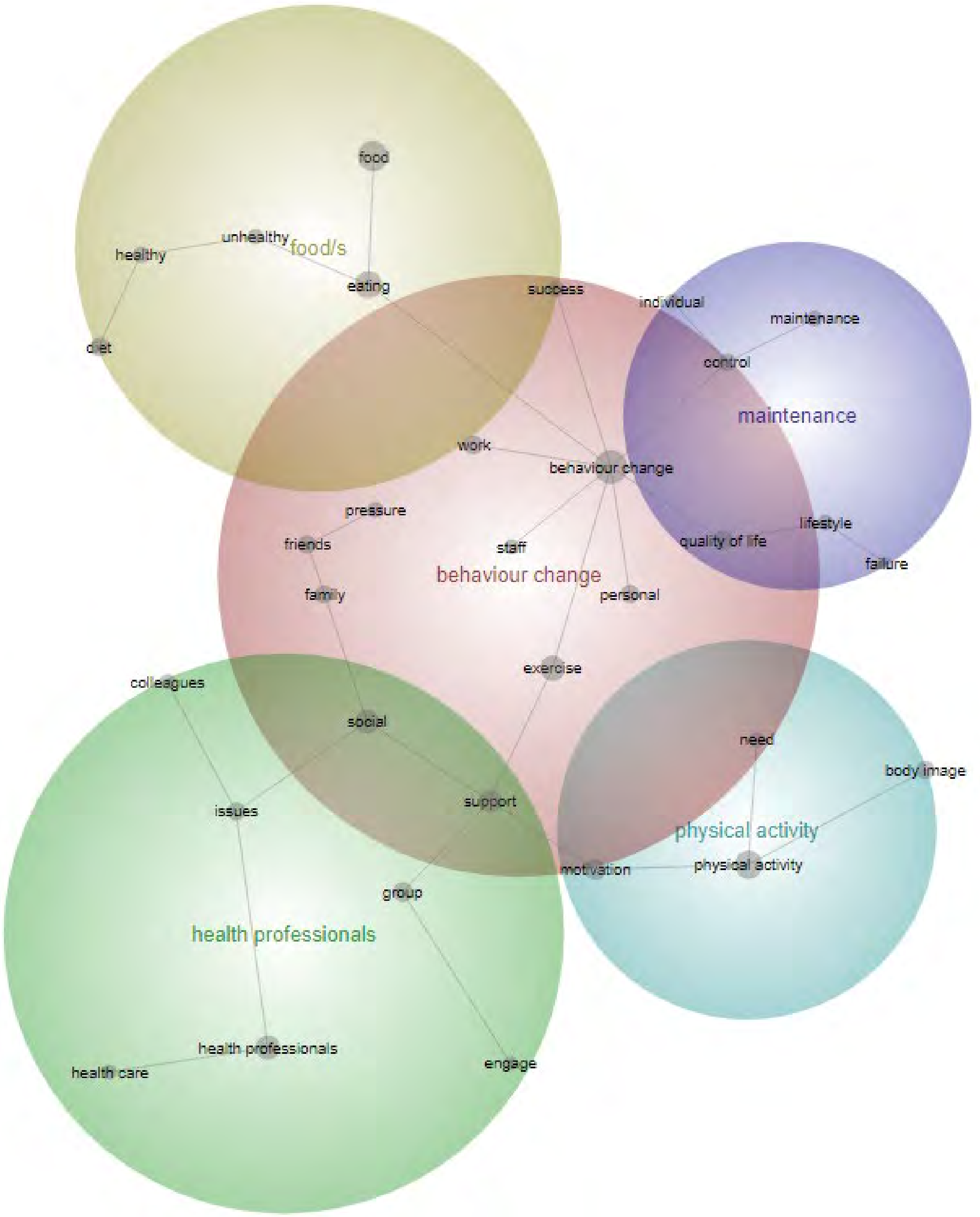


Figure B4: Leximancer generated concept map Leximancer concept map of adults (≥18y) receiving behavioural interventions; narrative results

Table B13: Leximancer generated concept seeds for adults (≥18y) receiving behavioural interventions.

Concept	Count	Relevance %
Food	54	100
Behaviour change	51	94
Physical activity	51	94
Health professionals	47	87
Eating	42	78
Exercise	40	74
Support	36	67
Social	35	65
Motivation	30	56
Group	29	54
Body image	28	52
Diet	26	48
Quality of life	25	46
Work	22	41
Control	22	41
Health care	22	41
Issues	21	39
Personal	19	35
Healthy	19	35
Success	18	33
Family	17	31
Maintenance	17	31
Friends	16	30
Lifestyle	16	30
Need	16	30
Engage	15	28
Pressure	14	26
Colleagues	14	26
Unhealthy	13	24
Staff	12	22
Individual	11	20
Failure	9	17

Theme: Behaviour change

The highest ranked theme was 'behaviour change' with eight concepts and 126 linked text segments. The theme had significant overlap with the other themes indicating the importance of successful behavioural change for weight loss or maintenance in people with overweight or obesity. The reviews identified the motivations for behavioural change, the facilitators and barriers to successful behavioural change for weight loss and maintenance. Support of social networks including family, friends, colleagues, and employers were identified as facilitators for successful behavioural change. Non-judgemental support from programme staff during weight loss interventions was also a facilitator of change. Successful behavioural change and weight loss were found to have positive impacts on health-related quality of life, and behaviours. Conversely, behavioural change failure was shown to negatively impact those concepts.

Motivations for change included a desire for improved health, self-image, and health-related quality of life (952, 976, 988, 1046, 1057). Participants described regaining control over their lives and improved social interactions or accountability to their families (952, 976, 1046, 1057). Participants reported specific tools and techniques that supported behavioural change and motivation, including goal setting, food and physical activity logs, and daily self-weighing (952, 985, 1042). Participating in group activities with other programme participants was also reported to be motivating (1006). Participants identified lack of motivation and energy or self-discipline as a significant barrier to change during weight loss interventions because the diet or physical activity changes were unsustainable, overly challenging or inconvenient (945).

> *"I've had two kids in the last 3 years, that was part of the motivation… just getting fitter for my kids. I need to be aboot [about] for as long as possible." (**117)***

Participants reported that family and friends or peers acted as both supports and barriers to weight loss and maintenance (945, 1022, 1027, 1050, 1057). Participants valued when their social networks and workplaces supported behavioural changes and made positive comments about their progress. Supportive behaviour included becoming an exercise partner to encourage physical activity or acting as a cheerleader for behavioural change or weight loss progress (945). Conversely, many participants reported social networks and workplaces as barriers to weight loss and maintenance. Female participants reported experiencing a 'saboteur' among friends who made negative comments about weight loss or healthier eating practices (1027). Environmental factors related to employment, including availability of unhealthy food choices or sedentary nature of employment were reported as barriers (1036).

> *"My mom is self-destructive and disapproving. She's a saboteur. She says that she wants to help me, but then she makes me brownies. It's frustrating". (981)*

Theme: Maintenance

The theme 'maintenance' was associated with one concept and 17 text segments. Reviews described successful weight maintenance. Significant overlap with the theme 'behaviour change' indicated the importance of behavioural change for weight maintenance. Reviews described the impact of weight maintenance on psychosocial outcomes, health-related quality of life, and behaviour (981, 985, 986, 988).

Successful weight loss maintainers described reframing their mindset and language led to increased self-efficacy. These participants actively identified methods for addressing the personal and contextual factors affected maintenance, including developing explicit strategies to combat emotional eating and strategies to mindfully manage holidays and celebrations (e.g., weddings, birthdays) that typically centre around eating (981, 985, 986, 988). Strategies included meals planning to avoid impulsive behaviour in obesogenic environments, engaging family or friends in weight management behaviours and choosing not to attend social eating occasions (981, 986). Participants who successful maintained weight loss developed alternative ways to meet their psychological needs previously fulfilled by obesogenic behaviours. While some maintainers reported continuous assessment and re-evaluation of motivation to maintain weight loss, long-term maintainers reported that the reframed thinking and behaviour associated with their new behaviours had become more automated and habitual over time (981, 985). In such cases, motivation seemed to play a lesser role, as desired behaviours became unconscious.

> *"You just gotta get into that schedule. And its automatic and it just really makes it easier when I do have a routine. If I don't have a routine, God knows I don't have an idea what things would look like, because it would just be so sporadic." (986)*

Conversely, studies found that participants who regained weight failed to adequately manage psychological stressors or high-risk situations, continued obesogenic behaviours (e.g., emotional eating in response to stress, boredom or as a coping mechanism or reward), had difficulty prioritising physical activity, meal planning or food tracking, and reported difficulty in placing their weight loss needs above social, cultural or peer pressure around food (981, 986). Additionally, participants who regained weight reported feelings of resentment and deprivation around dieting and food restriction (981).

> *"I found the only way around going out with friends was to sit at the table and not eat. That's very hard."* (981)

Theme: Physical activity

The theme 'physical activity' was comprised of three concepts and 83 linked text segments. The theme explored participant motivation for participating in physical activity, and the experiences of body image in the context of physical activity. There was significant overlap between the themes of 'physical activity' and 'behaviour change' highlighting the importance of behavioural change in adherence and engagement with physical activity among people with overweight or obesity.

Reviews reported participant experiences around exercise and physical activity as part of weight loss or weight management programmes. Participants valued positive experiences that incorporated a sense of acceptance, psychological well-being, and fun without judgement (1036, 1060). Successful participation in physical activity was linked to increased perceptions of respect from others, improved motivation, body image, self-confidence, and self-worth (1004, 1036, 1042, 1060). Participants discussed valuing flexibility to choose from a variety of exercise formats and approaches, social interactivity of group-based programme activities and more intensive interaction or support from programme staff (952, 1036, 1060). Participants described programme support as integral to changing behaviours, forming exercise habits, and maintaining motivation (1042, 1060).

> *"I do not feel ashamed of my body here. We are all in the same situation, you see, which is really nice."* (1060)

> *"When I first started I could hardly walk...now I can walk 300-400 yards...if this project has done nothing else it has helped me to walk."* (1042)

Difficulty engaging with physical activity was a component of the theme. Many participants with overweight or obesity described struggling to engage with exercise due to physical or mobility limitations and pain, poor body image and self-esteem, and fears that standard exercise equipment would not accommodate larger bodies (953, 976, 1036, 1060). Participants with overweight or obesity reported feelings of embarrassment, humiliation, intimidation, failure, and self-blame during exercise sessions (953, 976, 1036, 1060). Additionally, some participants reported financial barriers to structured physical activity, including expensive gym memberships, equipment and clothing (120).

> *"Just walking into a gymnasium is hugely embarrassing. You may as well walk in there naked because everyone turns to you and looks at you and you can just about hear them going, 'Oh yuck!'"* (1060)

Theme: Food/s

The theme 'food/s' was associated with three concepts and 72 text segments. A significant overlap between the themes 'behaviour change' and 'food/s' was noted. The concepts related to participants' relationship with food, including disordered eating, emotional eating, and healthy food behaviours.

Reviews reported the use of emotional eating as a source of comfort and to manage difficult emotional states as a challenge to weight loss (1046, 1064).

The reviews found cultural and social barriers to behavioural change, particularly around eating (976, 981, 986, 1027, 1057). Participants reported that friends and family acted as both supports and barriers to weight loss and maintenance for people with overweight and obesity. Weight loss and maintenance was found to be more successful when social networks and workplaces supported healthy dietary changes (1027). Conversely, many participants reported social networks and workplaces as barriers to weight loss and maintenance. Participants reported struggling with sociocultural norms surrounding food, diet and obesity that challenged their weight loss efforts. For example, female participants reported pressure from other women to have a treat or eat more, and male participants reported other men were critical of other men ordering perceived healthy choices from restaurant menus (1027). Many reported reluctance to cause offense due to sociocultural norms around refusing food, especially during special occasions when calorie dense foods or alcohol were typically offered (1027, 1057). Participants reported social pushback when adopting a diet considered culturally atypical to the norm as a barrier to diet adherence (945, 1036, 1046, 1057).

> *Exemplar quotes included "You look ill", "You don't need to lose weight", "You are having a salad again today?", "I don't know why you have to eat all that [healthy] stuff, just eat less", and "You should stop losing weight." (117)*

Review studies of dietary aspects of weight management programs found that many participants struggled to follow the recommended foods, especially if their pre-intervention diet significantly differed from the intervention diet (1027, 1087). Some participants reported withdrawal from weight management programmes due to emotional distress caused by dietary restriction. Barriers to dietary adherence included lack of culturally or religiously appropriate foods, lack of variety, cost, and a yearning for 'forbidden' foods (36, 87, 147).

> *"You can throw all the medicines and all the gym memberships [at me] but if they don't understand their Wairuatanga [spirituality] you'll never be that full person that our tupuna [ancestors] use to be." (976)*

Financial constraints were found to impact adherence to healthy eating patterns. Some low-income participants had to choose between healthy eating goals and meeting other financial commitments (1006, 1027). Additionally, low-income participants were more likely to live in areas with limited access to healthier food.

> *"To have a diet is not easy. Things are very expensive. That's something that stands in my way from getting the good nutrition, from buying nutritious stuff. I don't got the income to do it."* (1006)

Theme: Health professionals

The theme 'health professionals' (i.e. health care providers) was associated with three concepts and 77 related text segments. The text segments related to health care management of people with overweight and obesity, including participant interactions with health care services and providers relating to weight management, this included GPS, nurses, and programme staff.

Participants with overweight or obesity reported mixed interactions with health care providers (946, 952, 1024, 1042, 1079). Studies reported reluctance by these patients to initiate conversations or express concerns about their weight to their health professionals limiting information sharing, especially when the patient was aware their general practitioner held negative preconceived ideas on overweight and obesity (946, 1042). Weight bias among health professionals was associated with avoidance or delay of preventive screening, maternity, and general practitioner healthcare services by patients (1024, 1079). Participants of multiple reviews described negative treatment by healthcare providers-ranging from a lack of respect and compassion, lower levels of emotional rapport with patients with overweight and obesity, to examples of verbal insults, inappropriate humour, unsolicited lecturing about weight loss, unmet healthcare needs, and breaches of dignity (946, 1024, 1079).

Programme staff responsible for engagement with weight loss interventions were most effective when they were supportive, non-judgemental cheerleaders for participants (952, 1036, 1042, 1050). Participants reported personalised support and accountability to programme staff as motivational and helped establish trust (1042, 1050, 1057).

> *"I think I just like talking to you [programme leader]. And I suppose I feel that if I don't do it [the programme] then I'm letting you down." (952)*

Qualitative results

Bariatric surgery interventions

A total of 91 narrative results (i.e., qualitative views and descriptive experiences of participants' lived experience during weight management treatment) were extracted from 19 review studies (948, 964, 966, 968, 974, 990, 1005, 1007, 1021, 1023, 1031, 1034, 1040, 1045, 1069, 1080, 1081, 1085, 1088) relating to adults with overweight or obesity participating in bariatric surgery interventions for weight loss. A Leximancer concept map was generated using a theme size of 50%, Figure B5. Four themes and 28 concepts were identified (Table B14). Overall, qualitative findings indicated that participants who underwent bariatric surgery experienced improvements in health-related quality of life, physical, social, and psychological functioning, as well as greater control over food intake. Some reviews, however, also reported that participants experienced challenges following surgery, such as gastrointestinal symptoms, nutrient deficiencies, excess skin, poor psychosocial health, and substance use issues.

Figure B5: Leximancer concept map of adults receiving bariatric surgery interventions; narrative results

Table B14: Leximancer generated concept seeds for adults receiving bariatric surgery interventions

Concept	Count	Relevance %
Eating	33	100
Quality of life	31	94
Body image	30	91
Change/s	29	88
Physical activity	28	85
Food/s	25	76
Problems	24	73
Control	19	58
Time	19	58
Social	19	58
Health	17	52
Psychological	17	52
Support	14	42
Able	13	39
Family	13	39
Excess Skin	12	36
Public	11	33
Diet	10	30
Self-esteem	10	30
Risk	10	30
Healthy	8	24
Friends	8	24
Relationship	7	21
Osteoporosis	7	21
Vomiting	6	18
Disease	5	15

Theme: Change

The highest ranked theme was 'change', with ten included concepts and 85 linked text segments. A high degree of connectivity between weight loss following bariatric surgery and changes in health-related quality of life, body image, self-esteem and psychological outcomes were found. Consequent to weight loss, participants noted positive changes in psychosocial experiences (e.g., social, romantic, financial, and physical), particularly in public. The significant overlap between the themes 'change' and 'social' are indicative of this relationship, Figure B5. The theme also captured participants motivations for weight loss surgery.

Participants' motivations for undergoing bariatric surgery included desire for decreased mortality, improved physical health, and prevention of chronic co-morbidities common with obesity (e.g., Type 2 diabetes mellitus and cardiovascular disease), as well as increased mobility and decreased pain (966, 968). Participants often identified family history of disease as a motivator.

> *"I was filled with fear constantly worrying that one day I would no longer wake up, that my heart could not take it anymore." (966)*

> *"I have arthritis and used to take four different pills. Now I don't have to take any pills. I used to have high blood pressure as well and took an additional two pills for that. I had a tray filled with pills."* (968)

Other motivations for choosing to undergo bariatric surgery included a perceived increase in employment, social or romantic opportunities following weight loss (966, 968, 990, 1081). Participants described wanting to achieve a sense of normalcy in all aspects of their lives', many reported a sense of relief once they had achieved a more 'average' or 'normal' weight. Improved ability to carry out domestic chores and personal hygiene, as well as the ability to fit into seats in public settings, and a wider availability of clothing choices and range of stores were appreciated by participants (966, 968, 990, 1081).

> *"You had to walk into a restaurant and ask for a chair rather than a booth. My most exciting thing is just sitting in a booth."* (968)

The reviews found that overall physical and psychological functioning improved following bariatric surgery and was directly linked to weight loss (964, 968, 990, 1031, 1069, 1088). The first 12-24 months following bariatric surgery were often referred to as the 'Honeymoon phase' (968, 974, 1085, 1088). The rapid weight loss during this period was associated with positive effects on physical health, including improved mobility, reduction in pain, improvement in bariatric-related comorbidities such as Type 2 diabetes mellitus, a reduction in drugs needed and improved fertility, alongside improved psychological well-being, including self-esteem and body image. Consequent positive changes in physical, social, sexual, employment/economic status due to massive weight loss often corresponded to decreased symptoms of depression, anxiety and increase health-related quality of life measures (948, 966, 968, 990, 1031).

> *"I felt as if I got rid of a huge physical load. I became lighter and felt very relaxed. I look at my old photos and ask myself how I lived with that appearance before. I feel as if I were someone else. I like myself more, my self-confidence has increased and my whole life has changed."* (948)

However, participants also reported negative experiences post-surgery that were often difficult to cope with or adapt to. Physically, these included the development of unpleasant gastrointestinal symptoms, as well as problems related to excess skin (1080, 1085). Reduced gastric capacity may result in gastrointestinal side effects including dumping syndrome and vomiting, reflux, and pain upon eating, and may cause psychological distress (948, 974, 990, 1007). Excess skin following the massive weight loss post-surgery often contributed to body dissatisfaction and psychological distress (948, 1023, 1080). Excess skin could cause irritation, infection and discomfort, as well as restrict mobility (1080). Body contouring or remodelling after bariatric surgery was found to improve health-related quality of life and body image.

> *"It is difficult look to the mirror and see you, your body, all of your skin. When you are dressed there is no problem, but when you are naked it is, it is very difficult to accept. I had never thought that I would feel this way. I don't go to any swimming pool, as there is so much excess skin on my arms and stomach. Swimming is something that I used to do, regularly then, and it felt good for my back and that. But I don't do it now because of my arms. I have periods when I upset myself a lot about everything, and it's hard, you always have lumps of skin that bulge out under your arms. If you sleep on your belly at night, you get fungus or heat eczema. I just want to cut everything away, everything that is hanging out." (948)*

Body dysmorphia was described by participants and often revealed insufficient preoperative preparation regarding their new self-image and self-perception (948, 966, 968). Physical and psychological changes did not happen simultaneously postoperatively. The experience of being out of sync with their body image or weight loss was described.

> *"It's how you look at yourself, you still think that you're big, and even if you hear many comments like oh, you are looking so good and so on, and of course it helps a great deal, but the image of myself when looking in the mirror is that my belly is still big and so, ah, I still think it's hard." (968)*

Several reviews identified the psychological fragility of some bariatric surgery candidates. Serious psychological problems, including depression (968, 974, 990, 1007, 1040, 1045, 1088), anxiety (974), post-traumatic stress disorder (974), suicidal thoughts and self-harm behaviours (990, 1040, 1088), disordered eating (1007) and alcohol abuse (966, 974, 990, 1007, 1081) were found to be common in candidates for bariatric surgery. These problems may also persist after surgery despite weight loss, leading to a higher rate of suicide among bariatric patients compared to the general population (1088).

> *"All the stuff when I was younger; things that never came out when I was here; all the beatings that I'd had. Severe beatings. Sexual assault while I was in school. All that stuff came out, but that was later because I never would have allowed it to come out; that was so suppressed". (1007)*

Over-use/abuse of alcohol amongst participants post-surgery where alcohol was used as a coping mechanism in replacement to food was found by several studies (966, 974, 990, 1007, 1081).

> *"…drinking became something you could do because it wasn't eating... I had a relationship with food that wasn't simple, and it was changed, and I wanted something to fill it." (1007)*

The reviews recommended psychological counselling to deal with the stress of the physical and social changes that are associated with massive weight loss (964, 974). Pre- and postoperative counselling was found to improve psychological well-being and functioning (974).

Theme: Eating

The theme 'eating' was associated with eight concepts and 55 text segments. The concepts related to participants' relationship with food, including disordered eating, emotional eating, and healthy food behaviours. Disordered or unrestricted eating pre-operatively and postoperative controls on eating behaviour were reviewed.

Food and eating were found to have a profound effect on the lives of bariatric surgery candidates. Dysfunctional eating (including binge eating, emotional eating, loss of control) was reported to be a source of comfort and to manage difficult emotional states (e.g. sadness, emptiness, boredom, anger, anxiety, and worry), conversely it was also a source of distress, with participants reporting feelings of guilt, shame, regret, self-hatred, self-blame, despair, and sadness (966, 968, 1007, 1021). Many participants reported loss of control over their food intake, eating behaviours and weight gain (1021).
Reviews reported feelings of hopelessness, disillusionment, and self-defeat among surgery candidates, the perception that they were unable to change their weight by themselves led them to view bariatric surgery as a means to allow them to regain control over their eating habits (966, 1007, 1021). Some associated their relationship with food in pathological terms as an eating disorder, illness, or addiction (966).

> *"In the same way as alcoholism is an addiction, I am addicted to food. I eat when I'm sad, when I need comfort, when I celebrate or when I'm happy or hungry."* (966)

Surgically imposed reduction to gastric capacity, particularly during the first postoperative year, allowed many participants to regain control over their eating (948, 968, 1007). Successful post-surgical participants reported imposing a daily dietary strategy to avoid vomiting or heartburn and to maximise nutritional intake to avoid deficiencies (948, 968, 1007).

> *"I feel discomfort and nausea when I'm eating foods that are too heavy and filling. To avoid vomiting and to enjoy eating, I try to eat healthy foods and foods that I like first."(968)*

Theme: Support

The theme 'support' was linked with six concepts and 34 text segments. The concepts reflected the importance of support networks (e.g., family, friends, health care providers and employers) for successful weight loss among bariatric surgery patients. Overlap with the theme 'change' highlighted the importance of patients' support network response to bariatric surgery and subsequent weight loss. Supportive networks were reported to improve successful weight loss following surgery through improved psychological well-being, enhanced motivation for change, increased dietary adherence and engagement with physical activity (948, 966, 1005, 1007, 1081).

A desire for improved interpersonal relationships with family members, partners, and friends was a motivating factor for choosing to undergo bariatric surgery (948, 966, 1081). The reviews noted positive changes in physical, social, sexual, employment/economic status following surgery (948, 966, 968, 1081).

> *"You feel better; you get approval then, approval from other men. My family is always saying that I am fine, I am more beautiful, and this is good, I feel better when I hear these things. You know, I was not used to hearing these things and now it is different." (948)*

These positive changes in status also challenged existing relationships (1081). Stigma around obesity, as well as surgery for weight loss, negatively impacted relationships, including social avoidance and self-isolation (948, 966).

> *"'Oh [participant's sister-in-law], she's lost 36 pounds and she's not going to have sagging skin because she's doing it the right way'. And of course, I'm thinking 'Because I've done it the wrong way?'" (948)*

The theme also indicated the importance of support networks on health outcomes, including osteoporosis and vitamin deficiencies. Increased osteoporosis risk (1085) and serious vitamin/nutritional deficiencies (968, 990) were reported postoperatively, particularly amongst female participants. Reviews reported iron deficiency, low haemoglobin percentage, vitamin B12-deficiency and low blood pressure were prevalent (968, 990).

> *"It feels like I have a rock in the machinery which makes me disabled in my daily life. I am struggling with low blood pressure, occasionally I see stars and nearly faint when I work." (966)*

> *"I can feel my bones bruise easily. Ribs fractures and the like have happened to me many times. I can't do what I used to."* (1085)

Summary of findings

Children and Adolescents (combined)

Behavioural interventions (desirable)

Studies of children and adolescents involved in behavioural interventions demonstrated improvements in health-related quality of life (944, 1026). Reductions in mental health symptoms including depression and anxiety (994, 995), and eating disorder behaviours such as bulimia, emotional eating, and binge eating (994) were reported. Increased self-esteem and self-efficacy were identified in individuals who experienced successful behaviour changes, such as weight loss and increased fitness, which fostered increased adherence to programmes (1003, 1086). Supportive family dynamics and engagement of the broader family unit were shown to encourage motivation and successful behaviour change (970, 998, 1003, 1055). Positive relationships with healthcare providers, that were non-judgmental, supportive, and provided continuity were important (1003). Tailored advice, culturally sensitive care, regular monitoring of health, and accessible programs and tools were considered enablers for adherence to behavioural interventions (998, 1003, 1018, 1043, 1082). Peer support and enjoyment of physical activities further contributed to improved mental and physical health, creating a sense of accomplishment and collaboration in achieving weight loss goals (998, 1003, 1047).

Behavioural interventions (undesirable)

Studies of children and adolescents involved in behavioural interventions reported that they experience challenges in adhering to programmes due to increased stress, difficulty managing hunger, and resistance to making behavioural changes. Inaccurate beliefs and unsafe behaviours regarding weight loss, such as skipping meals, fad diets, and over-exercising were identified (998, 1003, 1018). Family dynamics also posed difficulties, factors such as low health literacy, cultural issues, parental separation, and negative perceptions about recommended behavioural changes caused conflict over necessary behavioural adjustments (970, 998, 1003). Competing family commitments such as work, and finances of parents and caregivers impacted engagement with interventions (949, 1018, 1086). Negative peer perceptions about behavioural changes and bullying from peers regarding body shape and fitness levels were reported (998, 1047). Insufficient facilities for engaging in exercise, lack of transportation to attend programmes and associated activities, and limited activity options also impacted participant adherence to physical activity components of interventions (949, 1003, 1086).

Adolescents only

Bariatric surgery interventions (desirable)

Health-related quality of life increases (956, 1048, 1063, 1071, 1072) and reduction in depressive symptoms (989, 991, 1063, 1071) were identified.

Bariatric surgery interventions (undesirable)

No evidence reported.

Young, middle-aged, and older adults combined

Behavioural interventions (desirable)

Studies of behavioural interventions for adults have shown improvements in health-related quality of life, including vitality, mental health, physical function, and reduced body pain (954, 959, 962, 971). Reduction in mental health symptoms including depression and anxiety (999, 1066), and eating disorder problems including bulimia, binge eating, and emotional eating have been reported (965, 973, 997, 1030, 1054). Social support and positive engagement from programme facilitators were shown to influence successful behaviour change (945, 1022, 1027, 1050, 1057). Participants were motivated by a desire for improved health, self-image, and health-related quality of life, and when weight loss was achieved experienced a greater sense of perceived control, self-efficacy, and improved social functioning (952, 976, 1046, 1057). Strategies such as group interventions, goal setting, food/activity logs, and daily self-weighing were important for supporting behaviour change and maintaining motivation for adhering to interventions (981, 985, 986, 988).

Developing strategies to overcome emotional eating and managing social events centred on food were helpful in sustaining weight loss (981, 986). Increased physical activity was associated with psychological wellbeing, and enjoyment, and improvements in motivation, body image, self-confidence, and self-worth (1004, 1036, 1042, 1060). Support for forming exercise habits, accountability, and maintaining motivation facilitated adherence. Friends, family, and supportive workplaces were important enablers for adhering to behavioural interventions (1042, 1060).

Behavioural interventions (undesirable)

Adults engaged in behavioural interventions who experienced unsuccessful attempts at weight loss reported negative impacts on health-related quality of life and behaviours. Barriers to adherence included unsupportive social environments, such as negative perceptions and comments from others around them, availability of unhealthy food at work, and sedentary job roles (981, 1027, 1036). Participants described challenges in prioritising and maintaining healthy behaviours, which could result in feelings of resentment, emotional distress, and deprivation from dieting and food restrictions (981, 986). Engaging in physical activity components was difficult due to physical limitations, pain, poor body image, low self-esteem, and fears of using equipment that was not suitable for their body size (1060). Fears of embarrassment and failure during exercise activities were also reported (953, 976, 1036, 1060). Cultural and social expectations related to food and alcohol impacted adherence (976, 1027) (1087). Limited access to culturally appropriate and healthy foods (976), financial constraints (1006), and reluctance to share information with healthcare providers due to weight bias and stigma also contributed to the challenges in engaging with interventions (946, 952, 1024, 1042, 1079).

Pharmacological interventions (desirable)

Studies of adults engaged in pharmacological interventions showed increases in health-related quality of life, physical functioning, and mental functioning (975, 1070, 1077).

Pharmacological interventions (undesirable)

None reported

Bariatric surgery interventions (desirable)

Studies of individuals who have had bariatric surgery interventions have shown improvements in overall health-related quality of life, including reduced depression (951, 957, 958, 969, 977, 979, 1038) and anxiety (1010, 1015), and a decrease in eating disorder behaviours such as binge eating and emotional eating (1029, 1053). Improvements in body image, self-esteem, and psychosocial experiences, such as romantic relationships have also been reported (948, 966, 968, 990, 1081). Participants reported a sense of relief upon achieving weight loss goals and noted benefits from improved physical abilities, capacity to achieve activities of daily living, fitting into seats and average-sized clothing, increased fertility, and reduction in co-morbidities such as Type 2 diabetes mellitus, and associated drug use (948, 966, 968, 990, 1031, 1081). Pre- and postoperative counselling was associated with improved wellbeing and functioning post-surgery (964, 974). Supportive networks were considered important for successful weight loss and psychological wellbeing (948, 966, 1005, 1007, 1081).

Bariatric surgery interventions (undesirable)

Studies of participants who had bariatric surgery interventions reported higher rates of unpleasant gastrointestinal symptoms (948, 974, 990, 1007), issues related to excess skin (1080, 1085), and higher rates of suicide and self-harm post-surgery. Conditions such as dumping syndrome, vomiting, reflux, and pain after eating were also noted (948, 974, 990, 1007). Additionally, some participants reported increased risks of vitamin and mineral deficiencies, and osteoporosis (968, 990, 1085). Participants reported negative effects of having excess skin such as increased body dissatisfaction, body dysmorphia, psychological distress, infection, discomfort, and restricted mobility (948, 966, 968). Individuals with pre-existing mental health issues were more likely to experience exacerbation or persistence of these concerns after surgery (963, 1007, 1088). Some participants reported overuse or abuse of alcohol as a coping mechanism in place of food (966, 974, 1007). Relationship challenges were identified, leading to social avoidance and self-isolation (948, 966).

People with a mental health condition

Behavioural interventions (desirable)

One review paper (1006) reported the experiences of people with serious mental illness. Participants reported improved self-esteem and self-efficacy outcomes after nutrition and physical activity programmes that emphasized successes and praised achievements in a non-judgmental and supportive environment (1006). Programs tailored to the challenges of mental health conditions (e.g., shorter, repeated sessions with regular breaks, call reminders) supported engagement and attendance (1006).

Behavioural interventions (undesirable)

One review paper (1006) reported the experiences of people with serious mental illness. This group experiences several barriers to behavioural weight management programs. People with mental health conditions reported difficulty initiating and adhering to weight maintenance/loss programs because of fluctuating symptoms and drug side effects, that in turn caused varying motivation, ability, and added stressors to support networks (1006). Some drugs may affect the ability to manage weight, which may contribute to lower self-esteem. Structural barriers may include prohibitive cost of or inaccessibility of food, gym memberships or equipment, and transport (1006).

Scoping review 2 references

941. Leximancer. Leximancer User Guide: Leximancer Pty Ltd; 2021.
942. Smith AE, Humphreys MS. Evaluation of unsupervised semantic mapping of natural language with Leximancer concept mapping. Behav Res Methods. 2006;38(2):262-79. doi: 10.3758/BF03192778
943. Ajie WN, Chapman-Novakofski KM. Impact of computer-mediated, obesity-related nutrition education interventions for adolescents: a systematic review. J Adolesc Health. 2014;54(6):631-45. doi: 10.1016/j.jadohealth.2013.12.019
944. Al-Khudairy L, Loveman E, Colquitt JL, Mead E, Johnson RE, Fraser H, et al. Diet, physical activity and behavioural interventions for the treatment of overweight or obese adolescents aged 12 to 17 years. Cochrane Database Syst Rev. 2017;6:CD012691. doi: 10.1002/14651858.CD012691
945. Anand VV, Zhe ELC, Chin YH, Lim WH, Goh RSJ, Lin C, et al. Barriers and facilitators to engagement with a weight management intervention in Asian patients with overweight or obesity: a systematic review. Endocr Pract. 2023;29(5):398-407. doi: 10.1016/j.eprac.2022.10.006
946. Ananthakumar T, Jones NR, Hinton L, Aveyard P. Clinical encounters about obesity: systematic review of patients' perspectives. Clin Obes. 2020;10(1):e12347. doi: 10.1111/cob.12347
947. Andersen JR, Aasprang A, Karlsen T-I, Natvig GK, Våge V, Kolotkin RL. Health-related quality of life after bariatric surgery: a systematic review of prospective long-term studies. Surg Obes Relat Dis. 2015;11(2):466-73. doi: 10.1016/j.soard.2014.10.027
948. Ansari M, Serjeant S. Patient experiences of weight loss and eating after bariatric surgery: a systematic review and qualitative synthesis. J Hum Nutr Diet. 2023;36(4):1438-50. doi: 10.1111/jhn.13121
949. Arai L, Panca M, Morris S, Curtis-Tyler K, Lucas PJ, Roberts HM. Time, monetary and other costs of participation in family-based child weight management interventions: qualitative and systematic review evidence. PLoS ONE. 2015;10(4):e0123782. doi: 10.1371/journal.pone.0123782
950. Asiah ASS, Norhayati MN, Muhammad J, Muhamad R. Effect of yoga on anthropometry, quality of life, and lipid profile in patients with obesity and central obesity: a systematic review and meta-analysis. Complement Ther Med. 2023;76:102959. doi: 10.1016/j.ctim.2023.102959
951. Athanasiadis DI, Martin A, Kapsampelis P, Monfared S, Stefanidis D. Factors associated with weight regain post-bariatric surgery: a systematic review. Surg Endosc. 2021;35(8):4069-84. doi: 10.1007/s00464-021-08329-w
952. Avenell A, Robertson C, Skea Z, Jacobsen E, Boyers D, Cooper D, et al. Bariatric surgery, lifestyle interventions and orlistat for severe obesity: the REBALANCE mixed-methods systematic review and economic evaluation. Health Technol Assess. 2018;22(68). doi: 10.3310/hta22680
953. Baillot A, Chenail S, Barros Polita N, Simoneau M, Libourel M, Nazon E, et al. Physical activity motives, barriers, and preferences in people with obesity: a systematic review. PLoS ONE. 2021;16(6):e0253114. doi: 10.1371/journal.pone.0253114
954. Baillot A, Romain AJ, Boisvert-Vigneault K, Audet M, Baillargeon JP, Dionne IJ, et al. Effects of lifestyle interventions that include a physical activity component in class II and III obese individuals: a systematic review and meta-analysis. PLoS ONE. 2015;10(4):e0119017. doi: 10.1371/journal.pone.0119017
955. Bennett BL, Lawson JL, Funaro MC, Ivezaj V. Examining weight bias before and/or after bariatric surgery: a systematic review. Obes Rev. 2022;23(11):e13500. doi: 10.1111/obr.13500
956. Black JA, White B, Viner RM, Simmons RK. Bariatric surgery for obese children and adolescents: a systematic review and meta-analysis. Obes Rev. 2013;14(8):634-44. doi: 10.1111/obr.12037
957. Blaine B, Rodman J. Responses to weight loss treatment among obese individuals with and without BED: a matched-study meta-analysis. Eat Weight Disord. 2007;12(2):54-60. doi: 10.1007/BF03327579
958. Blaine BE, Rodman J, Newman JM. Weight loss treatment and psychological well-being: a review and meta-analysis. J Health Psychol. 2007;12(1):66-82. doi: 10.1177/1359105307071741
959. Buckell J, Mei XW, Clarke P, Aveyard P, Jebb SA. Weight loss interventions on health-related quality of life in those with moderate to severe obesity: findings from an individual patient data meta-analysis of randomized trials. Obes Rev. 2021;22(11):e13317. doi: 10.1111/obr.13317

960. Cantor AG, Nelson HD, Pappas M, Atchison C. Preventing obesity in midlife women: a systematic review for the women's preventive services initiative. Ann Intern Med. 2022;175(9):1275-84. doi: 10.7326/M22-0160
961. Cao B, Xu J, Li R, Teopiz KM, McIntyre RS, Chen H. Interventions targeting comorbid depression and overweight/obesity: a systematic review. J Affect Disord. 2022;314:222-32. doi: 10.1016/j.jad.2022.07.027
962. Carraça EV, Encantado J, Battista F, Beaulieu K, Blundell JE, Busetto L, et al. Effect of exercise training on psychological outcomes in adults with overweight or obesity: a systematic review and meta-analysis. Obes Rev. 2021;22 Suppl 4:e13261. doi: 10.1111/obr.13261
963. Castaneda D, Popov VB, Wander P, Thompson CC. Risk of suicide and self-harm is increased after bariatric surgery-a systematic review and meta-analysis. Obes Surg. 2019;29(1):322-33. doi: 10.1007/s11695-018-3493-4
964. Cheroutre C, Guerrien A, Rousseau A. Contributing of cognitive-behavioral therapy in the context of bariatric surgery: a review of the literature. Obes Surg. 2020;30(8):3154-66. doi: 10.1007/s11695-020-04627-9
965. Chew HSJ, Chng S, Rajasegaran NN, Choy KH, Chong YY. Effectiveness of acceptance and commitment therapy on weight, eating behaviours and psychological outcomes: a systematic review and meta-analysis. Eat Weight Disord. 2023;28(1):6. doi: 10.1007/s40519-023-01535-6
966. Cohn I, Raman J, Sui Z. Patient motivations and expectations prior to bariatric surgery: a qualitative systematic review. Obes Rev. 2019;20(11):1608-18. doi: 10.1111/obr.12919
967. Colquitt JL, Pickett K, Loveman E, Frampton GK. Surgery for weight loss in adults. Cochrane Database Syst Rev. 2014(8):CD003641. doi: 10.1002/14651858.CD003641.pub4
968. Coulman KD, MacKichan F, Blazeby JM, Owen-Smith A. Patient experiences of outcomes of bariatric surgery: a systematic review and qualitative synthesis. Obes Rev. 2017;18(5):547-59. doi: 10.1111/obr.12518
969. David LA, Sijercic I, Cassin SE. Preoperative and post-operative psychosocial interventions for bariatric surgery patients: a systematic review. Obes Rev. 2020;21(4):e12926. doi: 10.1111/obr.12926
970. de Jong M, Jansen N, van Middelkoop M. A systematic review of patient barriers and facilitators for implementing lifestyle interventions targeting weight loss in primary care. Obes Rev. 2023;24(8):e13571. doi: 10.1111/obr.13571
971. Dehghan Ghahfarokhi A, Vosadi E, Barzegar H, Saatchian V. The effect of wearable and smartphone applications on physical activity, quality of life, and cardiovascular health outcomes in overweight/obese adults: a systematic review and meta-analysis of randomized controlled trials. Biol Res Nurs. 2022;24(4):503-18. doi: 10.1177/10998004221099556
972. Driscoll S, Gregory DM, Fardy JM, Twells LK. Long-term health-related quality of life in bariatric surgery patients: a systematic review and meta-analysis. Obesity. 2016;24(1):60-70. doi: 10.1002/oby.21322
973. Dugmore JA, Winten CG, Niven HE, Bauer J. Effects of weight-neutral approaches compared with traditional weight-loss approaches on behavioral, physical, and psychological health outcomes: a systematic review and meta-analysis. Nutr Rev. 2020;78(1):39-55. doi: 10.1093/nutrit/nuz020
974. Er E, Durieux N, Vander Haegen M, Flahault C, Etienne A-M. Patients' perceptions of the mechanisms underlying alcohol use problems after bariatric surgery: a qualitative systematic review. Clin Obes. 2023;13(1):e12551. doi: 10.1111/cob.12551
975. Fabricatore AN, Wadden TA, Higginbotham AJ, Faulconbridge LF, Nguyen AM, Heymsfield SB, Faith MS. Intentional weight loss and changes in symptoms of depression: a systematic review and meta-analysis. Int J Obes. 2011;35(11):1363-76. doi: 10.1038/ijo.2011.2
976. Farrell E, Hollmann E, le Roux CW, Bustillo M, Nadglowski J, McGillicuddy D. The lived experience of patients with obesity: a systematic review and qualitative synthesis. Obes Rev. 2021;22(12):e13334. doi: 10.1111/obr.13334
977. Fu R, Zhang Y, Yu K, Mao D, Su H. Bariatric surgery alleviates depression in obese patients: a systematic review and meta-analysis. Obes Res Clin Pract. 2022;16(1):10-6. doi: 10.1016/j.orcp.2021.11.002

978. Gadd N, McIntosh A, Fear-Keen B, Hoult J, Maimone IR, Marshall S. Do endoscopic bariatric procedures improve postprocedural quality of life and mental health? A systematic review and meta-analysis. Obes Surg. 2020;30(10):4091-100. doi: 10.1007/s11695-020-04860-2
979. Gill H, Kang S, Lee Y, Rosenblat JD, Brietzke E, Zuckerman H, McIntyre RS. The long-term effect of bariatric surgery on depression and anxiety. J Affect Disord. 2019;246:886-94. doi: 10.1016/j.jad.2018.12.113
980. Gilmartin J, Bath-Hextall F, Maclean J, Stanton W, Soldin M. Quality of life among adults following bariatric and body contouring surgery: a systematic review. JBI Database Syst Rev Implement Reports. 2016;14(11):240-70. doi: 10.11124/JBISRIR-2016-003182
981. Greaves C, Poltawski L, Garside R, Briscoe S. Understanding the challenge of weight loss maintenance: a systematic review and synthesis of qualitative research on weight loss maintenance. Health Psychol Rev. 2017;11(2):145-63. doi: 10.1080/17437199.2017.1299583
982. Griffiths LJ, Parsons TJ, Hill AJ. Self-esteem and quality of life in obese children and adolescents: a systematic review. Int J Pediatr Obes. 2010;5(4):282-304. doi: 10.3109/17477160903473697
983. Hachem A, Brennan L. Quality of life outcomes of bariatric surgery: a systematic review. Obes Surg. 2016;26(2):395-409. doi: 10.1007/s11695-015-1940-z
984. Harris L, Hamilton S, Azevedo LB, Olajide J, De Brún C, Waller G, et al. Intermittent fasting interventions for treatment of overweight and obesity in adults: a systematic review and meta-analysis. JBI Database Syst Rev Implement Reports. 2018;16(2):507-47. doi: 10.11124/JBISRIR-2016-003248
985. Hartmann-Boyce J, Boylan A-M, Jebb SA, Aveyard P. Experiences of self-monitoring in self-directed weight loss and weight loss maintenance: systematic review of qualitative studies. Qual Health Res. 2019;29(1):124-34. doi: 10.1177/1049732318784815
986. Hartmann-Boyce J, Boylan AM, Jebb SA, Fletcher B, Aveyard P. Cognitive and behavioural strategies for self-directed weight loss: systematic review of qualitative studies. Obes Rev. 2017;18(3):335-49. doi: 10.1111/obr.12500
987. Hartmann-Boyce J, Johns DJ, Jebb SA, Summerbell C, Aveyard P, on behalf of the Behavioural Weight Management Review Group. Behavioural weight management programmes for adults assessed by trials conducted in everyday contexts: systematic review and meta-analysis. Obes Rev. 2014;15(11):920-32. doi: 10.1111/obr.12220
988. Hartmann-Boyce J, Nourse R, Boylan A-M, Jebb SA, Aveyard P. Experiences of reframing during self-directed weight loss and weight loss maintenance: systematic review of qualitative studies. Appl Psychol Health Well-Being. 2018;10(2):309-29. doi: 10.1111/aphw.12132
989. Herget S, Rudolph A, Hilbert A, Blüher S. Psychosocial status and mental health in adolescents before and after bariatric surgery: a systematic literature review. Obes Facts. 2014;7(4):233-45. doi: 10.1159/000365793
990. Herpertz S, Kielmann R, Wolf AM, Langkafel M, Senf W, Hebebrand J. Does obesity surgery improve psychosocial functioning? A systematic review. Int J Obes. 2003;27(11):1300-14. doi: 10.1038/sj.ijo.0802410
991. Hillstrom KA, Graves JK. A review of depression and quality of life outcomes in adolescents post bariatric surgery. J Child Adolesc Psychiatr Nurs. 2015;28(1):50-9. doi: 10.1111/jcap.12104
992. House ET, Gow ML, Lister NB, Baur LA, Garnett SP, Paxton SJ, Jebeile H. Pediatric weight management, dietary restraint, dieting, and eating disorder risk: a systematic review. Nutr Rev. 2021;79(10):1114-33. doi: 10.1093/nutrit/nuaa127
993. Hu Z, Sun J, Li R, Wang Z, Ding H, Zhu T, Wang G. A comprehensive comparison of LRYGB and LSG in obese patients including the effects on QoL, comorbidities, weight loss, and complications: a systematic review and meta-analysis. Obes Surg. 2020;30(3):819-27. doi: 10.1007/s11695-019-04306-4
994. Jebeile H, Gow ML, Baur LA, Garnett SP, Paxton SJ, Lister NB. Treatment of obesity, with a dietary component, and eating disorder risk in children and adolescents: a systematic review with meta-analysis. Obes Rev. 2019;20(9):1287-98. doi: 10.1111/obr.12866

995. Jebeile H, Gow ML, Baur LA, Garnett SP, Paxton SJ, Lister NB. Association of pediatric obesity treatment, including a dietary component, with change in depression and anxiety: a systematic review and meta-analysis. JAMA Pediatr. 2019;173(11):e192841-e. doi: 10.1001/jamapediatrics.2019.2841
996. Jebeile H, Libesman S, Melville H, Low-Wah T, Dammery G, Seidler AL, et al. Eating disorder risk during behavioral weight management in adults with overweight or obesity: a systematic review with meta-analysis. Obes Rev. 2023;24(6):e13561. doi: 10.1111/obr.13561
997. Jiang Z, Zhang G, Huang J, Shen C, Cai Z, Yin X, et al. A systematic review of body contouring surgery in post-bariatric patients to determine its prevalence, effects on quality of life, desire, and barriers. Obes Rev. 2021;22(5):e13201. doi: 10.1111/obr.13201
998. Jones HM, Al-Khudairy L, Melendez-Torres GJ, Oyebode O. Viewpoints of adolescents with overweight and obesity attending lifestyle obesity treatment interventions: a qualitative systematic review. Obes Rev. 2019;20(1):156-69. doi: 10.1111/obr.12771
999. Jones RA, Lawlor ER, Birch JM, Patel MI, Werneck AO, Hoare E, et al. The impact of adult behavioural weight management interventions on mental health: a systematic review and meta-analysis. Obes Rev. 2021;22(4):e13150. doi: 10.1111/obr.13150
1000. Jumbe S, Bartlett C, Jumbe SL, Meyrick J. The effectiveness of bariatric surgery on long term psychosocial quality of life - a systematic review. Obes Res Clin Pract. 2016;10(3):225-42. doi: 10.1016/j.orcp.2015.11.009
1001. Kitson S, Ryan N, MacKintosh ML, Edmondson R, Duffy JM, Crosbie EJ. Interventions for weight reduction in obesity to improve survival in women with endometrial cancer. Cochrane Database Syst Rev. 2018;2:CD012513. doi: 10.1002/14651858.CD012513.pub2
1002. Kroes M, Osei-Assibey G, Baker-Searle R, Huang J. Impact of weight change on quality of life in adults with overweight/obesity in the United States: a systematic review. Curr Med Res Opin. 2016;32(3):485-508. doi: 10.1185/03007995.2015.1128403
1003. Lang S, Gibson S, Ng KW, Truby H. Understanding children and young people's experiences pursuing weight loss maintenance using the Socio-ecological Model: a qualitative systematic literature review. Obes Rev. 2021;22(5):e13172. doi: 10.1111/obr.13172
1004. Lasikiewicz N, Myrissa K, Hoyland A, Lawton CL. Psychological benefits of weight loss following behavioural and/or dietary weight loss interventions. A systematic research review. Appetite. 2014;72:123-37. doi: 10.1016/j.appet.2013.09.017
1005. Layton GR, Bhanderi S, Sahloul M, Charalampakis V, Daskalakis M, Singhal R. Challenges and outcomes for bariatric surgery in patients with paraplegia: case series and systematic review. Clin Obes. 2020;10(4):e12382. doi: 10.1111/cob.12382
1006. Lee C, Piernas C, Stewart C, Michalopoulou M, Hajzadeh A, Edwards R, et al. Identifying effective characteristics of behavioral weight management interventions for people with serious mental illness: a systematic review with a qualitative comparative analysis. Obes Rev. 2022;23(1):e13355. doi: 10.1111/obr.13355
1007. Li Z, Pan Y, Zhang Y, Qin J, Lei X. Dietary experiences after bariatric surgery in patients with obesity: a qualitative systematic review. Obes Surg. 2022;32(6):2023-34. doi: 10.1007/s11695-022-06018-8
1008. Ligthart KAM, Paulis WD, Djasmo D, Koes BW, van Middelkoop M. Effect of multidisciplinary interventions on quality of life in obese children: a systematic review and meta-analysis. Qual Life Res. 2015;24(7):1635-43. doi: 10.1007/s11136-014-0881-7
1009. Lindekilde N, Gladstone BP, Lubeck M, Nielsen J, Clausen L, Vach W, Jones A. The impact of bariatric surgery on quality of life: a systematic review and meta-analysis. Obes Rev. 2015;16(8):639-51. doi: 10.1111/obr.12294
1010. Loh HH, Francis B, Lim L-L, Lim QH, Yee A, Loh HS. Improvement in mood symptoms after post-bariatric surgery among people with obesity: a systematic review and meta-analysis. Diabetes Metab Res Rev. 2021;37(8):e3458. doi: 10.1002/dmrr.3458
1011. Loveman E, Al-Khudairy L, Johnson RE, Robertson W, Colquitt JL, Mead EL, et al. Parent-only interventions for childhood overweight or obesity in children aged 5 to 11 years. Cochrane Database Syst Rev. 2015(12):CD012008. doi: 10.1002/14651858.CD012008

1012. Lv N, Kringle EA, Ma J. Integrated behavioral interventions for adults with comorbid obesity and depression: a systematic review. Curr Diabetes Rep. 2022;22(4):157-68. doi: 10.1007/s11892-022-01458-z
1013. Magallares A, Schomerus G. Mental and physical health-related quality of life in obese patients before and after bariatric surgery: a meta-analysis. Psychol Health Med. 2015;20(2):165-76. doi: 10.1080/13548506.2014.963627
1014. Małczak P, Mizera M, Lee Y, Pisarska-Adamczyk M, Wysocki M, Bała MM, et al. Quality of life after bariatric surgery-a systematic review with Bayesian network meta-analysis. Obes Surg. 2021;31(12):5213-23. doi: 10.1007/s11695-021-05687-1
1015. Marshall S, Mackay H, Matthews C, Maimone IR, Isenring E. Does intensive multidisciplinary intervention for adults who elect bariatric surgery improve post-operative weight loss, co-morbidities, and quality of life? A systematic review and meta-analysis. Obes Rev. 2020;21(7):e13012. doi: 10.1111/obr.13012
1016. Martenstyn J, King M, Rutherford C. Impact of weight loss interventions on patient-reported outcomes in overweight and obese adults with type 2 diabetes: a systematic review. J Behav Med. 2020;43(6):873-91. doi: 10.1007/s10865-020-00140-7
1017. McDowell K, Petrie MC, Raihan NA, Logue J. Effects of intentional weight loss in patients with obesity and heart failure: a systematic review. Obes Rev. 2018;19(9):1189-204. doi: 10.1111/obr.12707
1018. McMaster CM, Gow ML, Neal R, Alexander S, Baur LA, Cohen J. Acceptability of hospital-based pediatric weight management services among patients and families: a narrative synthesis. Child Obes. 2020;16(2):129-40. doi: 10.1089/chi.2019.0146
1019. Mead E, Atkinson G, Richter B, Metzendorf MI, Baur L, Finer N, et al. Drug interventions for the treatment of obesity in children and adolescents. Cochrane Database Syst Rev. 2016(11):CD012436. doi: 10.1002/14651858.CD012436
1020. Mead E, Brown T, Rees K, Azevedo LB, Whittaker V, Jones D, et al. Diet, physical activity and behavioural interventions for the treatment of overweight or obese children from the age of 6 to 11 years. Cochrane Database Syst Rev. 2017;6:CD012651. doi: 10.1002/14651858.CD012651
1021. Meany G, Conceição E, Mitchell JE. Binge eating, binge eating disorder and loss of control eating: effects on weight outcomes after bariatric surgery. Eur Eat Disord Rev. 2014;22(2):87-91. doi: 10.1002/erv.2273
1022. Melendez-Torres GJ, Sutcliffe K, Burchett HED, Rees R, Richardson M, Thomas J. Weight management programmes: re-analysis of a systematic review to identify pathways to effectiveness. Health Expect. 2018;21(3):574-84. doi: 10.1111/hex.12667
1023. Mento C, Silvestri MC, Muscatello MRA, Rizzo A, Celebre L, Cedro C, et al. The role of body image in obese identity changes post bariatric surgery. Eat Weight Disord. 2022;27(4):1269-78. doi: 10.1007/s40519-021-01270-w
1024. Mold F, Forbes A. Patients' and professionals' experiences and perspectives of obesity in health-care settings: a synthesis of current research. Health Expect. 2013;16(2):119-42. doi: 10.1111/j.1369-7625.2011.00699.x
1025. Moustafa AF, Quigley KM, Wadden TA, Berkowitz RI, Chao AM. A systematic review of binge eating, loss of control eating, and weight loss in children and adolescents. Obesity. 2021;29(8):1259-71. doi: 10.1002/oby.23185
1026. Murray M, Pearson JL, Dordevic AL, Bonham MP. The impact of multicomponent weight management interventions on quality of life in adolescents affected by overweight or obesity: a meta-analysis of randomized controlled trials. Obes Rev. 2018;20(2):278-89. doi: 10.1111/obr.12774
1027. Neve KL, Isaacs A. How does the food environment influence people engaged in weight management? A systematic review and thematic synthesis of the qualitative literature. Obes Rev. 2022;23(3):e13398. doi: 10.1111/obr.13398
1028. O'Connor EA, Evans CV, Burda BU, Walsh ES, Eder M, Lozano P. Screening for obesity and intervention for weight management in children and adolescents: evidence report and systematic review for the US Preventive Services Task Force. JAMA. 2017;317(23):2427-44. doi: 10.1001/jama.2017.0332

1029. Opozda M, Chur-Hansen A, Wittert G. Changes in problematic and disordered eating after gastric bypass, adjustable gastric banding and vertical sleeve gastrectomy: a systematic review of pre-post studies. Obes Rev. 2016;17(8):770-92. doi: 10.1111/obr.12425
1030. Palavras MA, Hay P, Filho CADS, Claudino A. The efficacy of psychological therapies in reducing weight and binge eating in people with bulimia nervosa and binge eating disorder who are overweight or obese-a critical synthesis and meta-analyses. Nutrients. 2017;9(3). doi: 10.3390/nu9030299
1031. Pietrabissa G, Bertuzzi V, Simpson S, Guerrini Usubini A, Cattivelli R, Bertoli S, et al. Psychological aspects of treatment with intragastric balloon for management of obesity: a systematic review of the literature. Obes Facts. 2022;15(1):1-18. doi: 10.1159/000518200
1032. Raaijmakers LCH, Pouwels S, Thomassen SEM, Nienhuijs SW. Quality of life and bariatric surgery: a systematic review of short- and long-term results and comparison with community norms. Eur J Clin Nutr. 2017;71(4):441-9. doi: 10.1038/ejcn.2016.198
1033. Rajaie SH, Soltani S, Yazdanpanah Z, Zohrabi T, Beigrezaei S, Mohseni-Takalloo S, et al. Effect of exercise as adjuvant to energy-restricted diets on quality of life and depression outcomes: a meta-analysis of randomized controlled trials. Qual Life Res. 2022;31(11):3123-37. doi: 10.1007/s11136-022-03146-7
1034. Rajeev ND, Samaan JS, Premkumar A, Srinivasan N, Yu E, Samakar K. Patient and the public's perceptions of bariatric surgery: a systematic review. J Surg Res. 2023;283:385-406. doi: 10.1016/j.jss.2022.10.061
1035. Rausa E, Kelly ME, Galfrascoli E, Aiolfi A, Cavalcoli F, Turati L, et al. Quality of life and gastrointestinal symptoms following laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy: a systematic review. Obes Surg. 2019;29(4):1397-402. doi: 10.1007/s11695-019-03737-3
1036. Robertson C, Archibald D, Avenell A, Douglas F, Hoddinott P, van Teijlingen E, et al. Systematic reviews of and integrated report on the quantitative, qualitative and economic evidence base for the management of obesity in men. Health Technol Assess. 2014;18(35). doi: 10.3310/hta18350
1037. Schurmans G, Caty G, Reychler G. Is the peri-bariatric surgery exercise program effective in adults with obesity: a systematic review. Obes Surg. 2022;32(2):512-35. doi: 10.1007/s11695-021-05693-3
1038. Seyhan Ak E, Aci ÖS, Kutlu FY. Obezite Cerrahisi Öncesinde ve İyileşme Sürecinde Psikososyal Girişimler: Sistematik Literatür İncelemesi. Turkiye Klinikleri J Nurs Sci. 2020;12(4):625-32. doi: 10.5336/nurses.2020-75307
1039. Shaikh H, Bradhurst P, Ma LX, Tan SYC, Egger SJ, Vardy JL. Body weight management in overweight and obese breast cancer survivors. Cochrane Database Syst Rev. 2020;12:CD012110. doi: 10.1002/14651858.CD012110.pub2
1040. Sierżantowicz R, Ładny JR, Lewko J. Quality of life after bariatric surgery-a systematic review. Int J Environ Res Public Health. 2022;19(15). doi: 10.3390/ijerph19159078
1041. Silverii GA, Cresci B, Benvenuti F, Santagiuliana F, Rotella F, Mannucci E. Effectiveness of intermittent fasting for weight loss in individuals with obesity: a meta-analysis of randomized controlled trials. Nutr Metab Cardiovasc Dis. 2023;33(8):1481-9. doi: 10.1016/j.numecd.2023.05.005
1042. Skea ZC, Aceves-Martins M, Robertson C, De Bruin M, Avenell A, on behalf of the REBALANCE team. Acceptability and feasibility of weight management programmes for adults with severe obesity: a qualitative systematic review. BMJ Open. 2019;9(9):e029473. doi: 10.1136/bmjopen-2019-029473
1043. Skelton JA, Irby MB, Geiger AM. A systematic review of satisfaction and pediatric obesity treatment: new avenues for addressing attrition. J Healthc Qual. 2014;36(4):5-22. doi: 10.1111/jhq.12003
1044. Spadaccini D, Guazzotti S, Goncalves Correia FP, Daffara T, Tini S, Antonioli A, et al. Beyond bariatric surgery and weight loss medicaments. A systematic review of the current practice in obesity rehabilitative inpatient programs in adults and pediatrics. Front Nutr. 2022;9:963709. doi: 10.3389/fnut.2022.963709
1045. Spirou D, Raman J, Smith E. Psychological outcomes following surgical and endoscopic bariatric procedures: a systematic review. Obes Rev. 2020;21(6):e12998. doi: 10.1111/obr.12998

1046. Spreckley M, Seidell J, Halberstadt J. Perspectives into the experience of successful, substantial long-term weight-loss maintenance: a systematic review. Int J Qual Stud Health Well-being. 2021;16(1):1862481. doi: 10.1080/17482631.2020.1862481
1047. Stankov I, Olds T, Cargo M. Overweight and obese adolescents: what turns them off physical activity? Int J Behav Nutr Phys Act. 2012;9:53. doi: 10.1186/1479-5868-9-53
1048. Steele RG, Gayes LA, Dalton WTI, Smith C, Maphis L, Conway-Williams E. Change in health-related quality of life in the context of pediatric obesity interventions: a meta-analytic review. Health Psychol. 2016;35(10):1097-109. doi: 10.1037/hea0000362
1049. Storman D, Świerz MJ, Storman M, Jasińska KW, Jemioło P, Bała MM. Psychological interventions and bariatric surgery among people with clinically severe obesity-a systematic review with Bayesian meta-analysis. Nutrients. 2022;14(8). doi: 10.3390/nu14081592
1050. Sutcliffe K, Melendez-Torres GJ, Burchett HED, Richardson M, Rees R, Thomas J. The importance of service-users' perspectives: a systematic review of qualitative evidence reveals overlooked critical features of weight management programmes. Health Expect. 2018;21(3):563-73. doi: 10.1111/hex.12657
1051. Swierz MJ, Storman D, Staskiewicz W, Gorecka M, Jasinska KW, Swierz AM, et al. Efficacy of probiotics in patients with morbid obesity undergoing bariatric surgery: a systematic review and meta-analysis. Surg Obes Relat Dis. 2020;16(12):2105-16. doi: 10.1016/j.soard.2020.08.038
1052. Szmulewicz A, Wanis KN, Gripper A, Angriman F, Hawel J, Elnahas A, et al. Mental health quality of life after bariatric surgery: a systematic review and meta-analysis of randomized clinical trials. Child Obes. 2019;9(1):e12290. doi: 10.1111/cob.12290
1053. Taba JV, Suzuki MO, Nascimento FSd, Iuamoto LR, Hsing WT, Pipek LZ, et al. The development of feeding and eating disorders after bariatric surgery: a systematic review and meta-analysis. Nutrients. 2021;13(7). doi: 10.3390/nu13072396
1054. Taghavi SA, van Wely M, Jahanfar S, Bazarganipour F. Pharmacological and non-pharmacological strategies for obese women with subfertility. Cochrane Database Syst Rev. 2021;3:CD012650. doi: 10.1002/14651858.CD012650.pub2
1055. Tamayo MC, Dobbs PD, Pincu Y. Family-centered interventions for treatment and prevention of childhood obesity in hispanic families: a systematic review. J Community Health. 2021;46(3):635-43. doi: 10.1007/s10900-020-00897-7
1056. Tamin TZ, Murdana N, Pitoyo Y, Safitri ED. Exercise intervention for chronic pain management, muscle strengthening, and functional score in obese patients with chronic musculoskeletal pain: a systematic review and meta-analysis. Acta Med Indones. 2018;50(4):299-308.
1057. Tay A, Hoeksema H, Murphy R. Uncovering barriers and facilitators of weight loss and weight loss maintenance: insights from qualitative research. Nutrients. 2023;15(5):1297. doi: 10.3390/nu15051297
1058. ten Hoor GA, Kok G, Peters G-JY, Frissen T, Schols AMWJ, Plasqui G. The psychological effects of strength exercises in people who are overweight or obese: a systematic review. Sports Med. 2017;47(10):2069-81. doi: 10.1007/s40279-017-0748-5
1059. Theodoulou A, Hartmann-Boyce J, Gorenberg J, Oke JL, Butler AR, Bastounis A, et al. Weight regain and mental health outcomes following behavioural weight management programmes: a systematic review with meta-analyses. Clin Obes. 2023;13(3):e12575. doi: 10.1111/cob.12575
1060. Toft BS, Uhrenfeldt L. The lived experiences of being physically active when morbidly obese: a qualitative systematic review. Int J Qual Stud Health Well-being. 2015;10(1):28577. doi: 10.3402/qhw.v10.28577
1061. Toledo PR, Lotufo-Neto F, Verdeli H, Goulart AC, Horvath Marques A, Solis ACdO, Wang Y-P. Interpersonal psychotherapy for treatment of obesity: a systematic review and meta-analysis. J Affect Disord. 2023;320:319-29. doi: 10.1016/j.jad.2022.09.070
1062. Toma T, Harling L, Athanasiou T, Darzi A, Ashrafian H. Does body contouring after bariatric weight loss enhance quality of life? A systematic review of QOL studies. Obes Surg. 2018;28(10):3333-41. doi: 10.1007/s11695-018-3323-8

1063. Trooboff SW, Stucke RS, Riblet NB, Kulkarni AS, Anand R, Casey A, Hofley MA. Psychosocial outcomes following adolescent metabolic and bariatric surgery: a systematic review and meta-analysis. Obes Surg. 2019;29(11):3653-64. doi: 10.1007/s11695-019-04048-3
1064. Ulian MD, Aburad L, da Silva Oliveira MS, Poppe ACM, Sabatini F, Perez I, et al. Effects of health at every size R interventions on health-related outcomes of people with overweight and obesity: a systematic review. Obes Rev. 2018;19(12):1659-66. doi: 10.1111/obr.12749
1065. Väisänen H, Kaakinen P, Kääriäinen M, Kyngäs H. Motivation of parents in lifestyle change of overweight and obese children: a systematic literature review. Hoitotiede. 2013;25(2):141-54.
1066. van Dammen L, Wekker V, de Rooij SR, Groen H, Hoek A, Roseboom TJ. A systematic review and meta-analysis of lifestyle interventions in women of reproductive age with overweight or obesity: the effects on symptoms of depression and anxiety. Obes Rev. 2018;19(12):1679-87. doi: 10.1111/obr.12752
1067. van Nunen AMA, Wouters EJM, Vingerhoets AJJM, Hox JJ, Geenen R. The health-related quality of life of obese persons seeking or not seeking surgical or non-surgical treatment: a meta-analysis. Obes Surg. 2007;17(10):1357-66. doi: 10.1007/s11695-007-9241-9
1068. van den Hoek DJ, Miller CT, Fraser SF, Selig SE, Dixon JB. Does exercise training augment improvements in quality of life induced by energy restriction for obese populations? A systematic review. Qual Life Res. 2017;26(10):2593-605. doi: 10.1007/s11136-017-1602-9
1069. Van Zyl N, Andrews L, Williamson H, Meyrick J. The effectiveness of psychosocial interventions to support psychological well-being in post-operative bariatric patients: a systematic review of evidence. Obes Res Clin Pract. 2020;14(5):404-20. doi: 10.1016/j.orcp.2020.05.005
1070. Warkentin LM, Das D, Majumdar SR, Johnson JA, Padwal RS. The effect of weight loss on health-related quality of life: systematic review and meta-analysis of randomized trials. Obes Rev. 2014;15(3):169-82. doi: 10.1111/obr.12113
1071. White B, Doyle J, Colville S, Nicholls D, Viner RM, Christie D. Systematic review of psychological and social outcomes of adolescents undergoing bariatric surgery, and predictors of success. Clin Obes. 2015;5(6):312-24. doi: 10.1111/cob.12119
1072. Willcox K, Brennan L. Biopsychosocial outcomes of laparoscopic adjustable gastric banding in adolescents: a systematic review of the literature. Obes Surg. 2014;24(9):1510-9. doi: 10.1007/s11695-014-1273-3
1073. Witham MD, Avenell A. Interventions to achieve long-term weight loss in obese older people: a systematic review and meta-analysis. Age Ageing. 2010;39(2):176-84. doi: 10.1093/ageing/afp251
1074. Wright C, Mutsekwa RN, Hamilton K, Campbell KL, Kelly J. Are eHealth interventions for adults who are scheduled for or have undergone bariatric surgery as effective as usual care? A systematic review. Surg Obes Relat Dis. 2021;17(12):2065-80. doi: 10.1016/j.soard.2021.07.020
1075. Wu F, Shi F, Fu X, Du N, Chen B, Zhou X. Laparoscopic sleeve gastrectomy versus Roux-en-Y gastric bypass for quality of life: a systematic review and meta-analysis. Surg Obes Relat Dis. 2020;16(11):1869-76. doi: 10.1016/j.soard.2020.06.022
1076. Zenlea IS, Sebastianski M, Kucera M, Mushquash AR, Boles K, Brogly J, et al. Incorporation of patient and family values and preferences for health-related outcomes in paediatric obesity management: a systematic review. Pediatr Obes. 2023;18(5):e13006. doi: 10.1111/ijpo.13006
1077. Zhong P, Zeng H, Huang M, Fu W, Chen Z. Efficacy and safety of once-weekly semaglutide in adults with overweight or obesity: a meta-analysis. Endocrine. 2022;75(3):718-24. doi: 10.1007/s12020-021-02945-1
1078. Zhu H, Ren Z, Zang Y, Hua H, Lu J, Xu Q, Zhu S. Effects of microecological preparations on obese patients after bariatric surgery: a systematic review and meta-analysis. Evid Based Complement Alternat Med. 2020;2020:8724546. doi: 10.1155/2020/8724546
1079. Alberga AS, Edache IY, Forhan M, Russell-Mayhew S. Weight bias and health care utilization: a scoping review. Prim Health Care Res Dev. 2019;20:e116. doi: 10.1017/S1463423619000227
1080. Baillot A, Brais-Dussault E, Bastin A, Cyr C, Brunet J, Aimé A, et al. What is known about the correlates and impact of excess skin after bariatric surgery: a scoping review. Obes Surg. 2017;27(9):2488-98. doi: 10.1007/s11695-017-2814-3

1081. Doni K, Breuing J, Pieper D. Psychosocial changes of bariatric surgery in patients' everyday life: a scoping review. Obes Surg. 2020;30(8):2949-56. doi: 10.1007/s11695-020-04621-1
1082. Fidjeland TG, Øen KG. Parents' experiences using digital health technologies in paediatric overweight and obesity support: an integrative review. Int J Environ Res Public Health. 2022;20(1). doi: 10.3390/ijerph20010410
1083. Gibbons E, Casey AF, Brewster KZ. Bariatric surgery and intellectual disability: furthering evidence-based practice. Disabil Health J. 2017;10(1):3-10. doi: 10.1016/j.dhjo.2016.09.005
1084. McPherson AC, Hamilton J, Kingsnorth S, Knibbe TJ, Peters M, Swift JA, et al. Communicating with children and families about obesity and weight-related topics: a scoping review of best practices. Obes Rev. 2017;18(2):164-82. doi: 10.1111/obr.12485
1085. Mori C, Sheehan D, Graor CH, Petrinec A. A scoping review of the phenomenon of osteoporosis in post bariatric surgical patients. Int J Orthop Trauma Nurs. 2021;40:100835. doi: 10.1016/j.ijotn.2020.100835
1086. Roberts KJ, Binns HJ, Vincent C, Koenig MD. A scoping review: family and child perspectives of clinic-based obesity treatment. J Pediatr Nurs. 2021;57:56-72. doi: 10.1016/j.pedn.2020.10.025
1087. Termannsen A-D, Varming A, van Elst C, Bjerre N, Nørgaard O, Hempler NF, et al. Feasibility of time-restricted eating in individuals with overweight, obesity, prediabetes, or type 2 diabetes: a systematic scoping review. Obesity. 2023;31(6):1463-85. doi: 10.1002/oby.23743
1088. Van den Eynde A, Mertens A, Vangoitsenhoven R, Meulemans A, Matthys C, Deleus E, et al. Psychosocial consequences of bariatric surgery: two sides of a coin: a scoping review. Obes Surg. 2021;31(12):5409-17. doi: 10.1007/s11695-021-05674-6
1089. Hegland PA, Aasprang A, Hjelle Øygard S, Nordberg S, Kolotkin R, Moltu C, et al. A review of systematic reviews on the effects of patient-reported outcome monitoring with clinical feedback systems on health-related quality of life-implications for a novel technology in obesity treatment. Clin Obes. 2018;8(6):452-64. doi: 10.1111/cob.12277
1090. Kolotkin RL, Andersen JR. A systematic review of reviews: exploring the relationship between obesity, weight loss and health-related quality of life. Clin Obes. 2017;7(5):273-89. doi: 10.1111/cob.12203
1091. Kubik JF, Gill RS, Laffin M, Karmali S. The impact of bariatric surgery on psychological health. J Obes. 2013;2013:837989. doi: 10.1155/2013/837989

Scoping review 3 – What clinical outcomes other than weight loss or maintenance may result from receiving nutrition, physical activity, sedentary behaviour, psychological, family-centred, sleep, pharmacological and/or bariatric or endoscopic surgical interventions for people living with overweight or obesity?

Scoping review 3 investigated the measured benefits and harms of interventions for people living with overweight or obesity with respect to clinical outcomes other than weight (e.g., cardiovascular disease, type 2 diabetes, cancer, depression, and anxiety). The review informed the desirable or undesirable effects sections of the Evidence-to-Decision frameworks.

Methods

A scoping review was conducted to identify clinical outcomes, other than weight loss or weight maintenance, for people living with overweight or obesity that participated in behavioural, pharmacological, and surgical interventions. In this review, findings were synthesised from systematic reviews and scoping reviews.

Search strategy

Systematic and scoping reviews were identified through searching the following databases: MEDLINE (Ovid), APA PsycINFO (EBSCOHost), CINAHL Complete (EBSCOHost), and Cochrane Library. Search terms represented overweight and obesity, chronic health conditions, study type, and intervention type. The search strategy for MEDLINE (Ovid) is presented in Table B15 and incorporates both controlled vocabulary and free text. When translating the search strategy for the other databases, equivalent controlled vocabulary, where available, were used. No limit for language was applied. The search was limited to publications during or after 2010. The search was current as of 30 September 2023.

Table B15: Scoping review 3 MEDLINE (Ovid) search terms

Search number	Search terms
1	exp obesity/
2	(obes* or overweight* or over weight*).ab,ti.
3	Body Mass Index/
4	Pediatric Obesity/
5	((pediatric* OR paediatric* OR child* OR adolescen*) AND (obesity OR obese)).ab,ti.
6	1 OR 2 OR 3 OR 4 OR 5
7	cardiovascular.ab,ti.
8	exp Diabetes Mellitus, Type 2/
9	(type 2 diabetes or diabetes type 2).ab,ti.

10	Non-alcoholic Fatty Liver Disease/
11	(non alcoholic fatty liver disease OR non-alcoholic fatty liver disease OR nonalcoholic fatty liver disease OR non alcoholic fatty liver* OR non-alcoholic fatty liver* OR nonalcoholic fatty liver* OR non alcoholic steatohepatitis OR non-alcoholic steatohepatitis OR nonalcoholic steatohepatitis OR non alcoholic steatohepatitides OR non-alcoholic steatohepatitides OR nonalcoholic steatohepatitides OR NAFLD OR NASH OR NAFL OR MAFLD).ab,ti.
12	(musculoskeletal pain* or muscle pain*).ab,ti.
13	Arthroplasty, Replacement, Hip/
14	(hip replacement* or hip arthroplast* or hip prosthes*).ab,ti.
15	Arthroplasty, Replacement, Knee/
16	(knee replacement* or knee arthroplast* or knee prosthes*).ab,ti.
17	Mental Health/
18	exp Neoplasm/
19	exp Infertility/
20	7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19
21	meta-analysis.pt
22	(meta-anal* OR metaanal*).ab,ti.
23	systematic review.pt
24	21 OR 22 OR 23
25	Orlistat/
26	(alli OR orlipastat OR orlistat OR "ro 18 0647" OR "ro 180647" OR ro180647 OR tetrahydrolipstatin OR Xenical).ab,ti.
27	("apd 356" OR apd356 OR belviq OR lorcaserin OR lorqess).ab,ti.
28	((phentermine AND topiramate) OR phentermine topiramate OR "phentermine topiramate" OR phenterminetopiramate OR qnexa OR qsiva OR Qsymia OR topiramatephentermine OR "phentermine-topiramate").ab,ti.
29	(bupropion naltrexone OR (amfebutamone AND naltrexone) OR (bupropion AND naltrexone) OR Contrave OR "bupropion-naltrexone").ab,ti.
30	"Glucagon-Like Peptide 1"/
31	Liraglutide/
32	(liraglutide OR "nn 2211" OR nn2211 OR "nnc 90 1170" OR "nnc90 1170" OR Saxenda OR victoza).ab,ti.
33	(albiglutide OR Tanzeum OR dulaglutide OR Trulicity OR exenatide OR Byetta OR "Extended-release exenatide" OR Bydureon OR lixisenatide OR Adlyxin OR semaglutide OR Ozempic OR Rybelsus).ab,ti.
34	"Sodium-Glucose Transporter 2 Inhibitors"/
35	(ertugliflozin OR Steglatro OR canagliflozin OR Invokana OR empagliflozin OR Jardiance OR dapagliflozin OR Farxiga OR ipragliflozin OR luseogliflozin OR "remogliflozin etabonate" OR (remogliflozin AND etabonate) OR "sergliflozin etabonatem" OR (sergliflozin AND etabonatem) OR tofogliflozin).ab,ti.
36	Metformin/
37	(metformin OR Glumetza OR "Glucophage XR" OR Fortamet OR Glucophage OR Riomet OR "metformin ER" OR "metformin IR").ab,ti.
38	(phentermine OR Adipex-P OR Lomaira OR Suprenza OR phendimetrazine OR Bontril OR Melfiat OR benzphetamine OR Didrex OR Regimex OR diethylpropion OR Tenuate OR "Tenuate Dospan").ab,ti.
39	(pramlintide OR symlin OR "AC 0137" OR "pramlintide acetate").ab,ti.
40	Diet/
41	Diet Therapy/
42	(diet therapy OR diet therapies).ab,ti.
43	Bariatric Surgery/
44	Gastric Bypass/

45	Gastroplasty/
46	(gastric bypass OR gastroplasty).ab,ti.
47	(endoscopic therapy or endoscopic therapies).ab,ti.
48	(family-centred interventions or family-centered interventions or family-based intervention).ab,ti.
49	sleep.ab,ti.
50	Exercise/
51	Sports/
52	(physical activity or physical activities or movement or play or sedentary or sitting).ab,ti.
53	Behavior Therapy/
54	Cognitive Behavioral Therapy/
55	25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44 OR 45 OR 46 OR 47 OR 48 OR 49 OR 50 OR 51 OR 52 OR 53 OR 54
56	6 AND 20 AND 24 AND 55
57	Date range: January 2010 to September 2023

Selection criteria

Selection criteria were developed using the PICOT (population, intervention, comparator, outcome, time) framework. A summary of the selection criteria is presented in Table B16.

Table B16: Scoping review 3 PICOT framework

PICOT category	**Details**
Population	• People living with overweight or obesity
Interventions/Exposures	Weight loss or weight maintenance, or general health (i.e. non-weight-focussed) interventions: • Any of these interventions singly or in combination • Behavioural interventions (nutrition, physical activity, sedentary behaviour, psychological, family-centred interventions, sleep) • Pharmacological interventions for weight management (on- and off-label) • Bariatric or endoscopic surgical management
Comparators	• No treatment • Different treatment dose • Placebo intervention • Usual care
Outcomes	Changes in health: • Physical health (e.g., blood pressure indicators, blood glucose level, blood lipid profile, changes in incidence or prevalence of cardiovascular disease, type 2 diabetes, non-alcoholic fatty liver disease (NAFLD), musculoskeletal conditions, cancer, reproductive health, reduction/cessation of pharmacological agents) • Mental health (including validated measures of depression, anxiety, eating disorders, or suicide) • Mortality from any of the above conditions Changes in health-related quality of life Adverse events
Time: Intervention length and follow-up period	Any intervention length with a follow-up period ≥12 months from baseline

Study type	Systematic and scoping reviews of RCTs (and derivatives) and/or observational studies.
Publication type	Full-text systematic reviews or scoping reviews published in peer-reviewed journals.
Publication date range	• January 2010 to September 2023
Databases searched	• Ovid MEDLINE • APA PsycINFO via EBSCOHost • CINAHL Complete via EBSCOHost • Cochrane Library

Inclusion criteria

Additional information on the inclusion criteria for the population, interventions/exposures, and outcomes is provided.

Population

Studies involving participants aged 2 years and older with overweight or obesity (as defined by publications' authors) were considered for inclusion. Overweight and obesity needed to have been assessed using one or more of the following measures:

- dual energy X-ray absorptiometry (DXA)
- BMI or BMI z-score/ BMI-for-age centiles
- waist circumference
- weight for height growth chart
- body weight (kgs or lbs).

Interventions/Exposures

Systematic and scoping reviews that included any of the following interventions, individually or in combination, were eligible:

- behavioural interventions
    - nutrition
    - physical activity
    - sedentary behaviour
    - psychological intervention
    - family-centred interventions
    - sleep
- pharmacological interventions for weight management
    - on-label (approved for treatment of overweight or obesity)
        - lipase inhibitors
        - anorectics and anticonvulsants
        - opioid antagonist plus norepinephrine-dopamine reuptake inhibitor
        - glucagon-like peptide-1 (GLP-1) receptor agonists
        - glucose-dependent insulinotropic polypeptide (GIP) receptor and GLP-1 receptor agonists
    - off-label (prescribed for health outcomes other than obesity that result in weight loss)
        - biguanide
        - biguanide plus sodium-glucose co-transporter 2 inhibitor
- bariatric or endoscopic surgery.

Outcomes

Outcomes included in this review were chronic conditions and risk factors in the causal pathway between excess body weight and ill-health, health-related quality of life (HRQoL), and adverse events. Eligible outcomes were:

- physical health outcomes
  - systolic and diastolic blood pressure
  - blood glucose/HbA1c levels
  - blood lipid markers (total cholesterol, LDL- and HDL-cholesterol, and triglycerides)
  - cardiovascular disease (including coronary heart disease such as angina, heart attack, heart failure, cardiomyopathy, and atrial fibrillation; stroke and transient ischaemic attack; and peripheral arterial disease)
  - type 2 diabetes
  - non-alcoholic fatty liver disease (NAFLD; also known as metabolic associated fatty liver disease [MAFLD]), including non-alcoholic fatty liver (NAFL) and non-alcoholic steatohepatitis (NASH)
  - musculoskeletal conditions (including hip and knee replacement, and using a validated measure of pain relating to non-inflammation-related musculoskeletal conditions, e.g., back pain, hip/knee pain)
  - cancer (of any type)
  - reproductive health
- mental health outcomes
  - validated measures of depression and anxiety
  - eating disorders
  - suicide
- validated measures of HRQoL
- mortality from any of the above conditions
- adverse events.

Exclusion criteria

Additional information on the exclusion criteria for the population, study type, and publication type is provided.

Population

Studies with the following participants only were excluded:

- participants with overweight or obesity due to a specific genetic condition (e.g., Prader Willi Syndrome)
- animals.

Study type

Narrative reviews were excluded.

Publication type

Study protocols, conference abstracts, editorials and letters to editors were excluded.

Study selection

Two reviewers (from a pool of nine reviewers) independently assessed the eligibility of each paper in a standardised manner. Papers were first screened based on title and abstract, and then full text reviews were conducted. Two senior reviewers resolved disagreements between reviewers.

Data extraction

The following data were extracted from each review that met the selection criteria: review details (authors, year), study types (e.g., RCT and longitudinal observational studies), countries, participant populations (e.g., children, adolescents, and young and middle-aged adults), number of individual participants, pre-existing conditions that were inclusion criteria in the systematic or scoping reviews (e.g., type 2 diabetes), intervention (nutrition, physical activity, sedentary behaviour, psychological interventions, family-centred interventions, sleep, on- and off-label pharmacological interventions for weight management, and bariatric or endoscopic surgery), and outcomes including, where available associated effect sizes (cardiovascular disease, type 2 diabetes, NAFLD, musculoskeletal conditions, cancer, mental health (including depression, anxiety, eating disorders, or suicide), reproductive health, mortality from any of the previous conditions, HRQoL, blood pressure indicators, blood glucose/HbA1c levels, blood lipid profile (e.g., total cholesterol, LDL- or HDL-cholesterol, and triglycerides) and adverse events. Data extraction was conducted using REDCap® software (EDC software, USA).

Data synthesis

Systematic and scoping review findings were sorted by participant population (including the presence of pre-existing conditions), intervention type, and outcome type. When there was more than one review with findings for a given population, intervention, and outcome, the reviews were assessed to determine whether there was any overlap in the individual studies that contributed to those findings. Reviews were regarded as overlapping if the reviews had at least one individual study in common. If there was no overlap between individual studies, all review findings were included in Scoping Review 3. If there was overlap, findings of one review were prioritised over others for presentation in this scoping review based on a published decision tool to support researchers in making decisions about including systematic review in overviews of healthcare interventions (1092). Review findings were prioritised based on whether the study was a Cochrane review, the recency of the search, the comprehensiveness of the review (operationalised as the number of studies included for a given outcome), and whether the synthesis was quantitative (a meta-analysis) or narrative (due to risk of bias). Findings are presented in text and tabular formats. Reasons for omitting results in favour of others are also provided.

Results

The searches of the electronic databases yielded 5,097 records, of which 176 were duplicates (Figure B6). Following screening of the remaining 4,921 records, 76 papers were selected for inclusion in this review, all of which were systematic reviews (838, 967, 972, 999, 1001, 1020, 1036, 1093-1161).

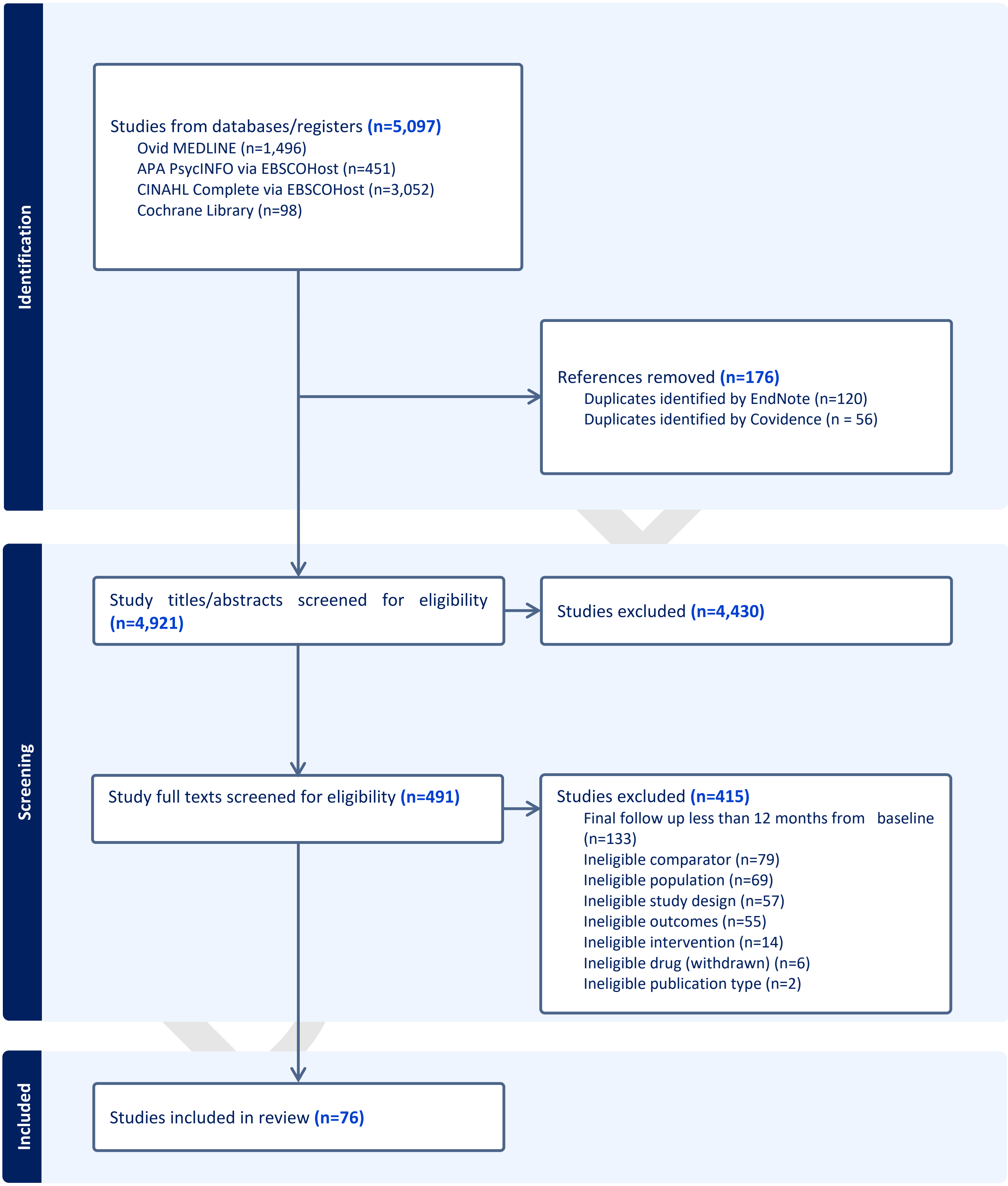


Figure B6: Scoping review 3 PRISMA flow diagram

Characteristics of the 76 included systematic reviews are provided in Table B17. The summary of findings presented here is primarily organised by age range: children and adolescents, young and middle-aged adults, and older adults, and incorporated the findings of 58 reviews (838, 967, 972, 999, 1020, 1093, 1096-1104, 1106, 1107, 1109-1112, 1114-1116, 1118, 1120, 1122, 1123, 1125-1129, 1131-1133, 1136-1141, 1143-1146, 1149-1157, 1159-1161). Findings for specific populations are also presented and include men only and women only (1036), and South Asians (1121), and individuals with particular health conditions; adults with prediabetes (1124), adults with type 2 diabetes (1095, 1105, 1108, 1113, 1117, 1134, 1135, 1142, 1147, 1148, 1158), Chinese adults with type 2 diabetes (1130), adults without type 2 diabetes (1119), and women with endometrial cancer (1001, 1094).

The findings are presented in summary paragraphs, with further details in associated tables when there were many findings for a given population. Where review findings were omitted from the synthesis due to identification of reviews with overlapping studies, the reviews omitted and the reasons for their omission are noted in additional tables.

Table B17: Characteristics of the included systematic reviews

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
Afshar et al., 2014 (1093)	4	Longitudinal observational	Sweden, US, Canada	Young and middle-aged adults (18-<65y), all adults (18y+)	105,187	-	Surgery	Cancer
Agnew et al., 2023 (1094)	12	RCTs	US, Australia, New Zealand	All adults (18y+)	610	Endometrial cancer	Nutrition, physical activity, psychological	Mortality, HRQoL, adverse events
Aldekhail et al., 2015 (1095)	12	RCTs	UK, Taiwan, Sweden, Greece, France, US, Germany, Brazil, Switzerland, Bangladesh	All adults (18y+)	2,802	T2DM	Pharmacological	T2DM, HbA1c levels/blood glucose
Almazeedi et al., 2020 (1096)	7	Longitudinal observational	US, UK, Canada, Sweden	All adults (18y+)	1,213,727	-	Surgery	Cancer
Atallah et al., 2014 (1097)	12	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	2,559	-	Nutrition, physical activity	Blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile
Baker et al., 2016 (1098)	5	RCTs	US, Canada	Young and middle-aged adults (18-<65y), all adults (18y+)	1,669	-	Physical activity	Mental health, HRQoL
Bustamante-Lopez et al., 2023 (1099)	5	Longitudinal observational	US, Canada, England, Sweden	Young and middle-aged adults (18-<65y), all adults (18y+)	48,916	-	Surgery	Cancer
Casagrande et al., 2014 (1100)	13	RCTs, NRCTs	US, Canada, Sweden	Young and middle-aged adults (18-<65y), all adults (18y+)	54,257	-	Surgery	Cancer
Chandrakumar et al., 2023 (1101)	49	Longitudinal observational	Canada, Sweden, US, UK, China, Taiwan, Italy, Denmark, Finland, Iceland, Norway	Young and middle-aged adults (18-<65y), all adults (18y+)	1,144,274	-	Surgery	Mortality
Chaudhry et al., 2016 (1102)	18	RCTs	US, Europe, Australia, New Zealand, Middle East	Young and middle-aged adults (18-<65y), all adults (18y+)	3,268	T2DM	Nutrition	T2DM, HbA1c levels/blood glucose

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
Cheng et al., 2016 (1103)	25	RCTs	Italy, Australia, US, Denmark, China, Brazil, Spain	Young and middle-aged adults (18-<65y), all adults (18y+)	1,194	-	Surgery	T2DM, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile
Chierici et al., 2023 (1104)	18	Longitudinal observational	US, UK, France, Canada, Italy, Sweden, Denmark, Norway, Finland, Iceland	Young and middle-aged adults (18-<65y), all adults (18y+)	12,517,893	-	Surgery	Cancer
Cohen et al., 2017 (1105)	5	RCTs	US, Taiwan	Young and middle-aged adults (18-<65y), all adults (18y+)	342	T2DM	Surgery	CVD, T2DM, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile
Cohen et al., 2021 (1106)	42	RCTs, NRCTs	Not reported	All adults (18y+)	Not reported	T2DM	Surgery	T2DM, mortality, blood pressure indicators, blood lipid profile
Colquitt et al., 2014 (967)	22	RCTs	Australia, Sweden, Norway, US, Italy, Greece, Spain, Taiwan, Belgium, India, Switzerland, Poland, China, Egypt, France, India, Israel	Young and middle-aged adults (18-<65y), all adults (18y+)	1,798	-	Surgery	T2DM, mortality, HRQoL, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events
Davey et al., 2023 (1107)	11	Longitudinal observational	US, UK, France, Italy, Scandinavia	Young and middle-aged adults (18-<65y), all adults (18y+)	6,214,682	-	Surgery	Cancer
De Luca et al., 2023 (1108)	36	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	2,141	T2DM	Surgery	T2DM, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events
Dombrowski et al., 2010 (1109)	44	RCTs	US, Australia, Holland, UK, Finland, Canada	Young and middle-aged	11,157	Additional risk factors for	Nutrition, physical activity	Blood pressure indicators, HbA1c

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
				adults (18-<65y), all adults (18y+)		morbidity (e.g., type 2 diabetes, metabolic syndrome, binge eating disorders, hypertension)		levels/blood glucose, blood lipid profile
Driscoll et al., 2016 (972)	9	Cross-sectional, longitudinal observational	Sweden, Norway, US, Netherlands, Brazil, Spain	Young and middle-aged adults (18-<65y), all adults (18y+)	5,987	-	Surgery	CVD, HRQoL
Ells et al., 2015 (1110)	1	RCTs	Australia	Children (2y to <12y), adolescents (12y to <18y), all children (2-<18y)	50	-	Surgery	T2DM, HRQoL, adverse events
Fan et al., 2023 (1111)	9	Longitudinal observational	US, Canada, Denmark, Finland, Iceland, Norway, Sweden, China	All adults (18y+)	1,147,473	-	Surgery	Cancer
Gloy et al., 2013 (1112)	11	RCTs	Australia, Italy, Denmark, US, China, Brazil, Taiwan	Young and middle-aged adults (18-<65y), all adults (18y+)	796	-	Surgery	T2DM, mortality, HRQoL, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events
Griffin et al., 2017 (1113)	13	RCTs	Northern Europe, North America, Israel	Young and middle-aged adults (18-<65y), all adults (18y+)	2,079	T2DM	Pharmacological	Mortality
Groen et al., 2015 (1114)	13	NRCTs, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	3,837	Knee complaints	Surgery	Musculoskeletal conditions
He et al., 2022 (1115)	7	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Pharmacological	HRQoL, blood pressure indicators, adverse events

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
Huang et al., 2020 (1116)	18	RCTs, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	911	T2DM	Nutrition	HbA1c levels/blood glucose, blood lipid profile, adverse events
Hussain et al., 2021 (1117)	5	Longitudinal observational	US, Sweden	Young and middle-aged adults (18-<65y), all adults (18y+)	49,211	T2DM	Surgery	CVD, mortality
Iannone et al., 2023 (1118)	168	RCTs	US, Denmark, Mexico, International (unspecified), Hungary, Turkey, Finland, Sweden, UK, Portugal, Italy, Iraq, China, Germany, Central/South America, France, Serbia, Slovenia, Poland, Republic of Korea, Taiwan, Canada, Netherlands, Belgium, Russia, Scandinavia, Switzerland, India, Israel	Young and middle-aged adults (18-<65y), all adults (18y+)	97,938	-	Pharmacological	T2DM, mortality, HRQoL, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events
Iqbal et al., 2022 (1119)	12	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	11,459	-	Pharmacological	Blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events
Ishihara et al., 2020 (1120)	7	Longitudinal observational	UK, US, Canada, Sweden	Young and middle-aged adults (18-<65y), all adults (18y+)	150,537	-	Surgery	Cancer
Jenum et al., 2019 (1121)	6	RCTs	Scotland, Norway, India, Netherlands	Young and middle-aged adults (18-<65y), all adults (18y+)	1,816	-	Nutrition, physical activity	CVD, T2DM, HbA1c levels/blood glucose
Johansson et al., 2010 (1122)	22	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	7,383	-	Pharmacological	CVD, blood pressure indicators

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
Johnson et al., 2013 (1123)	17	RCTs, NRCTs, longitudinal observational	US, Germany, Finland, Australia	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Nutrition, physical activity	HbA1c levels/blood glucose
Jones et al., 2021 (999)	42	RCTs	US, UK, Australia, Portugal, Finland, Germany, Malaysia, Canada, Greece, India, New Zealand	All adults (18y+)	9,385	-	Nutrition, physical activity	Mental health, HRQoL
Kerrison et al., 2017 (1124)	9	RCTs	China, Japan, US, Finland, Australia, England, India, Netherlands	Young and middle-aged adults (18-<65y), all adults (18y+)	4,695	Prediabetes	Nutrition, physical activity	T2DM, HbA1c levels/blood glucose
Kitson et al., 2018 (1001)	3	RCTs	US	Young and middle-aged adults (18-<65y), all adults (18y+)	161	Endometrial cancer	Nutrition, physical activity	Mortality, HRQoL, adverse events
Kwok et al., 2014 (1125)	14	Longitudinal observational	US, Italy, Canada, Australia	Young and middle-aged adults (18-<65y), all adults (18y+)	195,408	-	Surgery	Mortality
Leblanc et al., 2011 (1126)	58	RCTs, NRCTs	Not reported	All adults (18y+)	27,403	-	Nutrition, physical activity, pharmacological	T2DM, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events
LeBlanc et al., 2018 (1127)	124	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	272,526	-	Nutrition, physical activity	T2DM
Lee et al., 2022 (1128)	21	RCTs, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	-	Surgery	T2DM, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
Li et al., 2019 (1129)	9	Longitudinal observational	US, UK	Young and middle-aged adults (18-<65y), all adults (18y+)	38,728	-	Surgery	CVD, musculoskeletal conditions, adverse events
Li et al., 2021 (1130)	11	Longitudinal observational	China	Young and middle-aged adults (18-<65y), all adults (18y+)	611	T2DM	Surgery	T2DM, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events
Liu et al., 2021 (1131)	35	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	2,198	-	Surgery	HbA1c levels/blood glucose, blood lipid profile
Lovrics et al., 2021 (1132)	11	RCTs, NRCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	1,106,939	-	Surgery	Cancer
Ma et al., 2017 (1133)	54	RCTs	Australia, US, UK, Netherlands, Finland, Pakistan, India, Japan	Young and middle-aged adults (18-<65y), all adults (18y+)	30,206	-	Nutrition, physical activity	Cancer, mortality
Maggard-Gibbons et al., 2013 (1134)	32	RCTs, longitudinal observational	China, Finland, US, UK	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	T2DM	Surgery	T2DM, blood pressure indicators, HbA1c levels/blood glucose
Mead et al., 2017 (1020)	70	RCTs	US, UK, Germany, Australia, Sweden, New Zealand, Spain, Israel, Italy, Austria, Brazil, Canada, Denmark, Finland, Greece, China (Hong Kong), Iceland, Japan, Malaysia, Mexico, Netherlands	Children (2y to <12y)	8,461	-	Nutrition, physical activity, family-centred interventions	HRQoL
Meijer et al., 2011 (1135)	9	RCTs, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	82,988	T2DM	Surgery	T2DM

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
Merlotti et al., 2014 (1136)	71	RCTs, NRCTs, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	490,813	-	Nutrition, physical activity, pharmacological, surgery	CVD, T2DM
Merlotti et al., 2014 (838)	18	RCTs, NRCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	43,669	-	Nutrition, physical activity, surgery	CVD, T2DM
Pararas et al., 2023 (1137)	13	Longitudinal observational	US, Sweden, UK, Canada	Young and middle-aged adults (18-<65y), all adults (18y+)	6,279,722	-	Surgery	Cancer
Pontiroli & Morabito, 2011 (1138)	8	NRCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	44,022	-	Surgery	CVD, mortality
Pontiroli et al., 2023 (1139)	10	NRCTs, longitudinal observational	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	61,179	-	Surgery	CVD
Ramai et al., 2021 (1140)	9	Longitudinal observational	US, Taiwan, Denmark, Finland, Iceland, Norway, Sweden	Young and middle-aged adults (18-<65y), all adults (18y+)	19,514,750	-	Surgery	Cancer
Robertson et al., 2014 (1036)	11	RCTs	Netherlands, Australia, Finland, Italy, US	All adults (18y+)	1,238	-	Nutrition, physical activity	Reproductive health, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile
Schwingshackl & Hoffmann, 2013 (1141)	15	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	2,344	-	Nutrition	Blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile
Sheng et al., 2017 (1142)	10	RCTs, longitudinal observational	US, Sweden, Italy, UK, China	All adults (18y+)	31,429	T2DM	Surgery	T2DM

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
Sutanto et al., 2021 (1143)	11	NRCTs, longitudinal observational	Sweden, US, Canada, UK, Taiwan	Young and middle-aged adults (18-<65y), all adults (18y+)	1,772,305	CVD	Surgery	CVD
Szmulewicz et al., 2019 (1144)	11	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	731	-	Surgery	Mental health
Tang et al., 2022 (1145)	21	Longitudinal observational	US, Sweden, Canada, China, Taiwan, Denmark, Finland, Iceland, Norway, UK, Italy, Israel	Young and middle-aged adults (18-<65y), all adults (18y+)	2,857,016	-	Surgery	Mortality
Tee et al., 2013 (1146)	6	Longitudinal observational	US, Sweden, Canada	Young and middle-aged adults (18-<65y), all adults (18y+)	51,740	-	Surgery	Cancer
Terranova et al., 2015 (1147)	10	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	Not reported	T2DM	Nutrition, physical activity	CVD, HbA1c levels/blood glucose
Tsapas et al., 2021 (1148)	424	RCTs	Not reported	Young and middle-aged adults (18-<65y), all adults (18y+)	276,336	T2DM	Pharmacological	CVD, blood pressure indicators
van Veldhuisen et al., 2022 (1149)	39	Longitudinal observational	US, UK, Sweden, Italy, Canada, Norway, France, China	Young and middle-aged adults (18-<65y), all adults (18y+)	907,733	-	Surgery	CVD, mortality
Wang et al., 2021 (1150)	19	RCTs	Australia, China, India, Netherlands, US, Brazil, Taiwan, Italy, Spain	Young and middle-aged adults (18-<65y), all adults (18y+)	1,353	-	Surgery	Blood pressure indicators
Wang et al., 2023 (1151)	18	Longitudinal observational	US, Sweden, UK, Nordic Countries, France	All adults (18y+)	27,396,039	-	Surgery	NAFLD, cancer
Wiggins et al., 2019 (1152)	8	Longitudinal observational	Not reported	Young and middle-aged	635,642	-	Surgery	Cancer

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
				adults (18-<65y), all adults (18y+)				
Wiggins et al., 2020 (1153)	18	Longitudinal observational	US, Sweden, France, Italy, UK, Nordic Countries, Israel, France	Young and middle-aged adults (18-<65y), all adults (18y+)	1,539,904	-	Surgery	CVD, T2DM, mortality, blood pressure indicators, blood lipid profile
Wilson et al., 2023 (1154)	32	Longitudinal observational	US, France, Taiwan, Denmark, Finland, Iceland, Norway, Sweden, UK, Italy, Canada	Young and middle-aged adults (18-<65y), all adults (18y+)	2,401,331	-	Surgery	Cancer, mortality
Winder et al., 2017 (1155)	8	NRCTs, longitudinal observational	US, Sweden, Canada	Young and middle-aged adults (18-<65y), all adults (18y+)	31,083	-	Surgery	Cancer
Winder et al., 2018 (1156)	9	NRCTs, longitudinal observational	US, Sweden	Young and middle-aged adults (18-<65y), all adults (18y+)	130,704	-	Surgery	Cancer
Witham & Avenell, 2010 (1157)	9	RCTs	US, UK	Older adults (65y+), all adults (18y+)	1,954	-	Nutrition, physical activity	CVD, blood lipid profile
Yan et al., 2016 (1158)	6	RCTs	US, Taiwan, China, Italy	Young and middle-aged adults (18-<65y), all adults (18y+)	410	T2DM	Surgery	T2DM, blood pressure indicators, HbA1c levels/blood glucose, blood lipid profile, adverse events
Zhou & Zeng, 2023 (1159)	7	RCTs, longitudinal observational	US, China, India, Australia	Young and middle-aged adults (18-<65y), all adults (18y+)	646	-	Surgery	T2DM, HbA1c levels/blood glucose
Zhou et al., 2012 (1160)	21	RCTs	Not reported	Adolescents (12y to <18y), all children (2-<18y), young and middle-aged	13,759	-	Pharmacological	HbA1c levels/blood glucose, blood lipid profile, adverse events

Author, Year	No. of studies included	Study types included	Countries	Participants	Total number of individual participants	Pre-existing conditions	Interventions	Outcomes
				adults (18-<65y), all adults (18y+)				
Zhou et al., 2016 (1161)	32	RCTs, NRCTs, longitudinal observational	US, Australia, Netherlands, Italy, Brazil, Norway, India, Sweden, Canada, Spain	Young and middle-aged adults (18-<65y), all adults (18y+)	302,188	-	Surgery	Cancer, mortality

CVD, cardiovascular disease; HbA1c, glycated haemoglobin; HRQoL, health-related quality of life; NAFLD, non-alcoholic fatty liver disease; NRCTs, non-randomised controlled trials; RCTs, randomised controlled trials; T2DM, type 2 diabetes mellitus.

Children (2y to <12y)

A review was identified for children and behavioural interventions. No reviews were located for children and pharmacological or surgical interventions.

Behavioural interventions (1 review)

There were no differences in parent-reported HRQoL or risk of serious adverse events for children participating in behaviour-based interventions *(any single, or combination of nutrition, physical activity, or other behavioural interventions)* compared with children in comparator conditions (1020) (Table B18).

Table B18: Reported health outcomes (other than weight maintenance/loss) in children participating in behavioural interventions

Condition	Included Results
Cardiovascular disease	—
Type 2 diabetes	—
NAFLD	—
Musculoskeletal conditions	—
Cancer	—
Mental health	—
Reproductive health	—
Mortality from any of the above diseases	—
Health-related quality of life	
Parent-reported HRQoL	**Null** (1020)
Blood pressure indicators	—
Blood glucose/ HbA1c levels	—
Blood lipid profile	—
Adverse events	
Risk of serious adverse events	**Null** (1020)

HbA1C, glycated haemoglobin; HRQoL, health-related quality of life; NAFLD, non-alcoholic fatty liver disease.

Adolescents (12y to <18y)

A review was identified for adolescents and surgical interventions. No reviews were located for children and behavioural or pharmacological interventions.

Surgical interventions (1 review)

Favourable outcomes for adolescents who underwent bariatric surgery were increased remission of metabolic syndrome and improved physical function (a HRQoL component) (1110). Adolescents also experienced surgery-related adverse events *(six proximal gastric enlargements and two needlestick injuries to tubing among 25 adolescents)* (1110) (Table B19).

Table B19: Reported health outcomes (other than weight maintenance/loss) in adolescents participating in surgical interventions

Condition	Included Results
Cardiovascular disease	—
Type 2 diabetes	—
Remission of metabolic syndrome	**Favours intervention** Laparoscopic adjustable gastric banding (LAGB) (1110)
NAFLD	—

Musculoskeletal conditions	—
Cancer	—
Mental health	—
Reproductive health	—
Mortality from any of the above diseases	—
Health-related quality of life	
Physical function	**Favours intervention** LAGB (1110)
Other HRQoL components	**Null** LAGB (1110)
Blood pressure indicators	—
Blood glucose/ HbA1c levels	—
Blood lipid profile	—
Adverse events	
Proximal gastric enlargements	Proximal gastric enlargements with: LAGB (1110)
Needlestick injury to tubing	Needlestick injury to tubing with: LAGB (1110)
Cholecystectomy	Cholecystectomy with both: LAGB and lifestyle (control) interventions (1110)
Depression	Hospital admission for depression in both: LAGB and lifestyle (control) interventions (1110)

HbA1C, glycated haemoglobin; HRQoL, health-related quality of life; LAGB, Laparoscopic adjustable gastric banding; NAFLD, non-alcoholic fatty liver disease.

Young and middle-aged adults (≥18y to <65y)

Reviews were identified for young and middle-aged adults and behavioural, pharmacological, and surgical interventions.

Behavioural interventions (13 reviews)

Reported outcomes for young and middle-aged adults participating in behavioural weight management/loss interventions are summarised in Table B20. For nutrition interventions, favourable outcomes were improved type 2 diabetes risk *(with energy restriction interventions and ad libitum dietary interventions)* (1136), fasting plasma glucose *(very low energy diet [VLED] versus low energy diet [LED])* (1116), fasting insulin *(with low GI diets)* (1141), HDL-C *(with commercial weight loss programmes (1097) and low GI diets (1141))*, and triglycerides *(with commercial weight loss programmes (1097))*. A reported adverse outcome was increased fasting plasma glucose with low GI diets (1141).

For physical activity interventions, there was a reduced risk of type 2 diabetes with heterogeneous physical activity interventions (1136).

For combined nutrition and physical activity interventions, there were favourable outcomes for cardiovascular events (1133), type 2 diabetes risk (1127), cancer risk (1133), mental health (999), mortality *(all cause, cardiovascular, and cancer mortality)* (1133), systolic (1109, 1126) and diastolic (1109) blood pressure, fasting glucose (1126), HbA1c levels (1109, 1123), and triglycerides (1109). An adverse outcome was decreased bone mineral density (1126).

There were several reviews with overlapping studies. The reviews with overlapping studies and the reasons for omitting findings are recorded in Table B21.

Table B20: Reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults participating in behavioural interventions

Condition	Nutrition – Included Results	Physical Activity – Included Results	Nutrition and Physical Activity – Included Results
Cardiovascular disease			
Cardiovascular events	—	—	**Favours intervention** (1133)
Type 2 diabetes			
Type 2 diabetes risk	**Favours intervention** Energy restriction interventions and ad libitum dietary interventions (1136) **Null** Vitamin and micronutrient interventions (1136)	**Favours intervention** Heterogeneous PA interventions (1136)	**Favours intervention** (1127)
NAFLD	—	—	—
Musculoskeletal conditions	—	—	—
Cancer	—	—	
Cancer risk			**Favours intervention** (1133)
Mental health	—		
Depression		**Null** Aerobic activity duration varied between 70-225 minutes per week (1098)	**Favours intervention** (999)
Anxiety		**Null** Aerobic activity duration varied between 70-225 minutes per week (1098)	
Stress		**Null** Aerobic activity duration varied between 70-225 minutes per week (1098)	
Self-efficacy (general)			**Favours intervention** (999)
Self-efficacy (exercise-related)			**Favours intervention** (999)
Self-efficacy (diet-related)			**Null** (999)
Self-esteem			**Favours intervention** (999)
Body image concerns			**Favours intervention** (999)
Emotional eating			**Favours intervention** (999)
Negative affect			**Favours intervention** (999)
Life satisfaction			**Favours intervention** (999)

Condition	Nutrition – Included Results	Physical Activity – Included Results	Nutrition and Physical Activity – Included Results
Reproductive health	—	—	—
Mortality from any of the above diseases	—	—	
All-cause mortality			**Favours intervention** (1133)
Cardiovascular mortality			**Favours intervention** (1133)
Cancer mortality			**Favours intervention** (1133)
Health-related quality of life	—		
Global HRQoL		**Null** Aerobic activity duration varied between 70-225 minutes per week (1098)	**Null** (999)
Mental health			**Favours intervention** (999)
Obesity-related HRQoL			**Null** (999)
Blood pressure indicators			
Systolic blood pressure	**Null** Energy restriction interventions and ad libitum dietary interventions (1109) Commercial weight loss programmes (1097) Low GI diets (1141)	**Null** Interventions varied in intensity, type, frequency and duration (generally 30-45mins, 3-4 times per week)(1109)	**Favours intervention** (1109, 1126)
Diastolic blood pressure	**Null** Energy restriction interventions and ad libitum dietary interventions (1109) Commercial weight loss programmes (1097) Low GI diets (1141)	**Null** Interventions varied in intensity, type, frequency and duration (generally 30-45mins, 3-4 times per week) (1109)	**Favours intervention** (1109)
Blood glucose/ HbA1c levels			
Fasting glucose			**Favours intervention** (1126)
Fasting plasma glucose	**Favours intervention** VLED vs LED (1116) **Null** Energy restriction interventions and ad libitum dietary interventions (1109) Commercial weight loss programmes (1097)	**Null** Interventions varied in intensity, type, frequency and duration (generally 30-45mins, 3-4 times per week) (1109)	**Null** (1109)

Condition	Nutrition – Included Results	Physical Activity – Included Results	Nutrition and Physical Activity – Included Results
	VLED vs MER (1116) **Favours comparator** Low GI diets (1141)		
Fasting insulin	**Favours intervention** Low GI diets (1141) **Null** Commercial weight loss programmes (1097)		
HbA1c levels	**Null** Low GI diets (1141) Energy restriction interventions and ad libitum dietary interventions (1109)	**Null** Interventions varied in intensity, type, frequency and duration (generally 30-45mins, 3-4 times per week)(1109)	**Favours intervention** (1109, 1123)
Blood lipid profile			
HDL-C	**Favours intervention** Commercial weight loss programmes (1097) Low GI diets (1141) **Null** Energy restriction interventions and ad libitum dietary interventions (1109)	**Null** Interventions varied in intensity, type, frequency and duration (generally 30-45mins, 3-4 times per week)(1109)	**Null** (1109)
LDL-C	**Null** Commercial weight loss programmes (1097) Low GI diets (1141) Energy restriction interventions and ad libitum dietary interventions (1109)	**Null** Interventions varied in intensity, type, frequency and duration (generally 30-45mins, 3-4 times per week) (1109)	**Favours intervention** (1126) **Null** (1109)
Triglycerides	**Favours intervention** Commercial weight loss programmes (1097) **Null** Low GI diets (1141) VLED vs LED (1116) VLED vs MER (1116)	**Null** Interventions varied in intensity, type, frequency and duration (generally 30-45mins, 3-4 times per week)(1109)	**Favours intervention** (1109)

Condition	Nutrition – Included Results	Physical Activity – Included Results	Nutrition and Physical Activity – Included Results
	Energy restriction interventions and ad libitum dietary interventions (1109)		
Total cholesterol	**Null** Low GI diets (1141) Energy restriction interventions and ad libitum dietary interventions (1109)	**Null** Interventions varied in intensity, type, frequency and duration (generally 30-45mins, 3-4 times per week) (1109)	**Null** (1109)
Adverse events			
Bone mineral density			Reduced bone mineral density (total or hip) in nutrition and physical activity interventions (1126)
Non-serious adverse events	No difference in non-serious adverse events experienced between VLED and controls (1116)		

HbA1C, glycated haemoglobin; HRQoL, health-related quality of life; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; LED, low energy diet; Low GI, Low glycaemic index; MER, moderate energy restriction; NAFLD, non-alcoholic fatty liver disease; PA, physical activity; VLED, very low energy diet.

Table B21: Omitted results on reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults participating in behavioural interventions and reasons for omission

Condition	Nutrition	Physical Activity	Nutrition and Physical Activity
Cardiovascular disease			
Type 2 diabetes			
Type 2 diabetes risk			Timeframe (838, 1126, 1136)
NAFLD			
Musculoskeletal conditions			
Cancer			
Mental health			
Reproductive health			
Mortality from any of the above diseases			
All-cause mortality			Fewer studies (1127)
Cardiovascular mortality			Fewer studies (1127)
Health-related quality of life			
Global HRQoL			Timeframe (1127)
Blood pressure indicators			
Blood glucose/ HbA1c levels			
Fasting plasma glucose	Timeframe (1102)		
Blood lipid profile			
Adverse events			

HbA1C, glycated haemoglobin; HRQoL, health-related quality of life; NAFLD, non-alcoholic fatty liver disease.

Pharmacological interventions (6 reviews)

Specific drugs had reported beneficial outcomes for type 2 diabetes *(lipase inhibitors (1118), anorectic and anticonvulsants (1118), GLP-1 [semaglutide] (1118), and biguanide (1126, 1136))*, cardiovascular mortality *(opioid antagonist plus norepinephrine-dopamine reuptake inhibitor (1118))*, global HRQoL *(opioid antagonist plus norepinephrine-dopamine reuptake inhibitor (1118))* and physical function *(GLP-1 [semaglutide] (1115))*, systolic blood pressure *(anorectic and anticonvulsants (1118), GLP-1 [semaglutide and liraglutide] (1118), and biguanide (1126))*, diastolic blood pressure *(lipase inhibitors (1118), anorectic and anticonvulsants (1118), and GLP-1 [semaglutide and liraglutide] (1118)), fasting glucose (lipase inhibitors (1160) and biguanide (1126))*, HDL-C *(lipase inhibitors (1118), anorectic and anticonvulsants (1118), GLP-1 [semaglutide and liraglutide] (1118), and opioid antagonist plus norepinephrine-dopamine reuptake inhibitor (1118))*, LDL-C *(lipase inhibitors (1118))*, and total cholesterol *(lipase inhibitors (1118))* (Table B22). Reported adverse outcomes were increased systolic and diastolic blood pressure with opioid antagonist plus norepinephrine-dopamine reuptake inhibitor (1118), and adverse events with various drugs (1115, 1118, 1126, 1160).

There were several reviews with overlapping studies. The reviews with overlapping studies and the reasons for omitting findings are recorded in Table B23.

Table B22: Reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults participating in pharmacological interventions

Condition	Pharmacological interventions – Included Results
Cardiovascular disease	
Nonfatal stroke	**Null** Lipase inhibitors* (1118) Anorectic and anticonvulsants* (1118) Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor* (1118) GLP-1 (semaglutide and liraglutide)*(1118)
Nonfatal myocardial infarction	**Null** Lipase inhibitors* (1118) Anorectic and anticonvulsants* (1118) Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor* (1118) GLP-1 (semaglutide and liraglutide) *(1118)
Type 2 diabetes	
Type 2 diabetes risk	**Favours intervention** Lipase inhibitors* (1118) Anorectic and anticonvulsants* (1118) GLP-1 (semaglutide) *(1118) Biguanide†(1126, 1136) **Null** GLP-1 (liraglutide) *(1118)
NAFLD	—
Musculoskeletal conditions	—
Cancer	—
Mental health	—
Reproductive health	—
Mortality from any of the above diseases	
All-cause mortality	**Null**

Condition	Pharmacological interventions – Included Results
	Lipase inhibitors* (1118) Anorectic and anticonvulsants* (1118) Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor* (1118) GLP-1 (semaglutide and liraglutide) *(1118)
Cardiovascular mortality	**Favours intervention** Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor* (1118) **Null** Lipase inhibitors* (1118) Anorectic and anticonvulsants* (1118) GLP-1 (semaglutide and liraglutide) *(1118)
Health-related quality of life	
Global HRQoL	**Favours intervention** Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor*(1118) **Null** Lipase inhibitors*(1118) Anorectic and anticonvulsants* (1118) GLP-1 (semaglutide and liraglutide) * (1118)
Physical function HRQoL	**Favours intervention** GLP-1 (semaglutide) *(1115)
Blood pressure indicators	
Systolic blood pressure	**Favours intervention** Anorectic and anticonvulsants*(1118) GLP-1 (semaglutide and liraglutide)*(1118) Biguanide† (1126) **Null** Lipase inhibitors* (1118) **Favours comparator** Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor*(1118)
Diastolic blood pressure	**Favours intervention** Lipase inhibitors* (1118) Anorectic and anticonvulsants* (1118) GLP-1 (semaglutide and liraglutide) *(1118) **Favours comparator** Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor*(1118)
Blood glucose/ HbA1c levels	
Fasting glucose	**Favours intervention** Lipase inhibitors*(1160) Biguanide† (1126)
Blood lipid profile	
HDL-C	**Favours intervention** Lipase inhibitors* (1118) Anorectic and anticonvulsants *(1118) GLP-1 (semaglutide and liraglutide) *(1118) Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor*(1118)
LDL-C	**Favours intervention** Lipase inhibitors* (1118)

Condition	Pharmacological interventions – Included Results
	Null Anorectic and anticonvulsants* (1118) GLP-1 (semaglutide and liraglutide) *(1118) Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor* (1118)
Triglycerides	**Null** Lipase inhibitors*(1160)
Total cholesterol	**Favours intervention** Lipase inhibitors* (1118) **Null** Anorectic and anticonvulsants* (1118) GLP-1 (semaglutide and liraglutide) *(1118) Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor*(1118)
Adverse events	
Hypoglycaemia	Hypoglycaemia recorded with lipase inhibitors*(1126) Hypoglycaemia not recorded with GLP-1 (semaglutide) * (1115)
Gastrointestinal (including nausea, diarrhoea and general GI symptoms)	GI symptoms recorded with: Lipase inhibitors*(1118) Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor*(1118) GLP-1 (semaglutide) *(1118) Biguanide†(1126) GI symptoms not recorded with: Anorectic and anticonvulsants* (1118) GLP-1 (liraglutide)*(1118)
Vitamin deficiencies	Vitamin deficiencies recorded with: Lipase inhibitors*(1118)
Headaches	Headaches not recorded with: Lipase inhibitors* (1160)
Upper respiratory infections (including pharyngitis)	Upper respiratory infections no increased events with: Lipase inhibitors* (1160)
Risk of non-specified serious adverse events	Increased risk of non-specified serious adverse events with: Lipase inhibitors*(1126) GLP-1 (semaglutide) *(1115)

* Pharmacological interventions approved for the treatment of overweight or obesity, †pharmacological treatments prescribed for health outcomes other than obesity that result in weight loss. GI, gastrointestinal; GLP-1, glucagon-like peptide-1 receptor agonists; HDL-C, high density lipoprotein cholesterol; HRQoL, health-related quality of life; LDL-C, low density lipoprotein cholesterol; NAFLD, non-alcoholic fatty liver disease.

Table B23: Omitted results on reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults participating in pharmacological interventions and reasons for omission

Condition	Pharmacological interventions – Omitted Results
Cardiovascular disease	
Type 2 diabetes	
Type 2 diabetes risk	Timeframe – lipase inhibitors* (1126)
NAFLD	
Musculoskeletal conditions	
Cancer	
Mental health	
Reproductive health	
Mortality from any of the above diseases	
Health-related quality of life	
Blood pressure indicators	
Systolic blood pressure	Timeframe- lipase inhibitors* (1122, 1126, 1160) Timeframe - GLP-1 (semaglutide) * (1115)
Diastolic blood pressure	Timeframe- lipase inhibitors *(1122, 1160)
Blood glucose/ HbA1c levels	
Fasting glucose	Timeframe – lipase inhibitors*(1126)
Blood lipid profile	
HDL-C	Timeframe – lipase inhibitors*(1160)
LDL-C	Timeframe – lipase inhibitors* (1126, 1160)
Total cholesterol	Timeframe – lipase inhibitors*(1160)
Adverse events	
Gastrointestinal (including nausea, diarrhoea and general GI symptoms)	Timeframe – lipase inhibitors* (1126, 1160) Timeframe – GLP-1 (semaglutide) * (1115)

* Pharmacological interventions approved for the treatment of overweight or obesity, †pharmacological treatments prescribed for health outcomes other than obesity that result in weight loss. GI, gastrointestinal; GLP-1, glucagon-like peptide-1 receptor agonists; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; NAFLD, non-alcoholic fatty liver disease.

Surgical interventions

For bariatric surgery, there were favourable outcomes for cardiovascular disease (e.g., coronary artery disease (1101), atrial fibrillation (1139), myocardial infarction (1101), and stroke (1145)), type 2 diabetes (e.g., type 2 diabetes risk (1153) and diabetes remission (967)), adverse liver outcomes risk (1151), non-alcoholic cirrhotic disease risk (1151), knee pain (1114), overall cancer risk and risk of various cancer types (e.g., colorectal, pancreatic, gallbladder and ovarian cancers) (1154), cardiovascular (1101) and cancer-related (1154) mortality, HRQoL (e.g., global HRQoL (967), physical functioning (972), social functioning (972), and emotional functioning (972)), blood pressure indicators (e.g., systolic and diastolic blood pressure (1150) and hypertension remission (1106)), glucose metabolism (fasting glucose (1103, 1159) and HbA1c (967, 1159)), dyslipidaemia incidence (1153), and reduction in use of lipid lowering drugs (967) (Table B24). Adverse outcomes with bariatric surgery were increased cirrhosis risk (1151) and breast cancer (stage I) risk (1132), as well as surgery-related adverse events (1112, 1128).

There were several reviews with overlapping studies. The reviews with overlapping studies and the reasons for omitting findings are recorded in Table B25.

Table B24: Reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults participating in surgical interventions

Condition	Surgical interventions – Included Results
Cardiovascular disease	
Coronary artery disease	**Favours intervention** Bariatric surgeries pooled (1101)
Atrial fibrillation	**Favours intervention** Bariatric surgeries pooled (1139)
Myocardial infarction	**Favours intervention** Bariatric surgeries pooled (1101)
Stroke (unspecified type)	**Favours intervention** Bariatric surgeries pooled (1145)
Ischaemic stroke	**Favours intervention** Bariatric surgeries pooled (1149)
Heart failure	**Favours intervention** Bariatric surgeries pooled (1101)
Ischaemic heart disease	**Favours intervention** Bariatric surgeries pooled (1153) **Null** Bariatric surgeries pooled (1161)
Cardiovascular risk factors	**Favours intervention** Bariatric surgeries pooled (1106)
Major adverse cardiovascular events	**Favours intervention** Bariatric surgeries pooled (1145)
Cardiovascular events	**Favours intervention** Bariatric surgeries pooled (1106)
Venous thromboembolism	**Favours intervention** Bariatric surgeries pooled (1153)
Type 2 diabetes	
Risk of Type 2 diabetes	**Favours intervention** Bariatric surgeries pooled (1153)
Diabetes remission	**Favours intervention** Bariatric surgeries pooled (967)
Use of diabetes drugs	**Favours intervention** Bariatric surgeries pooled (967) Endoscopic surgeries pooled (1128)
Metabolic syndrome	**Favours intervention** Bariatric surgeries pooled (967)
NAFLD	
Adverse liver outcomes risk	**Favours intervention** Bariatric surgeries pooled (1151)
Non-alcoholic cirrhotic disease risk	**Favours intervention** Bariatric surgeries pooled (1151)
Alcoholic cirrhosis risk	**Favours comparator** Bariatric surgeries pooled (1151)
Musculoskeletal conditions	
Knee pain	**Favours intervention** Bariatric surgeries pooled (1114)
Cancer	
Overall cancer risk (all types)	**Favours intervention** Bariatric surgeries pooled (1154)
Colorectal cancer risk	**Favours intervention** Bariatric surgeries pooled (1154) Gastric bypass (1107) Sleeve gastrectomy (1107) **Null** Gastric banding (1107)

Condition	Surgical interventions – Included Results
Early-onset colorectal cancer risk	**Favours intervention** Bariatric surgeries pooled (1099)
Pancreatic cancer risk	**Favours intervention** Bariatric surgeries pooled (1154)
Obesity-related cancer risk	**Favours intervention** Bariatric surgeries pooled (1152, 1154)
Non-obesity related cancer risk	**Null** Bariatric surgeries pooled (1161)
Gallbladder cancer risk	**Favours intervention** Bariatric surgeries pooled (1154)
Ovarian cancer risk	**Favours intervention** Bariatric surgeries pooled (1154)
Endometrial cancer risk	**Favours intervention** Bariatric surgeries pooled (1154)
Breast cancer risk	**Favours intervention** Bariatric surgeries pooled (1154)
Breast cancer stage I risk	**Favours comparator** Bariatric surgeries pooled (1132)
Breast cancer stage II risk	**Null** Bariatric surgeries pooled (1132)
Breast cancer stage III/IV risk	**Favours Intervention** Bariatric surgeries pooled (1132)
Oesophageal carcinoma risk	**Null** Bariatric surgeries pooled (1154)
Kidney cancer risk	**Null** Bariatric surgeries pooled (1154)
Multiple myeloma risk	**Null** Bariatric surgeries pooled (1154)
Thyroid cancer risk	**Null** Bariatric surgeries pooled (1154)
Gastric cancer risk	**Null** Bariatric surgeries pooled (1154)
Prostate cancer risk	**Null** Bariatric surgeries pooled (1154)
Hepatocellular carcinoma risk	**Favours intervention** Bariatric surgeries pooled (1154)
Mental health	
Depressive event risk	**Null** Bariatric surgeries pooled (1144)
Reproductive health	—
Mortality from any of the above diseases	
All-cause mortality	**Favours intervention** Bariatric surgeries pooled (1149) **Null** Bariatric surgeries pooled (1112, 1161)
Cardiovascular mortality	**Favours intervention** Bariatric surgeries pooled (1101)
Cancer-related mortality	**Favours intervention** Bariatric surgeries pooled (1154)
Health-related quality of life	
Global HRQoL	**Favours intervention** Bariatric surgeries pooled (967)
Mental health	**Favours intervention** Bariatric surgeries pooled (972, 1144)
Physical functioning	**Favours intervention** Bariatric surgeries pooled (972)
Social functioning	**Favours intervention** Bariatric surgeries pooled (972)

Condition	Surgical interventions – Included Results
Emotional functioning	**Favours intervention** Bariatric surgeries pooled (972)
Vitality	**Favours intervention** Bariatric surgeries pooled (972)
General health	**Favours intervention** Bariatric surgeries pooled (972)
Blood pressure indicators	
Systolic blood pressure	**Favours intervention** Bariatric surgeries pooled (1150) **Null** Endoscopic surgery Intragastric Balloon therapy (1128)
Diastolic blood pressure	**Favours intervention** Bariatric surgeries pooled (1150)
Hypertension remission	**Favours intervention** Bariatric surgeries pooled (1106)
Incidence of hypertension	**Favours intervention** Bariatric surgeries pooled (1153) **Null** Endoscopic surgeries pooled (1128)
Reduction in use of hypertensive drugs	**Favours intervention** Bariatric surgeries pooled (1112)
Blood glucose/HbA1c levels	
Fasting glucose	**Favours intervention** Bariatric surgeries pooled (1103, 1159) **Null** Endoscopic surgery Intragastric balloon therapy (1128)
Insulin resistance	**Null** Bariatric surgeries pooled (1131)
HbA1c	**Favours intervention** Bariatric surgeries pooled (967, 1159) **Favours intervention** Endoscopic surgeries pooled (1128)
Blood lipid profile	
HDL-C	**Favours intervention** Bariatric surgeries pooled (967, 1103, 1106) Roux-en-Y gastric bypass (1131) Sleeve gastrectomy (1131) **Null** Bariatric surgery by type only: Adjustable gastric banding (1131) Biliopancreatic diversion (1131) Duodenal-jejunal bypass with minimal gastric resection (1131) Sleeve gastrectomy with transit bipartition (1131) Endoscopic surgery by type only: Endoscopic sleeve gastroplasty (1128)
LDL-C	**Favours intervention** Bariatric surgeries pooled (1106) Roux-en-Y gastric bypass (1131) **Null** Bariatric surgeries pooled (1103) Adjustable gastric banding (1131)

Condition	Surgical interventions – Included Results
	Biliopancreatic diversion (1131) Duodenal-jejunal bypass with minimal gastric resection (1131) Sleeve gastrectomy (1131) Sleeve gastrectomy with transit bipartition (1131) Endoscopic surgery by type only: Endoscopic sleeve gastroplasty (1128)
Total cholesterol	**Favours intervention** Bariatric surgeries pooled (967, 1103, 1106) Roux-en-Y gastric bypass (1131) **Null** Bariatric surgeries by type only: Adjustable gastric banding (1131) Biliopancreatic diversion (1131) Sleeve gastrectomy (1131) Sleeve gastrectomy with transit bipartition (1131) Endoscopic surgery by type only: Intragastric balloon therapy (1128)
Triglycerides	**Favours intervention** Bariatric surgeries pooled (967, 1103, 1106) Roux-en-Y gastric bypass (1131) Sleeve gastrectomy (1131) **Null** Bariatric surgeries by type only: Adjustable gastric banding (1131) Biliopancreatic diversion (1131) Duodenal-jejunal bypass with minimal gastric resection (1131) Endoscopic surgery by type only: Intragastric balloon therapy (1128)
Dyslipidaemia incidence	**Favours intervention** Bariatric surgeries pooled (1153)
Reduction in use of lipid lowering drugs	**Favours intervention** Bariatric surgeries pooled (967)
Adverse events	
Extra-gastric bleed	Extra-gastric bleed with: Endoscopic sleeve gastroplasty (1128)
Pain	Pain with: Endoscopic sleeve gastroplasty (1128) Sore throat with: Endoscopic sleeve gastroplasty (1128)
Nausea and vomiting	Nausea and vomiting with: Endoscopic sleeve gastroplasty (1128)
Heartburn/reflux	Heartburn/reflux with: Endoscopic sleeve gastroplasty (1128)
Mouth trauma	Mouth trauma with: Endoscopic sleeve gastroplasty (1128)
Gastric erosion	Gastric erosion with: Endoscopic sleeve gastroplasty (1128)
Re-operations	Re-operations with: Bariatric surgery (1112)
Long-term periprosthetic infection following total joint arthroplasty (TJA)	Rate of long-term periprosthetic infection following total joint arthroplasty (TJA) did not differ between bariatric surgery and non-surgery groups (1129)
Long-term periprosthetic fracture following TJA	Rate of long-term periprosthetic fracture following TJA did not differ between bariatric surgery and non-surgery groups (1129)

Condition	Surgical interventions – Included Results
Long-term dislocation following TJA	Rate of long-term dislocation following TJA did not differ between bariatric surgery and non-surgery groups (1129)
Long-term revision following TJA	Rate of long-term revision following TJA did not differ between bariatric surgery and non-surgery groups (1129)
Iron deficiency anaemia	Iron deficiency anaemia with: Bariatric surgery (1112)
Serious adverse events (SAEs)	Rate of SAEs did not differ between bariatric surgery and non-surgery groups (967)

HbA1c, glycated haemoglobin; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; NAFLD, non-alcoholic fatty liver disease; SAEs, serious adverse events; TJA, total joint arthroplasty.

Table B25: Omitted results on reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults participating in surgical interventions and reasons for omission

Condition	Surgical interventions – Omitted Results
Cardiovascular disease	
Atrial fibrillation	Timeframe - (1101, 1149)
Myocardial infarction	Timeframe - (1125, 1145, 1149, 1153, 1159)
Stroke (unspecified type)	Timeframe - (1125, 1149, 1161)
Heart failure	Timeframe - (1149, 1153, 1161)
Major adverse cardiovascular events	Timeframe - (1143)
Cardiovascular events	Timeframe - (1125)
Venous thromboembolism	
Type 2 diabetes	
Risk of Type 2 diabetes	Timeframe (838, 1136)
Diabetes remission	Non-Cochrane reviews (1103, 1106, 1112, 1159)
Use of diabetes drugs	Non-Cochrane review (1112)
Metabolic syndrome	Non-Cochrane review (1112)
NAFLD	
Musculoskeletal conditions	
Cancer	
Overall cancer risk (all types)	Timeframe (1100, 1146, 1152, 1161)
Colorectal cancer risk	Timeframe (1093, 1096, 1104, 1107, 1137, 1152)
Pancreatic cancer risk	Timeframe (1111)
Obesity-related cancer risk	Timeframe (1161)
Ovarian cancer risk	Timeframe (1120)
Endometrial cancer risk	Timeframe (1120, 1152, 1156)
Breast cancer risk	Timeframe (1120, 1132, 1152, 1155)
Oesophageal carcinoma risk	Timeframe (1152)
Prostate cancer risk	Timeframe (1152)
Hepatocellular carcinoma risk	Timeframe (1140, 1151)
Mental health	
Reproductive health	
Mortality from any of the above diseases	
All-cause mortality	Timeframe (1125, 1138, 1153)
Cardiovascular mortality	Timeframe (1106, 1138, 1145, 1149, 1153)
Health-related quality of life	
Global HRQoL	Non-Cochrane review (1112)
Blood pressure indicators	

Condition	Surgical interventions – Omitted Results
Systolic blood pressure	Timeframe (1103, 1112)
Diastolic blood pressure	Timeframe (1103, 1112)
Blood glucose/HbA1c levels	
Fasting glucose	Timeframe (1112)
HbA1c	Timeframe (1112)
Blood lipid profile	
HDL-C	Timeframe (1112)
LDL-C	Timeframe (967, 1112)
Total cholesterol	Timeframe (1112)
Triglycerides	Timeframe (1112)
Reduction in use of lipid lowering drugs	Non-Cochrane review (1112)
Adverse events	

HbA1c, glycated haemoglobin; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol.

Older adults (≥65y)

A review was identified for older adults and behavioural interventions. No reviews were located for older adults and pharmacological or surgical interventions.

Behavioural interventions (1 review)

Reported favourable outcomes for older adults participating in behavioural interventions were reduced total cholesterol for those participating in nutrition interventions and in combined nutrition and physical activity interventions (1157).

Specific populations

Young and middle-aged men (≥18y to <65y)

A review was identified for young and middle-aged men and behavioural interventions. No reviews were located for young and middle-aged men and pharmacological or surgical interventions.

Behavioural interventions (1 review)

Reported outcomes for men participating in behavioural interventions are provided in Table B26. For nutrition interventions, there were beneficial outcomes for HDL-C and triglycerides (1036). For physical activity interventions, there were beneficial outcomes for HDL-C and triglycerides (1036). For combined nutrition and physical activity interventions, men benefited from reductions in the incidence of diabetes (1036). For nutrition, physical activity, and behaviour therapy (e.g., initiatives based on social cognitive theory) interventions, there were favourable outcomes for systolic and diastolic blood pressure, plasma glucose, and blood lipids (HDL-C, LDL-C, triglycerides, and total cholesterol) (1036).

Young and middle-aged women (≥18y to <65y)

Reviews were identified for young and middle-aged women and both behavioural and surgical interventions. No reviews were found on young and middle-aged women and pharmacological interventions.

Behavioural interventions (1 review)

Reported outcomes for women participating in combined nutrition and physical activity interventions were reduced incidence of type 2 diabetes and reduced systolic blood pressure (1036). There were no changes in diastolic blood pressure, fasting plasma glucose, HbA1c, and blood lipids (HDL-C, total cholesterol, and triglycerides) (1036).

Surgical interventions (1 review)

A reported outcome for women undergoing surgical interventions was increased recovery from work-restricting knee pain with bariatric surgery (1114).

Table B26: Reported outcomes (other than weight management/loss) for men participating in behavioural interventions

Condition	Nutrition – Included Results	Physical activity – Included Results	Nutrition and physical activity interventions – Included Results	Nutrition, physical activity and behavioural interventions – Included Results
Cardiovascular disease	-	-	-	-
Type 2 diabetes				
Type 2 diabetes risk			**Favours intervention** (1036)	
NAFLD	-	-	-	-
Musculoskeletal conditions	-	-	-	-
Cancer	-	-	-	-
Mental health	-	-	-	-
Reproductive health				
Erectile dysfunction			**Null** (1036)	
Mortality from any of the above diseases	-	-	-	-
Health-related quality of life	-	-	-	-
Blood pressure indicators				
Systolic blood pressure	**Null** Energy restriction intervention (1036)	**Null** Aerobic and strengthening exercise (calisthenics, muscle stretching, brisk walking and jogging), 1 hour, 3 times per week (1036)	**Null** (1036)	**Favours intervention** (1036)
Diastolic blood pressure	**Null** Energy restriction intervention (1036)	**Null** Aerobic and strengthening exercise (calisthenics, muscle stretching, brisk walking and jogging), 1 hour, 3 times per week (1036)	**Null** (1036)	**Favours intervention** (1036)
Blood glucose/ HbA1c levels				
Fasting plasma glucose			**Null** (1036)	**Favours intervention** (1036)
HbA1c			**Null** (1036)	
Blood lipid profile				

HDL-C	**Favours intervention** Energy restriction intervention (1036)	**Favours intervention** Aerobic and strengthening exercise (calisthenics, muscle stretching, brisk walking and jogging), 1 hour, 3 times per week (1036)	**Null** (1036)	**Favours intervention** (1036)
LDL-C	**Null** Energy restriction intervention (1036)	**Null** Aerobic and strengthening exercise (calisthenics, muscle stretching, brisk walking and jogging), 1 hour, 3 times per week (1036)		**Favours intervention** (1036)
Total cholesterol	**Null** Energy restriction intervention (1036)	**Null** Aerobic and strengthening exercise (calisthenics, muscle stretching, brisk walking and jogging), 1 hour, 3 times per week (1036)	**Null** (1036)	**Favours intervention** (1036)
Triglycerides	**Favours intervention** Energy restriction intervention (1036)	**Favours intervention** Aerobic and strengthening exercise (calisthenics, muscle stretching, brisk walking and jogging), 1 hour, 3 times per week (1036)	**Null** (1036)	**Favours intervention** (1036)
Adverse events	-	-	-	-

HbA1C, glycated haemoglobin; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; NAFLD, non-alcoholic fatty liver disease.

Young and middle-aged adults (≥18y to <65y) with prediabetes

A review was identified for young and middle-aged adults with prediabetes and behavioural interventions. No reviews were located for young and middle-aged adults with prediabetes and pharmacological or surgical interventions.

Behavioural interventions (1 review)

Reported outcomes for adults with prediabetes participating in combined nutrition and physical activity interventions were reduced incidence of diabetes and improved glycaemic control (1124).

Young and middle-aged adults (≥18y to <65y) with type 2 diabetes

Reviews were identified for young and middle-aged adults with type 2 diabetes and behavioural, pharmacological, and surgical interventions.

Behavioural interventions (2 reviews)

Reported outcomes for adults with type 2 diabetes participating in commercial weight-loss programs included equivocal outcomes for HbA1c (1102) and no change in mean glucose levels (1102). With respect to combined nutrition and physical activity interventions with or without explicitly defined behavioural strategies, there was no change in HbA1c (1147).

Pharmacological interventions (4 reviews)

For young and middle-aged adults with type 2 diabetes participating in pharmacological weight management/loss interventions, specific drugs had favourable outcomes for systolic and diastolic blood pressure *(GLP-1 receptor agonists [semaglutide] (1148)), fasting plasma glucose levels (lipase inhibitors (1095))*, and HbA1c *(lipase inhibitors (1118) and GLP-1 receptor agonists [semaglutide and liraglutide] (1118))* (Table B27).

There were two reviews with overlapping studies. The review with overlapping studies and the reason for omitting findings are recorded in Table B28.

Table B27: Reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults with type 2 diabetes participating in pharmacological interventions

Condition	Pharmacological interventions – Included Results
Cardiovascular disease	
Myocardial infarction	**Null** Biguanide† (1113)
Stroke (unspecified type)	**Null** Biguanide† (1113)
Peripheral vascular disease	**Null** Biguanide†(1113)
Type 2 diabetes	-
NAFLD	-
Musculoskeletal conditions	-
Cancer	-
Mental health	-
Reproductive health	-
Mortality from any of the above diseases	
All-cause mortality	**Null**

	Biguanide†(1113)
Cardiovascular mortality	**Null** Biguanide†(1113)
Health-related quality of life	
Blood pressure indicators	
Systolic blood pressure	**Favours intervention** GLP-1 (semaglutide)* (1148) **Null** GLP-1 (liraglutide)*(1148) Biguanide†(1148)
Diastolic blood pressure	**Favours intervention** GLP-1 (semaglutide)*(1148) **Null** GLP-1 (liraglutide)*(1148) Biguanide†(1148)
Blood glucose/ HbA1c levels	
Fasting plasma glucose	**Favours intervention** Lipase inhibitors* (1095)
HbA1c levels	**Favours intervention** Lipase inhibitors* (1118) GLP-1 (semaglutide and liraglutide)*(1118) **Null** Anorectic and anticonvulsant*(1118) Opioid antagonist plus norepinephrine-dopamine reuptake inhibitor*(1118)
Blood lipid profile	-
Adverse events	-

*Pharmacological interventions approved for the treatment of overweight or obesity, †pharmacological treatments prescribed for health outcomes other than obesity that result in weight loss; GLP-1, glucagon-like peptide-1 receptor agonists; HbA1C, glycated haemoglobin; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; NAFLD, non-alcoholic fatty liver disease.

Table B28: Omitted results on reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults with type 2 diabetes participating in pharmacological interventions and reasons for omission

Condition	Pharmacological interventions – Omitted Results
Cardiovascular disease	-
Type 2 diabetes	-
NAFLD	-
Musculoskeletal conditions	-
Cancer	-
Mental health	-
Reproductive health	-
Mortality from any of the above diseases	-
Health-related quality of life	-
Blood pressure indicators	-
Blood glucose/ HbA1c levels	-
HbA1c levels	Timeframe – lipase inhibitors*(1095)
Blood lipid profile	-
Adverse events	-

*Pharmacological interventions approved for the treatment of overweight or obesity; GLP-1, glucagon-like peptide-1 receptor agonists; HbA1C, glycated haemoglobin; NAFLD, non-alcoholic fatty liver disease.

Surgical interventions (8 reviews)

For young and middle-aged adults with type 2 diabetes undergoing bariatric surgery, there were favourable outcomes for cardiovascular disease (atrial fibrillation (1139), coronary heart disease (1142), and macrovascular complications risk (1117)), type 2 diabetes (e.g., diabetes remission (1135, 1142)), all-cause mortality (1117), systolic blood pressure (1108), HbA1c (1108), and blood lipids (dyslipidaemia remission (1108), HDL-C (1108), and triglycerides (1108)) (Table B29). There were increased serious adverse surgical events with bariatric surgery (1108).

There were several reviews with overlapping studies. The reviews with overlapping studies and the reasons for omitting findings are recorded in Table B30.

Table B29: Reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults with type 2 diabetes participating in surgical interventions

Condition	Surgical interventions – Included Results
Cardiovascular disease	
Atrial fibrillation	**Favours intervention** Bariatric surgery pooled (1139)
Coronary heart disease	**Favours intervention** Bariatric surgery pooled (1142)
Macrovascular complications risk	**Favours intervention** Bariatric surgery pooled (1117)
Type 2 diabetes	
Diabetes remission	**Favours intervention** Bariatric surgery pooled (1135, 1142) Roux-en-Y gastric bypass (1134, 1158) Gastric sleeve (1134)
Complete diabetes remission	**Favours intervention** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1105)
Partial diabetes remission	**Favours intervention** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1105)
Reduction in use of diabetes drugs	**Favours intervention** Roux-en-Y gastric bypass (1105)
NAFLD	
Musculoskeletal conditions	
Cancer	
Mental health	
Reproductive health	
Mortality from any of the above diseases	
All-cause mortality	**Favours intervention** Bariatric surgery pooled (1117)
Health-related quality of life	
Blood pressure indicators	
Systolic blood pressure	**Favours intervention** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1105)
Diastolic blood pressure	**Null** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1158)
Hypertension remission	**Null** Bariatric surgery pooled (1108)
Reduction in use of antihypertensive drugs	**Favours intervention** Roux-en-Y gastric bypass (1158)
Blood glucose/ levels	
Fasting plasma glucose	**Favours intervention**

	Biliopancreatic diversion (1134) **Null** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1158)
HbA1c levels	**Favours intervention** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1105)
Blood lipid profile	
Dyslipidaemia remission	**Favours intervention** Bariatric surgery pooled (1108)
HDL-C	**Favours intervention** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1105)
LDL-C	**Favours intervention** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1158)
Total cholesterol	**Null** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1105)
Triglycerides	**Favours intervention** Bariatric surgery pooled (1108) Roux-en-Y gastric bypass (1158)
Reduction in use of lipid lowering drug	**Favours intervention** Roux-en-Y gastric bypass (1158)
Adverse events	
Serious adverse events (SAEs)	Increased SAEs experienced with: Bariatric surgery (1108)
Nutritional deficiencies	Nutritional deficiencies experienced with: Roux-en-Y gastric bypass (1158)

HbA1C, glycated haemoglobin; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; NAFLD, non-alcoholic fatty liver disease; SAEs, serious adverse events.

Table B30: Omitted results on reported health outcomes (other than weight maintenance/loss) in young and middle-aged adults with type 2 diabetes participating in surgical interventions and reasons for omission

Condition	Surgical interventions – Omitted Results
Cardiovascular disease	
Macrovascular complications risk	Timeframe (1142)
Type 2 diabetes	
Reduction in use of diabetes drugs	Timeframe (1134, 1158)
NAFLD	
Musculoskeletal conditions	
Cancer	
Mental health	
Reproductive health	
Mortality from any of the above diseases	
All-cause mortality	Timeframe (1142)
Health-related quality of life	
Blood pressure indicators	
Systolic blood pressure	Timeframe (1158)
Blood glucose/ levels	
Fasting plasma glucose	Timeframe – Bariatric surgery pooled and Roux-en-Y gastric bypass (1134)
HbA1c levels	Timeframe – Bariatric surgery pooled (1134) and Roux-en-Y gastric bypass (1158)
Blood lipid profile	
HDL-C	Timeframe- Roux-en-Y gastric bypass (1158)
Total cholesterol	Timeframe- Roux-en-Y gastric bypass (1158)
Adverse events	

HbA1C, glycated haemoglobin; HDL-C, high density lipoprotein cholesterol; LDL-C, low density lipoprotein cholesterol; NAFLD, non-alcoholic fatty liver disease; SAEs, serious adverse events.

Young and middle-aged South Asian adults (≥18y to <65y)

A review was identified for young and middle-aged South Asian adults and behavioural interventions. No reviews were located for young and middle-aged South Asian adults and pharmacological or surgical interventions.

Behavioural interventions (1 review)

Reported outcomes for South Asians participating in combined nutrition and physical activity interventions included reduced diabetes incidence and reduced 2-hour glucose levels (1121). There was no change in fasting glucose (1121).

Young and middle-aged Chinese adults (≥18y to <65y) with type 2 diabetes

A review was identified for young and middle-aged Chinese adults with type 2 diabetes and surgical interventions. No reviews were located for young and middle-aged Chinese adults with type 2 diabetes and behavioural or pharmacological interventions.

Surgical interventions (1 review)

Reported outcomes for Chinese adults with type 2 diabetes undergoing bariatric surgery were increased surgical complication rates and mortality (1130). With Roux-en-Y gastric bypass, there was an increase in diabetes remission, and reductions in systolic and diastolic blood pressure, HbA1c, fasting plasma glucose, and triglycerides (1130).

Young and middle-aged adults (≥18y to <65y) without type 2 diabetes

A review was identified for young and middle-aged adults without type 2 diabetes and pharmacological interventions. No reviews were located for young and middle-aged adults without type 2 diabetes and behavioural or surgical interventions.

Pharmacological interventions (1 review)

Reported outcomes for young and middle-aged adults without type 2 diabetes participating in pharmacological weight management/loss interventions involving GLP-1 receptor agonists (*liraglutide, semaglutide*) were reduced systolic and diastolic blood pressure, reduced fasting blood glucose, increased HDL-C, and reduced LDL-C and triglycerides (1119). Adverse outcomes with GLP-1 receptor agonists (*liraglutide, semaglutide*) were increased nausea, vomiting, diarrhoea, constipation, abdominal pain, dyspepsia, hypoglycaemia, and neoplasms (1119).

Young and middle-aged women (≥18y to <65y) with endometrial cancer

A review was identified for young and middle-aged women with endometrial cancer and behavioural interventions. No reviews were located for young and middle-aged women with endometrial cancer and pharmacological or surgical interventions.

Behavioural interventions (2 reviews)

Women with endometrial cancer participating in combined nutrition, physical activity, and other behavioural interventions were at higher risk of musculoskeletal events (1094) (Table B31).

There were two reviews with overlapping studies. The review with overlapping studies and the reason for omitting findings are recorded in Table B32.

Table B31: Reported outcomes (other than weight management/loss) for women with endometrial cancer participating in behavioural interventions

Condition	Nutrition, physical activity and behavioural interventions – Included Results
Cardiovascular disease	-
Type 2 diabetes	-
NAFLD	-
Musculoskeletal conditions	
Risk of knee and leg pain and muscle weakness	**Favours comparator** (1094)
Cancer	-
Mental health	-
Reproductive health	-
Mortality from any of the above diseases	
All-cause mortality	**Null** (1094)
Cancer-related mortality	**Null** (1094)
Health-related quality of life	
Global HRQoL	**Null** (1094)
Blood pressure indicators	-
Blood glucose/ HbA1c levels	-
Blood lipid profile	-
Adverse events	
Gastrointestinal (including diarrhoea and abdominal pain)	No increased risk of GI adverse events with lifestyle and behavioural interventions (1094)
Feeling overwhelmed	No increased risk of feeling overwhelmed with lifestyle and behavioural interventions (1094)
Seizure	No increased risk of seizures with lifestyle and behavioural interventions (1094)
Chest pain (unknown cause)	No increased risk of chest pain with lifestyle and behavioural interventions (1094)
Atrial fibrillation	No increased risk of atrial fibrillation with lifestyle and behavioural interventions (1094)
Asthma exacerbation (considered unrelated to intervention)	No increased risk of asthma exacerbation with lifestyle and behavioural interventions (1094)
Primary lung adenocarcinoma (considered unrelated to intervention)	No increased risk of primary lung adenocarcinoma with lifestyle and behavioural interventions (1094)
Ovarian hyperstimulation syndrome (considered unrelated to intervention)	No increased risk of ovarian hyperstimulation syndrome with lifestyle and behavioural interventions (1094)

GI, gastrointestinal; HbA1c, glycated haemoglobin; NAFLD, non-alcoholic fatty liver disease; HRQoL, health-related quality of life.

Table B32: Omitted results on reported outcomes (other than weight management/loss) for women with endometrial cancer participating in behavioural interventions and reasons for omission

Condition	Nutrition, physical activity and behavioural interventions – Omitted Results
Cardiovascular disease	-
Type 2 diabetes	-
NAFLD	-

Musculoskeletal conditions	
Risk of knee and leg pain and muscle weakness	Timeframe (1001)
Cancer	-
Mental health	-
Reproductive health	-
Mortality from any of the above diseases	
All-cause mortality	Timeframe (1001)
Cancer-related mortality	Timeframe (1001)
Health-related quality of life	
Global HRQoL	Timeframe (1001)
Blood pressure indicators	-
Blood glucose/ HbA1c levels	-
Blood lipid profile	-
Adverse events	
Gastrointestinal (including diarrhoea and abdominal pain)	Timeframe (1001)

HbA1c, glycated haemoglobin; NAFLD, non-alcoholic fatty liver disease; HRQoL, health-related quality of life.

Scoping review 3 references

838. Merlotti C, Morabito A, Ceriani V, Pontiroli AE. Prevention of type 2 diabetes in obese at-risk subjects: a systematic review and meta-analysis. Acta Diabetol. 2014;51(5):853-63. doi: 10.1007/s00592-014-0624-9

967. Colquitt JL, Pickett K, Loveman E, Frampton GK. Surgery for weight loss in adults. Cochrane Database Syst Rev. 2014(8):CD003641. doi: 10.1002/14651858.CD003641.pub4

972. Driscoll S, Gregory DM, Fardy JM, Twells LK. Long-term health-related quality of life in bariatric surgery patients: a systematic review and meta-analysis. Obesity. 2016;24(1):60-70. doi: 10.1002/oby.21322

999. Jones RA, Lawlor ER, Birch JM, Patel MI, Werneck AO, Hoare E, et al. The impact of adult behavioural weight management interventions on mental health: a systematic review and meta-analysis. Obes Rev. 2021;22(4):e13150. doi: 10.1111/obr.13150

1001. Kitson S, Ryan N, MacKintosh ML, Edmondson R, Duffy JM, Crosbie EJ. Interventions for weight reduction in obesity to improve survival in women with endometrial cancer. Cochrane Database Syst Rev. 2018;2:CD012513. doi: 10.1002/14651858.CD012513.pub2

1020. Mead E, Brown T, Rees K, Azevedo LB, Whittaker V, Jones D, et al. Diet, physical activity and behavioural interventions for the treatment of overweight or obese children from the age of 6 to 11 years. Cochrane Database Syst Rev. 2017;6:CD012651. doi: 10.1002/14651858.CD012651

1036. Robertson C, Archibald D, Avenell A, Douglas F, Hoddinott P, van Teijlingen E, et al. Systematic reviews of and integrated report on the quantitative, qualitative and economic evidence base for the management of obesity in men. Health Technol Assess. 2014;18(35). doi: 10.3310/hta18350

1092. Pollock M, Fernandes RM, Newton AS, Scott SD, Hartling L. A decision tool to help researchers make decisions about including systematic reviews in overviews of reviews of healthcare interventions. Syst Rev. 2019;8(1):29. doi: 10.1186/s13643-018-0768-8

1093. Afshar S, Kelly SB, Seymour K, Lara J, Woodcock S, Mathers JC. The effects of bariatric surgery on colorectal cancer risk: systematic review and meta-analysis. Obes Surg. 2014;24(10):1793-9. doi: 10.1007/s11695-014-1359-y

1094. Agnew H, Kitson S, Crosbie EJ. Interventions for weight reduction in obesity to improve survival in women with endometrial cancer. Cochrane Database Syst Rev. 2023(3):CD012513. doi: 10.1002/14651858.CD012513.pub3

1095. Aldekhail NM, Logue J, McLoone P, Morrison DS. Effect of orlistat on glycaemic control in overweight and obese patients with type 2 diabetes mellitus: a systematic review and meta-analysis of randomized controlled trials. Obes Rev. 2015;16(12):1071-80. doi: 10.1111/obr.12318

1096. Almazeedi S, El-Abd R, Al-Khamis A, Albatineh AN, Al-Sabah S. Role of bariatric surgery in reducing the risk of colorectal cancer: a meta-analysis. Br J Surg. 2020;107(4):348-54. doi: 10.1002/bjs.11494

1097. Atallah R, Filion KB, Wakil SM, Genest J, Joseph L, Poirier P, et al. Long-term effects of 4 popular diets on weight loss and cardiovascular risk factors: a systematic review of randomized controlled trials. Circ Cardiovasc Qual Outcomes. 2014;7(6):815-27. doi: 10.1161/CIRCOUTCOMES.113.000723

1098. Baker A, Sirois-Leclerc H, Tulloch H. The impact of long-term physical activity interventions for overweight/obese postmenopausal women on adiposity indicators, physical capacity, and mental health outcomes: a systematic review. J Obes. 2016;2016:6169890. doi: 10.1155/2016/6169890

1099. Bustamante-Lopez L, Sulbaran M, Changoor NR, Tilahun Y, Garcia-Henriquez N, Albert M, et al. Impact of bariatric surgery on early-onset colorectal cancer risk: a systematic review and meta-analysis. Updates Surg. 2023;75(5):1051-7. doi: 10.1007/s13304-023-01527-2

1100. Casagrande DS, Rosa DD, Umpierre D, Sarmento RA, Rodrigues CG, Schaan BD. Incidence of cancer following bariatric surgery: systematic review and meta-analysis. Obes Surg. 2014;24(9):1499-509. doi: 10.1007/s11695-014-1276-0

1101. Chandrakumar H, Khatun N, Gupta T, Graham-Hill S, Zhyvotovska A, McFarlane SI. The effects of bariatric Surgery on cardiovascular outcomes and cardiovascular mortality: a systematic review and meta-analysis. Cureus. 2023;15(2):e34723. doi: 10.7759/cureus.34723

1102. Chaudhry ZW, Doshi RS, Mehta AK, Jacobs DK, Vakil RM, Lee CJ, et al. A systematic review of commercial weight loss programmes' effect on glycemic outcomes among overweight and obese adults with and without type 2 diabetes mellitus. Obes Rev. 2016;17(8):758-69. doi: 10.1111/obr.12423
1103. Cheng J, Gao J, Shuai X, Wang G, Tao K. The comprehensive summary of surgical versus non-surgical treatment for obesity: a systematic review and meta-analysis of randomized controlled trials. Oncotarget. 2016;7(26):39216-30. doi: 10.18632/oncotarget.9581
1104. Chierici A, Amoretti P, Drai C, De Fatico S, Barriere J, Schiavo L, Iannelli A. Does bariatric surgery reduce the risk of colorectal cancer in individuals with morbid obesity? A systematic review and meta-analysis. Nutrients. 2023;15(2):467. doi: 10.3390/nu15020467
1105. Cohen R, Le Roux CW, Junqueira S, Ribeiro RA, Luque A. Roux-en-Y gastric bypass in type 2 diabetes patients with mild obesity: a systematic review and meta-analysis. Obes Surg. 2017;27(10):2733-9. doi: 10.1007/s11695-017-2869-1
1106. Cohen R, Sforza NS, Clemente RG. Impact of metabolic surgery on type 2 diabetes mellitus, cardiovascular risk factors, and mortality: a review. Curr Hypertens Rev. 2021;17(2):159-69. doi: 10.2174/1573402116666200804153228
1107. Davey MG, Ryan OK, Ryan ÉJ, Donlon NE, Reynolds IS, Fearon NM, et al. The impact of bariatric surgery on the incidence of colorectal cancer in patients with obesity-a systematic review and meta-analysis of registry data. Obes Surg. 2023;33(8):2293-302. doi: 10.1007/s11695-023-06674-4
1108. De Luca M, Zese M, Bandini G, Chiappetta S, Iossa A, Merola G, et al. Metabolic bariatric surgery as a therapeutic option for patients with type 2 diabetes: a meta-analysis and network meta-analysis of randomized controlled trials. Diabetes Obes Metab. 2023;25(8):2362-73. doi: 10.1111/dom.15117
1109. Dombrowski SU, Avenell A, Sniehott FF. Behavioural interventions for obese adults with additional risk factors for morbidity: systematic review of effects on behaviour, weight and disease risk factors. Obes Facts. 2010;3(6):377-96. doi: 10.1159/000323076
1110. Ells LJ, Mead E, Atkinson G, Corpeleijn E, Roberts K, Viner R, et al. Surgery for the treatment of obesity in children and adolescents. Cochrane Database Syst Rev. 2015(6):CD011740. doi: 10.1002/14651858.CD011740
1111. Fan H, Mao Q, Zhang W, Fang Q, Zou Q, Gong J. The impact of bariatric surgery on pancreatic cancer risk: a systematic review and meta-analysis. Obes Surg. 2023;33(6):1889-99. doi: 10.1007/s11695-023-06570-x
1112. Gloy VL, Briel M, Bhatt DL, Kashyap SR, Schauer PR, Mingrone G, et al. Bariatric surgery versus non-surgical treatment for obesity: a systematic review and meta-analysis of randomised controlled trials. BMJ. 2013;347:f5934. doi: 10.1136/bmj.f5934
1113. Griffin SJ, Leaver JK, Irving GJ. Impact of metformin on cardiovascular disease: a meta-analysis of randomised trials among people with type 2 diabetes. Diabetologia. 2017;60(9):1620-9. doi: 10.1007/s00125-017-4337-9
1114. Groen VA, van de Graaf VA, Scholtes VAB, Sprague S, van Wagensveld BA, Poolman RW. Effects of bariatric surgery for knee complaints in (morbidly) obese adult patients: a systematic review. Obes Rev. 2015;16(2):161-70. doi: 10.1111/obr.12236
1115. He K, Guo Q, Zhang H, Xi W, Li J, Jing Z. Once-weekly semaglutide for obesity or overweight: a systematic review and meta-analysis. Diabetes Obes Metab. 2022;24(4):722-6. doi: 10.1111/dom.14612
1116. Huang YS, Zheng Q, Yang H, Fu X, Zhang X, Xia C, et al. Efficacy of intermittent or continuous very low-energy diets in overweight and obese individuals with type 2 diabetes mellitus: a systematic review and meta-analyses. J Diabetes Res. 2020;2020:4851671. doi: 10.1155/2020/4851671
1117. Hussain S, Khan MS, Jamali MC, Siddiqui AN, Gupta G, Hussain MS, Husain FM. Impact of bariatric surgery in reducing macrovascular complications in severely obese T2DM patients. Obes Surg. 2021;31(5):1929-36. doi: 10.1007/s11695-020-05155-2
1118. Iannone A, Natale P, Palmer SC, Nicolucci A, Rendina M, Giorgino F, et al. Clinical outcomes associated with drugs for obesity and overweight: a systematic review and network meta-analysis of randomized controlled trials. Diabetes Obes Metab. 2023;25(9):2535-44. doi: 10.1111/dom.15138

1119. Iqbal J, Wu H-X, Hu N, Zhou Y-H, Li L, Xiao F, et al. Effect of glucagon-like peptide-1 receptor agonists on body weight in adults with obesity without diabetes mellitus-a systematic review and meta-analysis of randomized control trials. Obes Rev. 2022;23(6):e13435. doi: 10.1111/obr.13435
1120. Ishihara BP, Farah D, Fonseca MCM, Nazario A. The risk of developing breast, ovarian, and endometrial cancer in obese women submitted to bariatric surgery: a meta-analysis. Surg Obes Relat Dis. 2020;16(10):1596-602. doi: 10.1016/j.soard.2020.06.008
1121. Jenum AK, Brekke I, Mdala I, Muilwijk M, Ramachandran A, Kjøllesdal M, et al. Effects of dietary and physical activity interventions on the risk of type 2 diabetes in South Asians: meta-analysis of individual participant data from randomised controlled trials. Diabetologia. 2019;62(8):1337-48. doi: 10.1007/s00125-019-4905-2
1122. Johansson K, Sundström J, Neovius K, Rossner S, Neovius M. Long-term changes in blood pressure following orlistat and sibutramine treatment: a meta-analysis. Obes Rev. 2010;11(11):777-91. doi: 10.1111/j.1467-789X.2009.00693.x
1123. Johnson M, Jones R, Freeman C, Woods HB, Gillett M, Goyder E, Payne N. Can diabetes prevention programmes be translated effectively into real-world settings and still deliver improved outcomes? A synthesis of evidence. Diabet Med. 2013;30(1):3-15. doi: 10.1111/dme.12018
1124. Kerrison G, Gillis RB, Jiwani SI, Alzahrani Q, Kok S, Harding SE, et al. The effectiveness of lifestyle adaptation for the prevention of prediabetes in adults: a systematic review. J Diabetes Res. 2017;2017:8493145. doi: 10.1155/2017/8493145
1125. Kwok CS, Pradhan A, Khan MA, Anderson SG, Keavney BD, Myint PK, et al. Bariatric surgery and its impact on cardiovascular disease and mortality: a systematic review and meta-analysis. Int J Cardiol. 2014;173(1):20-8. doi: 10.1016/j.ijcard.2014.02.026
1126. Leblanc ES, O'Connor E, Whitlock EP, Patnode CD, Kapka T. Effectiveness of primary care-relevant treatments for obesity in adults: a systematic evidence review for the U.S. Preventive Services Task Force. Ann Intern Med. 2011;155(7):434-47. doi: 10.7326/0003-4819-155-7-201110040-00006
1127. LeBlanc ES, Patnode CD, Webber EM, Redmond N, Rushkin M, O'Connor EA. Behavioral and pharmacotherapy weight loss interventions to prevent obesity-related morbidity and mortality in adults: updated evidence report and systematic review for the US Preventive Services Task Force. JAMA. 2018;320(11):1172-91. doi: 10.1001/jama.2018.7777
1128. Lee S-Y, Lai H, Chua YJ, Wang MX, Lee G-H. Endoscopic bariatric and metabolic therapies and their effects on metabolic syndrome and non-alcoholic fatty liver disease - a systematic review and meta-analysis. Front Med (Lausanne). 2022;9:880749. doi: 10.3389/fmed.2022.880749
1129. Li S, Luo X, Sun H, Wang K, Zhang K, Sun X. Does prior bariatric surgery improve outcomes following total joint arthroplasty in the morbidly obese? A meta-analysis. J Arthroplasty. 2019;34(3):577-85. doi: 10.1016/j.arth.2018.11.018
1130. Li Y, Gu Y, Jin Y, Mao Z. Is bariatric surgery effective for Chinese patients with type 2 diabetes mellitus and body mass index < 35 kg/m2? A systematic review and meta-analysis. Obes Surg. 2021;31(9):4083-92. doi: 10.1007/s11695-021-05520-9
1131. Liu D-f, Ma Z-y, Zhang C-s, Lin Q, Li M-w, Su K-z, et al. The effects of bariatric surgery on dyslipidemia and insulin resistance in overweight patients with or without type 2 diabetes: a systematic review and network meta-analysis. Surg Obes Relat Dis. 2021;17(9):1655-72. doi: 10.1016/j.soard.2021.04.005
1132. Lovrics O, Butt J, Lee Y, Lovrics P, Boudreau V, Anvari M, et al. The effect of bariatric surgery on breast cancer incidence and characteristics: a meta-analysis and systematic review. Am J Surg. 2021;222(4):715-22. doi: 10.1016/j.amjsurg.2021.03.016
1133. Ma C, Avenell A, Bolland M, Hudson J, Stewart F, Robertson C, et al. Effects of weight loss interventions for adults who are obese on mortality, cardiovascular disease, and cancer: systematic review and meta-analysis. BMJ. 2017;359:j4849. doi: 10.1136/bmj.j4849
1134. Maggard-Gibbons M, Maglione M, Livhits M, Ewing B, Maher AR, Hu J, et al. Bariatric surgery for weight loss and glycemic control in nonmorbidly obese adults with diabetes: a systematic review. JAMA. 2013;309(21):2250-61. doi: 10.1001/jama.2013.4851

1135. Meijer RI, van Wagensveld BA, Siegert CE, Eringa EC, Serné EH, Smulders YM. Bariatric surgery as a novel treatment for type 2 diabetes mellitus: a systematic review. Arch Surg. 2011;146(6):744-50. doi: 10.1001/archsurg.2011.134
1136. Merlotti C, Morabito A, Pontiroli AE. Prevention of type 2 diabetes; a systematic review and meta-analysis of different intervention strategies. Diabetes Obes Metab. 2014;16(8):719-27. doi: 10.1111/dom.12270
1137. Pararas N, Pikouli A, Dellaportas D, Nastos C, Charalampopoulos A, Muqresh MA, et al. The protective effect of bariatric surgery on the development of colorectal cancer: a systematic review and meta-analysis. Int J Environ Res Public Health. 2023;20(5):3981. doi: 10.3390/ijerph20053981
1138. Pontiroli AE, Morabito A. Long-term prevention of mortality in morbid obesity through bariatric surgery. a systematic review and meta-analysis of trials performed with gastric banding and gastric bypass. Ann Surg. 2011;253(3):484-7. doi: 10.1097/SLA.0b013e31820d98cb
1139. Pontiroli AE, Centofanti L, Le Roux CW, Magnani S, Tagliabue E, Folli F. Effect of prolonged and substantial weight loss on incident atrial fibrillation: a systematic review and meta-analysis. Nutrients. 2023;15(4):940. doi: 10.3390/nu15040940
1140. Ramai D, Singh J, Lester J, Khan SR, Chandan S, Tartaglia N, et al. Systematic review with meta-analysis: bariatric surgery reduces the incidence of hepatocellular carcinoma. Aliment Pharmacol Ther. 2021;53(9):977-84. doi: 10.1111/apt.16335
1141. Schwingshackl L, Hoffmann G. Long-term effects of low glycemic index/load vs. high glycemic index/load diets on parameters of obesity and obesity-associated risks: a systematic review and meta-analysis. Nutr Metab Cardiovasc Dis. 2013;23(8):699-706. doi: 10.1016/j.numecd.2013.04.008
1142. Sheng B, Truong K, Spitler H, Zhang L, Tong X, Chen L. The long-term effects of bariatric surgery on type 2 diabetes remission, microvascular and macrovascular complications, and mortality: a systematic review and meta-analysis. Obes Surg. 2017;27(10):2724-32. doi: 10.1007/s11695-017-2866-4
1143. Sutanto A, Wungu CDK, Susilo H, Sutanto H. Reduction of Major Adverse Cardiovascular Events (MACE) after bariatric surgery in patients with obesity and cardiovascular diseases: a systematic review and meta-analysis. Nutrients. 2021;13(10):3568. doi: 10.3390/nu13103568
1144. Szmulewicz A, Wanis KN, Gripper A, Angriman F, Hawel J, Elnahas A, et al. Mental health quality of life after bariatric surgery: a systematic review and meta-analysis of randomized clinical trials. Clin Obes. 2019;9(1):e12290. doi: 10.1111/cob.12290
1145. Tang B, Zhang Y, Wang Y, Wang X, An Z, Yu X. Effect of bariatric surgery on long-term cardiovascular outcomes: a systematic review and meta-analysis of population-based cohort studies. Surg Obes Relat Dis. 2022;18(8):1074-86. doi: 10.1016/j.soard.2022.05.007
1146. Tee MC, Cao Y, Warnock GL, Hu FB, Chavarro JE. Effect of bariatric surgery on oncologic outcomes: a systematic review and meta-analysis. Surg Endosc. 2013;27(12):4449-56. doi: 10.1007/s00464-013-3127-9
1147. Terranova CO, Brakenridge CL, Lawler SP, Eakin EG, Reeves MM. Effectiveness of lifestyle-based weight loss interventions for adults with type 2 diabetes: a systematic review and meta-analysis. Diabetes Obes Metab. 2015;17(4):371-8. doi: 10.1111/dom.12430
1148. Tsapas A, Karagiannis T, Kakotrichi P, Avgerinos I, Mantsiou C, Tousinas G, et al. Comparative efficacy of glucose-lowering medications on body weight and blood pressure in patients with type 2 diabetes: a systematic review and network meta-analysis. Diabetes Obes Metab. 2021;23(9):2116-24. doi: 10.1111/dom.14451
1149. van Veldhuisen SL, Gorter TM, van Woerden G, de Boer RA, Rienstra M, Hazebroek EJ, van Veldhuisen DJ. Bariatric surgery and cardiovascular disease: a systematic review and meta-analysis. Eur Heart J. 2022;43(20):1955-69. doi: 10.1093/eurheartj/ehac071
1150. Wang L, Lin M, Yu J, Fan Z, Zhang S, Lin Y, et al. The impact of bariatric surgery versus non-surgical treatment on blood pressure: systematic review and meta-analysis. Obes Surg. 2021;31(11):4970-84. doi: 10.1007/s11695-021-05671-9
1151. Wang G, Huang Y, Yang H, Lin H, Zhou S, Qian J. Impacts of bariatric surgery on adverse liver outcomes: a systematic review and meta-analysis. Surg Obes Relat Dis. 2023;19(7):717-26. doi: 10.1016/j.soard.2022.12.025

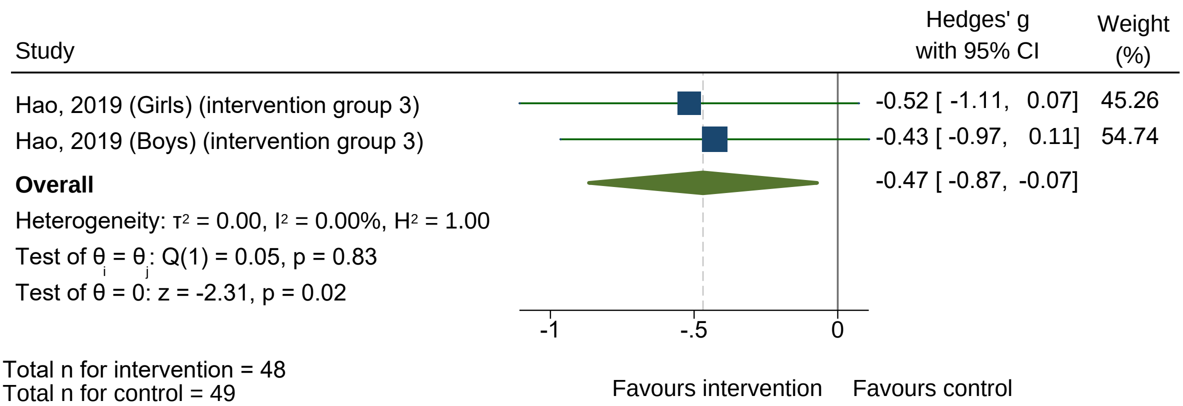
1152. Wiggins T, Antonowicz SS, Markar SR. Cancer risk following bariatric surgery-systematic review and meta-analysis of national population-based cohort studies. Obes Surg. 2019;29(3):1031-9. doi: 10.1007/s11695-018-3501-8
1153. Wiggins T, Guidozzi N, Welbourn R, Ahmed AR, Markar SR. Association of bariatric surgery with all-cause mortality and incidence of obesity-related disease at a population level: a systematic review and meta-analysis. PLoS Med. 2020;17(7):e1003206. doi: 10.1371/journal.pmed.1003206
1154. Wilson RB, Lathigara D, Kaushal D. Systematic review and meta-analysis of the impact of bariatric surgery on future cancer risk. Int J Mol Sci. 2023;24(7). doi: 10.3390/ijms24076192
1155. Winder AA, Kularatna M, MacCormick AD. Does bariatric surgery affect the incidence of breast cancer development? A systematic review. Obes Surg. 2017;27(11):3014-20. doi: 10.1007/s11695-017-2901-5
1156. Winder AA, Kularatna M, MacCormick AD. Does bariatric surgery affect the incidence of endometrial cancer development? A systematic review. Obes Surg. 2018;28(5):1433-40. doi: 10.1007/s11695-018-3151-x
1157. Witham MD, Avenell A. Interventions to achieve long-term weight loss in obese older people: a systematic review and meta-analysis. Age Ageing. 2010;39(2):176-84. doi: 10.1093/ageing/afp251
1158. Yan Y, Sha Y, Yao G, Wang S, Kong F, Liu H, et al. Roux-en-Y gastric bypass versus medical treatment for type 2 diabetes mellitus in obese patients: a systematic review and meta-analysis of randomized controlled trials. Medicine. 2016;95(17):e3462. doi: 10.1097/MD.0000000000003462
1159. Zhou X, Zeng C. Diabetes remission of bariatric surgery and nonsurgical treatments in type 2 diabetes patients who failure to meet the criteria for surgery: a systematic review and meta-analysis. BMC Endocr Disord. 2023;23(1):46. doi: 10.1186/s12902-023-01283-9
1160. Zhou Y-H, Ma X-Q, Wu C, Lu J, Zhang S-S, Guo J, et al. Effect of anti-obesity drug on cardiovascular risk factors: a systematic review and meta-analysis of randomized controlled trials. PLoS ONE. 2012;7(6):e39062. doi: 10.1371/journal.pone.0039062
1161. Zhou X, Yu J, Li L, Gloy VL, Nordmann A, Tiboni M, et al. Effects of bariatric surgery on mortality, cardiovascular events, and cancer outcomes in obese patients: systematic review and meta-analysis. Obes Surg. 2016;26(11):2590-601. doi: 10.1007/s11695-016-2144-x

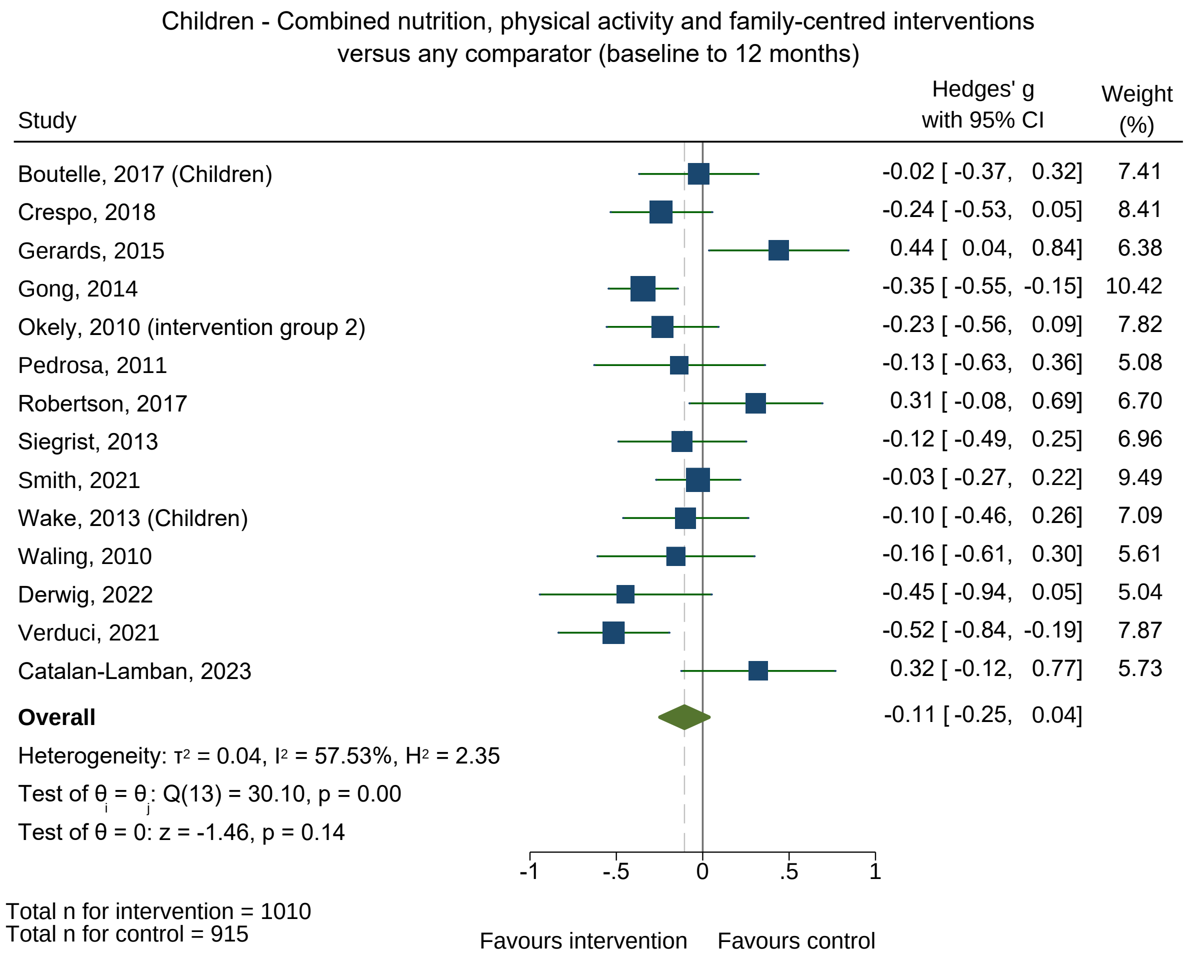
Appendix C: Additional meta-analyses not reported elsewhere

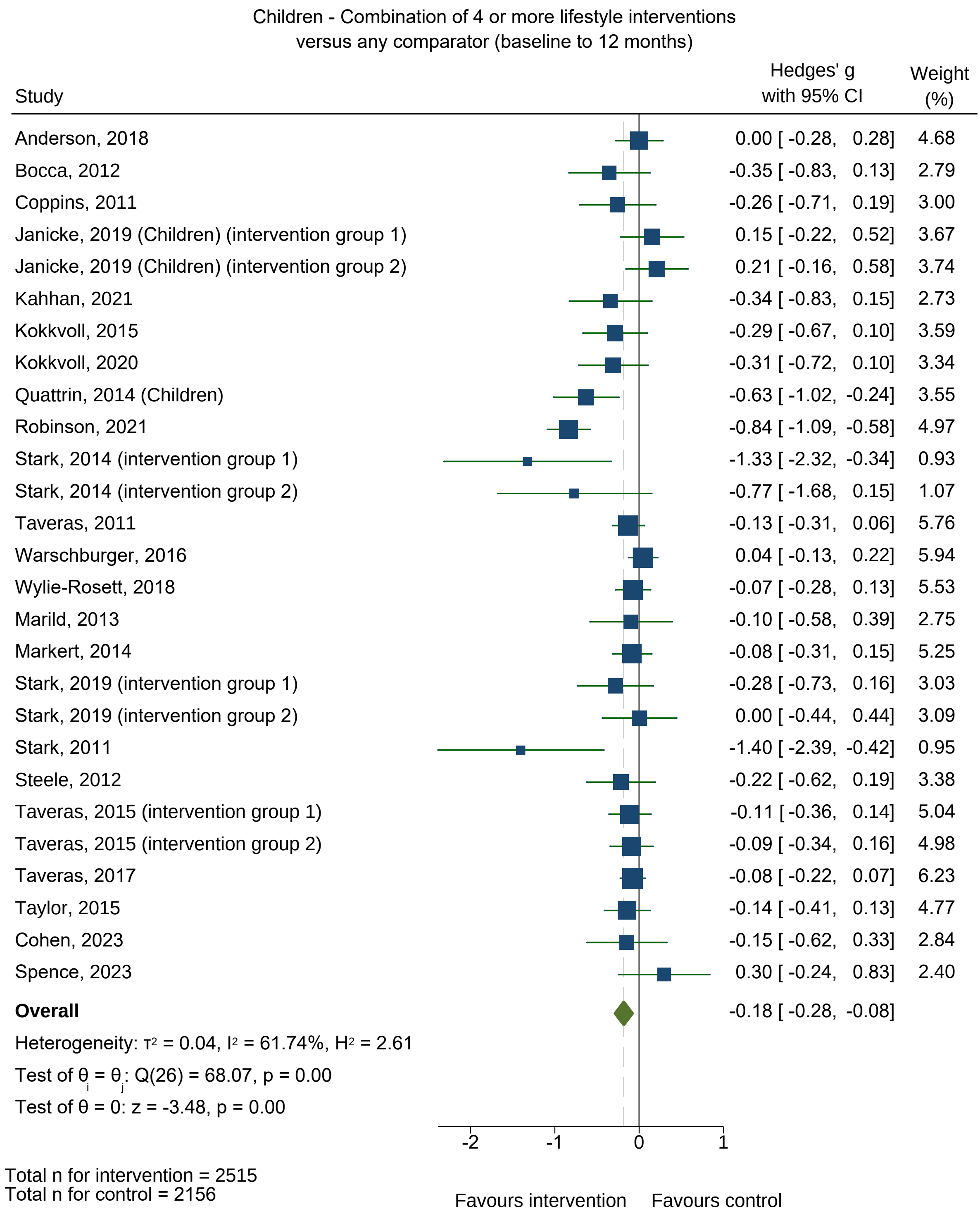
As data from one meta-analysis only was considered for the application of GRADE, remaining meta-analyses are presented here, but were not considered further for GRADE nor in the Evidence-to-Decision framework stages of Guideline development. This decision was taken when, for example, data were available for two categories, such as 'intervention versus untreated comparator at 12 months' and 'intervention versus any comparator at 12 months', only data from the first meta-analysis were used. As detailed in the methods above, data from the following additional meta-analyses were reviewed to identify major discrepancies between meta-analysis findings, however no such discrepancies were identified.

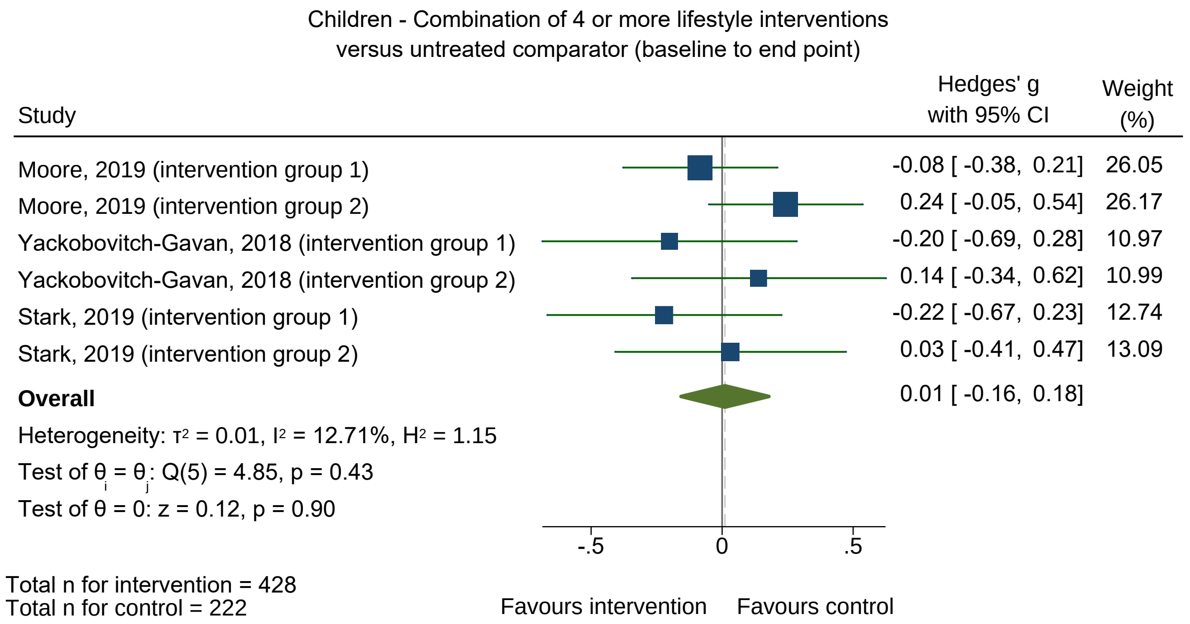
Children

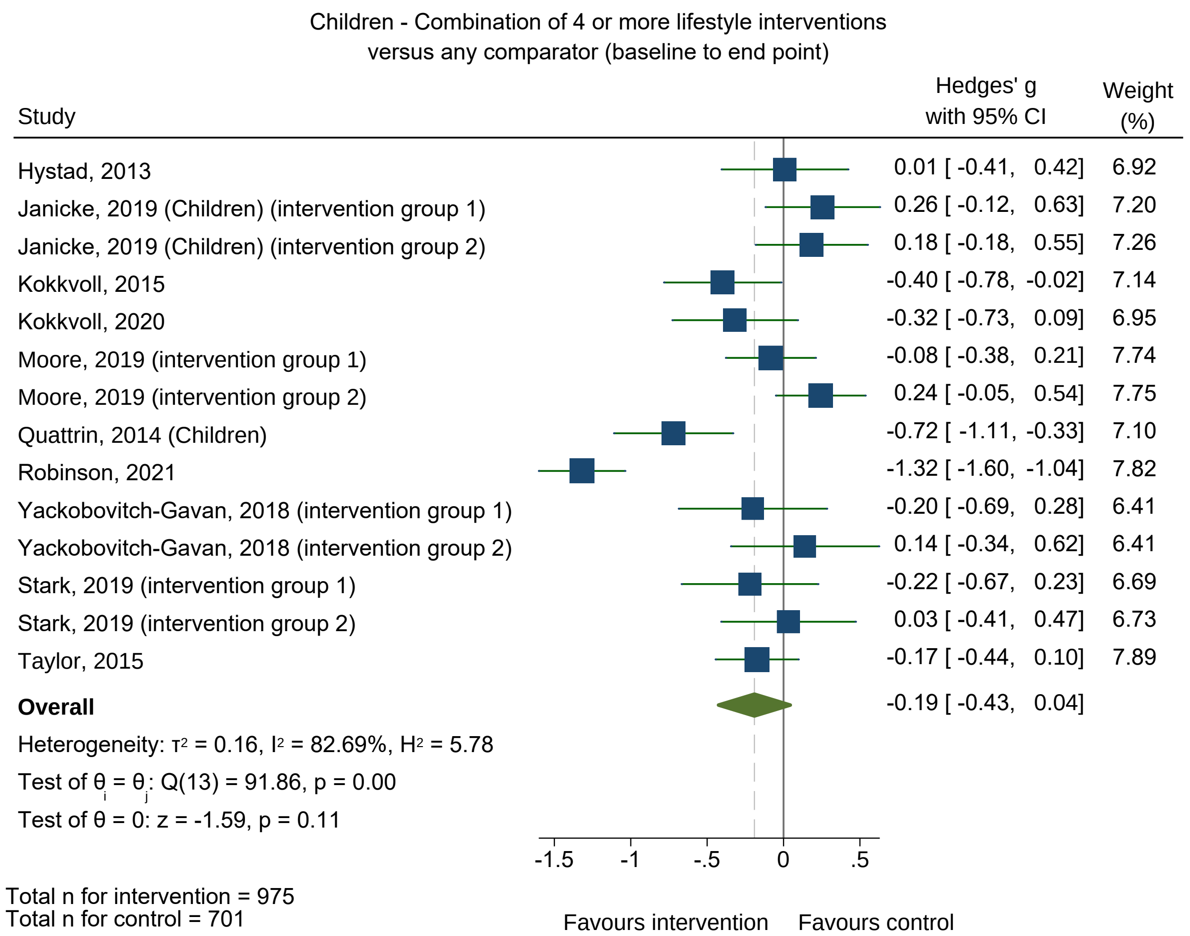
Children - Combined nutrition and physical activity (with or without sedentary behaviour) versus any comparator (baseline to final end-point)



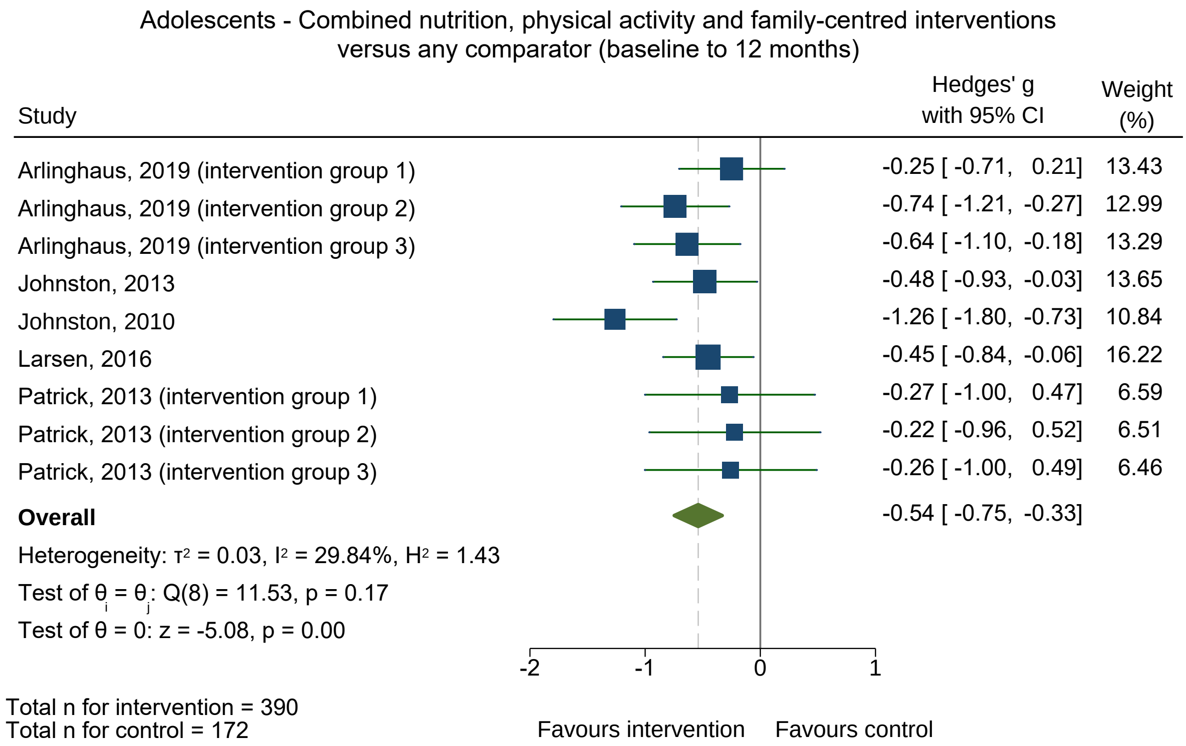

Children - Combined nutrition, physical activity and family-centred interventions
versus any comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Boutelle, 2017 (Children) -0.02 [-0.37, 0.32] 7.41
Crespo, 2018 -0.24 [-0.53, 0.05] 8.41
Gerards, 2015 0.44 [0.04, 0.84] 6.38
Gong, 2014 -0.35 [-0.55, -0.15] 10.42
Okely, 2010 (intervention group 2) -0.23 [-0.56, 0.09] 7.82
Pedrosa, 2011 -0.13 [-0.63, 0.36] 5.08
Robertson, 2017 0.31 [-0.08, 0.69] 6.70
Siegrist, 2013 -0.12 [-0.49, 0.25] 6.96
Smith, 2021 -0.03 [-0.27, 0.22] 9.49
Wake, 2013 (Children) -0.10 [-0.46, 0.26] 7.09
Waling, 2010 -0.16 [-0.61, 0.30] 5.61
Derwig, 2022 -0.45 [-0.94, 0.05] 5.04
Verduci, 2021 -0.52 [-0.84, -0.19] 7.87
Catalan-Lamban, 2023 0.32 [-0.12, 0.77] 5.73
Overall -0.11 [-0.25, 0.04]
Heterogeneity: τ² = 0.04, I² = 57.53%, H² = 2.35
Test of θi = θj: Q(13) = 30.10, p = 0.00
Test of θ = 0: z = -1.46, p = 0.14
-1 -.5 0 .5 1
Total n for intervention = 1010
Total n for control = 915
Favours intervention Favours control

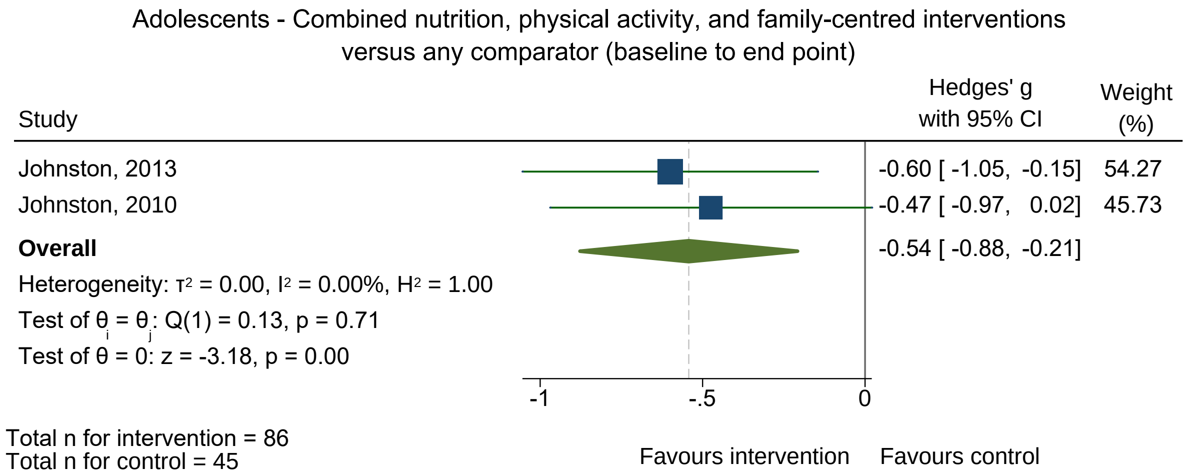

Children - Combination of 4 or more lifestyle interventions
versus any comparator (baseline to 12 months)
Study
Hedges' g
with 95% CI
Weight
(%)
Anderson, 2018 0.00 [-0.28, 0.28] 4.68
Bocca, 2012 -0.35 [-0.83, 0.13] 2.79
Coppins, 2011 -0.26 [-0.71, 0.19] 3.00
Janicke, 2019 (Children) (intervention group 1) 0.15 [-0.22, 0.52] 3.67
Janicke, 2019 (Children) (intervention group 2) 0.21 [-0.16, 0.58] 3.74
Kahhan, 2021 -0.34 [-0.83, 0.15] 2.73
Kokkvoll, 2015 -0.29 [-0.67, 0.10] 3.59
Kokkvoll, 2020 -0.31 [-0.72, 0.10] 3.34
Quattrin, 2014 (Children) -0.63 [-1.02, -0.24] 3.55
Robinson, 2021 -0.84 [-1.09, -0.58] 4.97
Stark, 2014 (intervention group 1) -1.33 [-2.32, -0.34] 0.93
Stark, 2014 (intervention group 2) -0.77 [-1.68, 0.15] 1.07
Taveras, 2011 -0.13 [-0.31, 0.06] 5.76
Warschburger, 2016 0.04 [-0.13, 0.22] 5.94
Wylie-Rosett, 2018 -0.07 [-0.28, 0.13] 5.53
Marild, 2013 -0.10 [-0.58, 0.39] 2.75
Markert, 2014 -0.08 [-0.31, 0.15] 5.25
Stark, 2019 (intervention group 1) -0.28 [-0.73, 0.16] 3.03
Stark, 2019 (intervention group 2) 0.00 [-0.44, 0.44] 3.09
Stark, 2011 -1.40 [-2.39, -0.42] 0.95
Steele, 2012 -0.22 [-0.62, 0.19] 3.38
Taveras, 2015 (intervention group 1) -0.11 [-0.36, 0.14] 5.04
Taveras, 2015 (intervention group 2) -0.09 [-0.34, 0.16] 4.98
Taveras, 2017 -0.08 [-0.22, 0.07] 6.23
Taylor, 2015 -0.14 [-0.41, 0.13] 4.77
Cohen, 2023 -0.15 [-0.62, 0.33] 2.84
Spence, 2023 0.30 [-0.24, 0.83] 2.40
Overall -0.18 [-0.28, -0.08]
Heterogeneity: τ^2 = 0.04, I^2 = 61.74%, H^2 = 2.61
Test of $\theta_i = \theta_j$: Q(26) = 68.07, p = 0.00
Test of θ = 0: z = -3.48, p = 0.00
-2 -1 0 1
Total n for intervention = 2515
Total n for control = 2156
Favours intervention Favours control

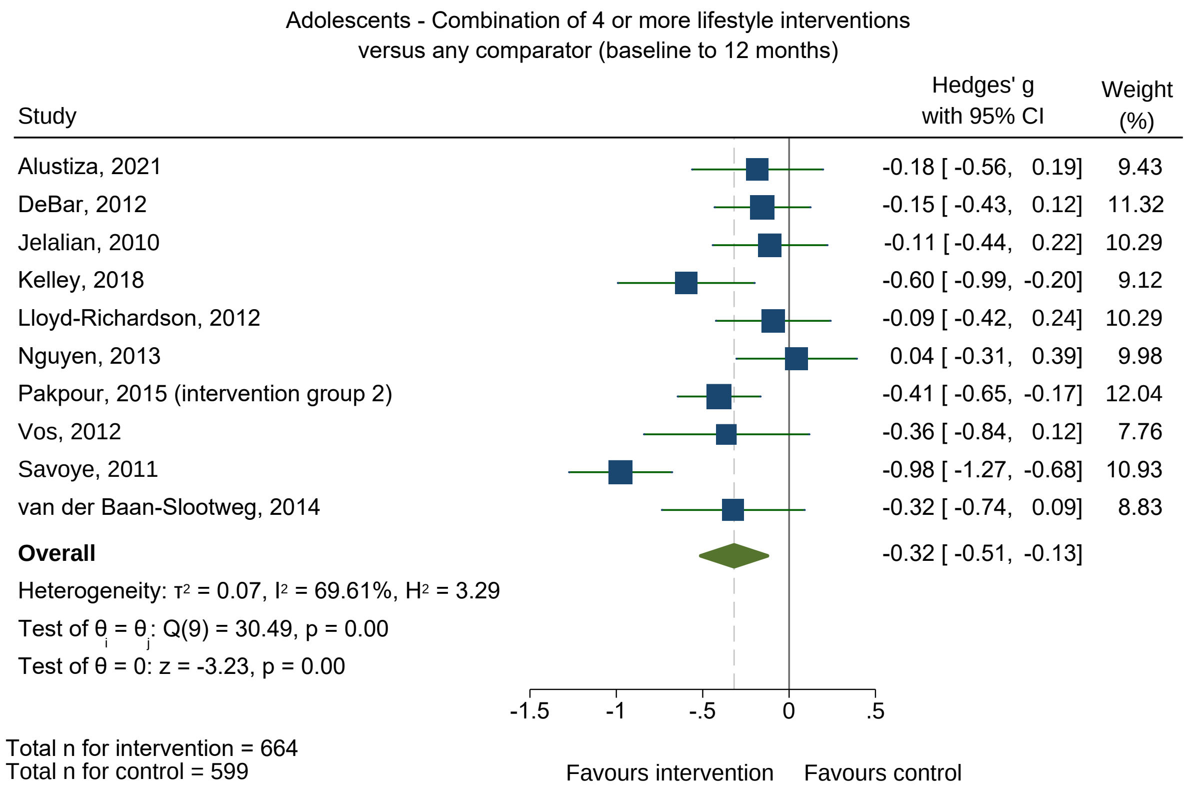

Children - Combination of 4 or more lifestyle interventions
versus untreated comparator (baseline to end point)
Study
Hedges' g with 95% CI
Weight (%)
Moore, 2019 (intervention group 1) -0.08 [-0.38, 0.21] 26.05
Moore, 2019 (intervention group 2) 0.24 [-0.05, 0.54] 26.17
Yackobovitch-Gavan, 2018 (intervention group 1) -0.20 [-0.69, 0.28] 10.97
Yackobovitch-Gavan, 2018 (intervention group 2) 0.14 [-0.34, 0.62] 10.99
Stark, 2019 (intervention group 1) -0.22 [-0.67, 0.23] 12.74
Stark, 2019 (intervention group 2) 0.03 [-0.41, 0.47] 13.09
Overall 0.01 [-0.16, 0.18]
Heterogeneity: τ^2 = 0.01, I^2 = 12.71%, H^2 = 1.15
Test of $\theta_i = \theta_j$: Q(5) = 4.85, p = 0.43
Test of θ = 0: z = 0.12, p = 0.90
-.5
0
.5
Total n for intervention = 428
Total n for control = 222
Favours intervention
Favours control

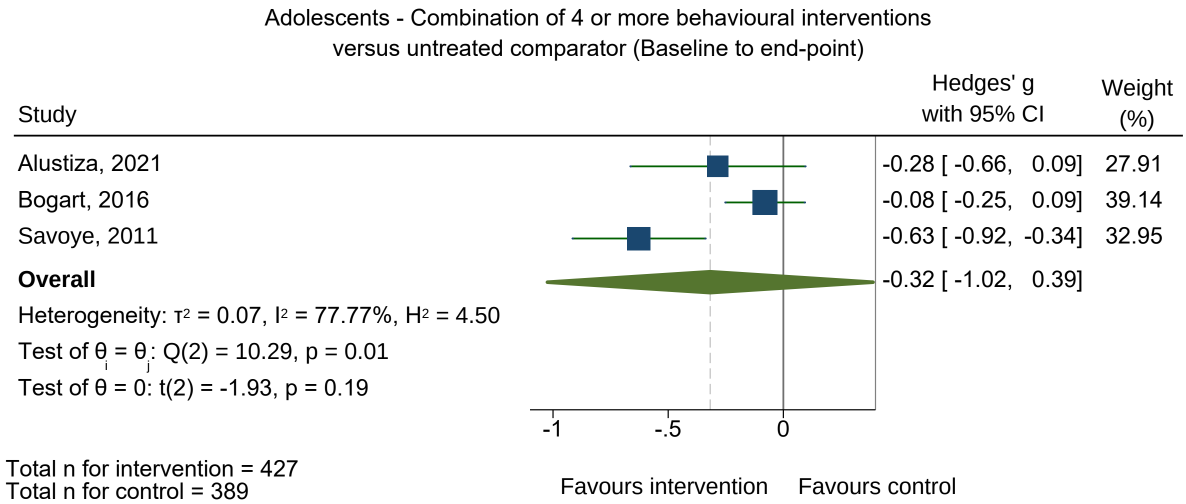

Children - Combination of 4 or more lifestyle interventions
versus any comparator (baseline to end point)
Study
Hedges' g with 95% CI
Weight (%)
Hystad, 2013 0.01 [-0.41, 0.42] 6.92
Janicke, 2019 (Children) (intervention group 1) 0.26 [-0.12, 0.63] 7.20
Janicke, 2019 (Children) (intervention group 2) 0.18 [-0.18, 0.55] 7.26
Kokkvoll, 2015 -0.40 [-0.78, -0.02] 7.14
Kokkvoll, 2020 -0.32 [-0.73, 0.09] 6.95
Moore, 2019 (intervention group 1) -0.08 [-0.38, 0.21] 7.74
Moore, 2019 (intervention group 2) 0.24 [-0.05, 0.54] 7.75
Quattrin, 2014 (Children) -0.72 [-1.11, -0.33] 7.10
Robinson, 2021 -1.32 [-1.60, -1.04] 7.82
Yackobovitch-Gavan, 2018 (intervention group 1) -0.20 [-0.69, 0.28] 6.41
Yackobovitch-Gavan, 2018 (intervention group 2) 0.14 [-0.34, 0.62] 6.41
Stark, 2019 (intervention group 1) -0.22 [-0.67, 0.23] 6.69
Stark, 2019 (intervention group 2) 0.03 [-0.41, 0.47] 6.73
Taylor, 2015 -0.17 [-0.44, 0.10] 7.89
Overall -0.19 [-0.43, 0.04]
Heterogeneity: τ^2 = 0.16, I^2 = 82.69%, H^2 = 5.78
Test of $\theta_i = \theta_j$: Q(13) = 91.86, p = 0.00
Test of θ = 0: z = -1.59, p = 0.11
-1.5
-1
-.5
0
.5
Total n for intervention = 975
Total n for control = 701
Favours intervention
Favours control

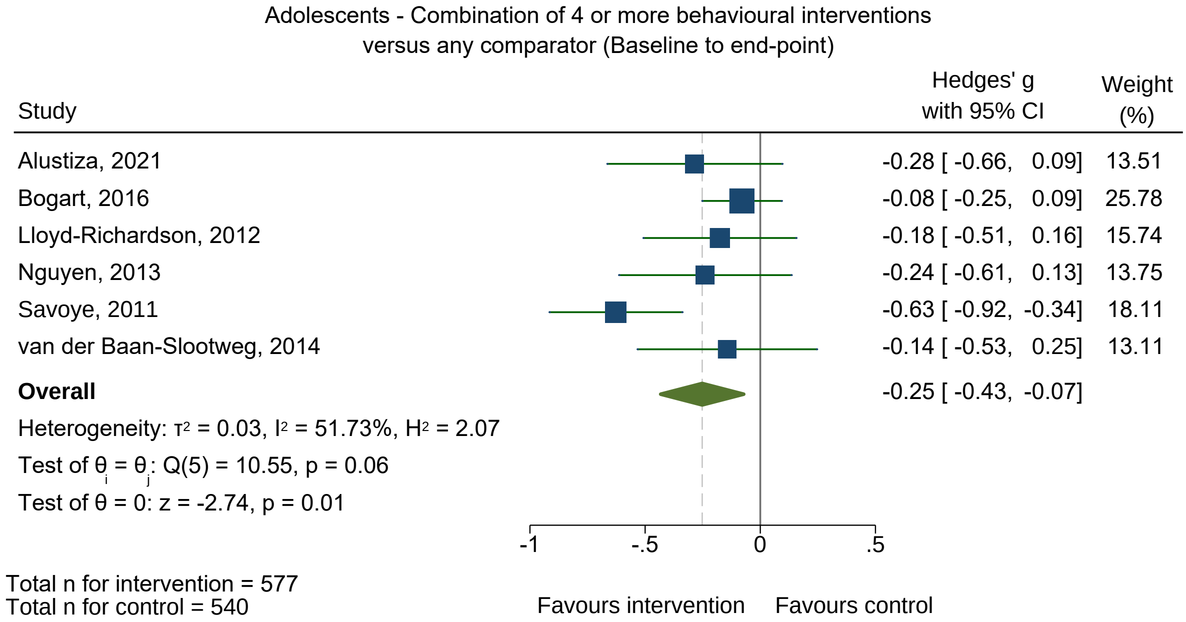
Adolescents



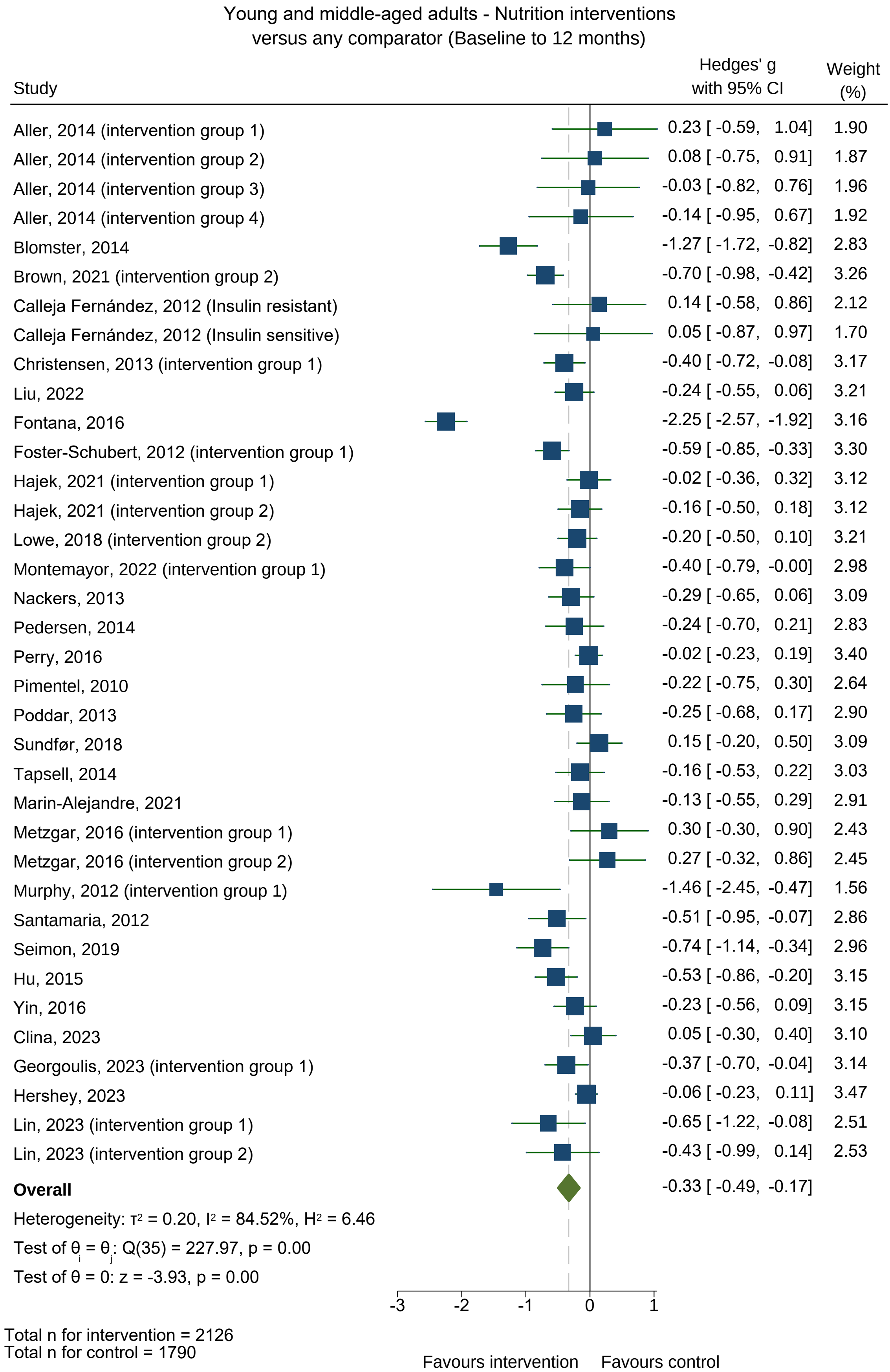


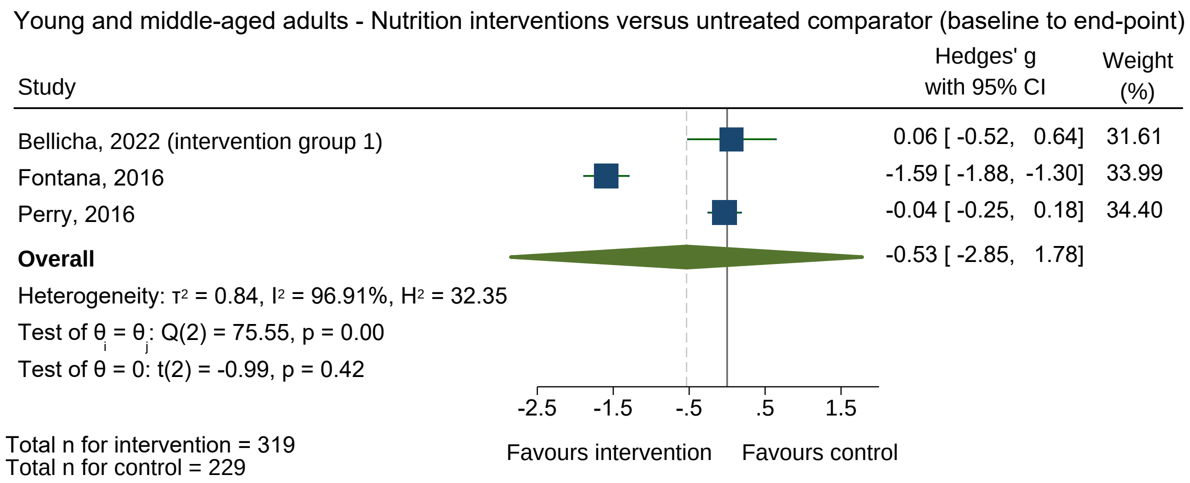

Adolescents - Combination of 4 or more lifestyle interventions
versus any comparator (baseline to 12 months)
Study
Hedges' g
with 95% CI
Weight
(%)
Alustiza, 2021 -0.18 [-0.56, 0.19] 9.43
DeBar, 2012 -0.15 [-0.43, 0.12] 11.32
Jelalian, 2010 -0.11 [-0.44, 0.22] 10.29
Kelley, 2018 -0.60 [-0.99, -0.20] 9.12
Lloyd-Richardson, 2012 -0.09 [-0.42, 0.24] 10.29
Nguyen, 2013 0.04 [-0.31, 0.39] 9.98
Pakpour, 2015 (intervention group 2) -0.41 [-0.65, -0.17] 12.04
Vos, 2012 -0.36 [-0.84, 0.12] 7.76
Savoye, 2011 -0.98 [-1.27, -0.68] 10.93
van der Baan-Slootweg, 2014 -0.32 [-0.74, 0.09] 8.83
Overall -0.32 [-0.51, -0.13]
Heterogeneity: τ2 = 0.07, I2 = 69.61%, H2 = 3.29
Test of θi = θj: Q(9) = 30.49, p = 0.00
Test of θ = 0: z = -3.23, p = 0.00
-1.5 -1 -.5 0 .5
Total n for intervention = 664
Total n for control = 599
Favours intervention Favours control


Adolescents - Combination of 4 or more behavioural interventions
versus untreated comparator (Baseline to end-point)
Study
Hedges' g
with 95% CI
Weight
(%)
Alustiza, 2021 -0.28 [-0.66, 0.09] 27.91
Bogart, 2016 -0.08 [-0.25, 0.09] 39.14
Savoye, 2011 -0.63 [-0.92, -0.34] 32.95
Overall -0.32 [-1.02, 0.39]
Heterogeneity: τ2 = 0.07, I2 = 77.77%, H2 = 4.50
Test of θi = θj: Q(2) = 10.29, p = 0.01
Test of θ = 0: t(2) = -1.93, p = 0.19
-1 -.5 0
Total n for intervention = 427
Total n for control = 389
Favours intervention Favours control

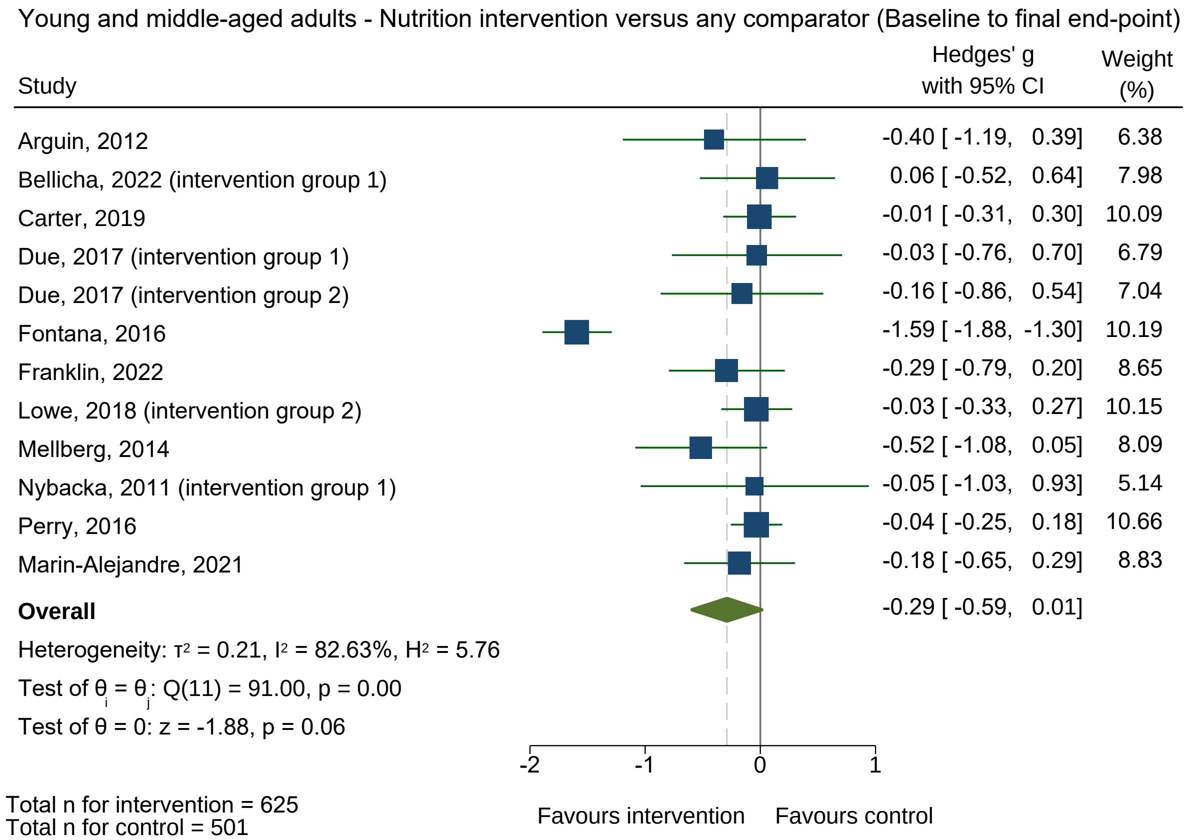

Adolescents - Combination of 4 or more behavioural interventions
versus any comparator (Baseline to end-point)
Study
Hedges' g
with 95% CI
Weight
(%)
Alustiza, 2021 -0.28 [-0.66, 0.09] 13.51
Bogart, 2016 -0.08 [-0.25, 0.09] 25.78
Lloyd-Richardson, 2012 -0.18 [-0.51, 0.16] 15.74
Nguyen, 2013 -0.24 [-0.61, 0.13] 13.75
Savoye, 2011 -0.63 [-0.92, -0.34] 18.11
van der Baan-Slootweg, 2014 -0.14 [-0.53, 0.25] 13.11
Overall -0.25 [-0.43, -0.07]
Heterogeneity: τ² = 0.03, I² = 51.73%, H² = 2.07
Test of θi = θj: Q(5) = 10.55, p = 0.06
Test of θ = 0: z = -2.74, p = 0.01
-1
-.5
0
.5
Total n for intervention = 577
Total n for control = 540
Favours intervention
Favours control

Young and middle-aged adults



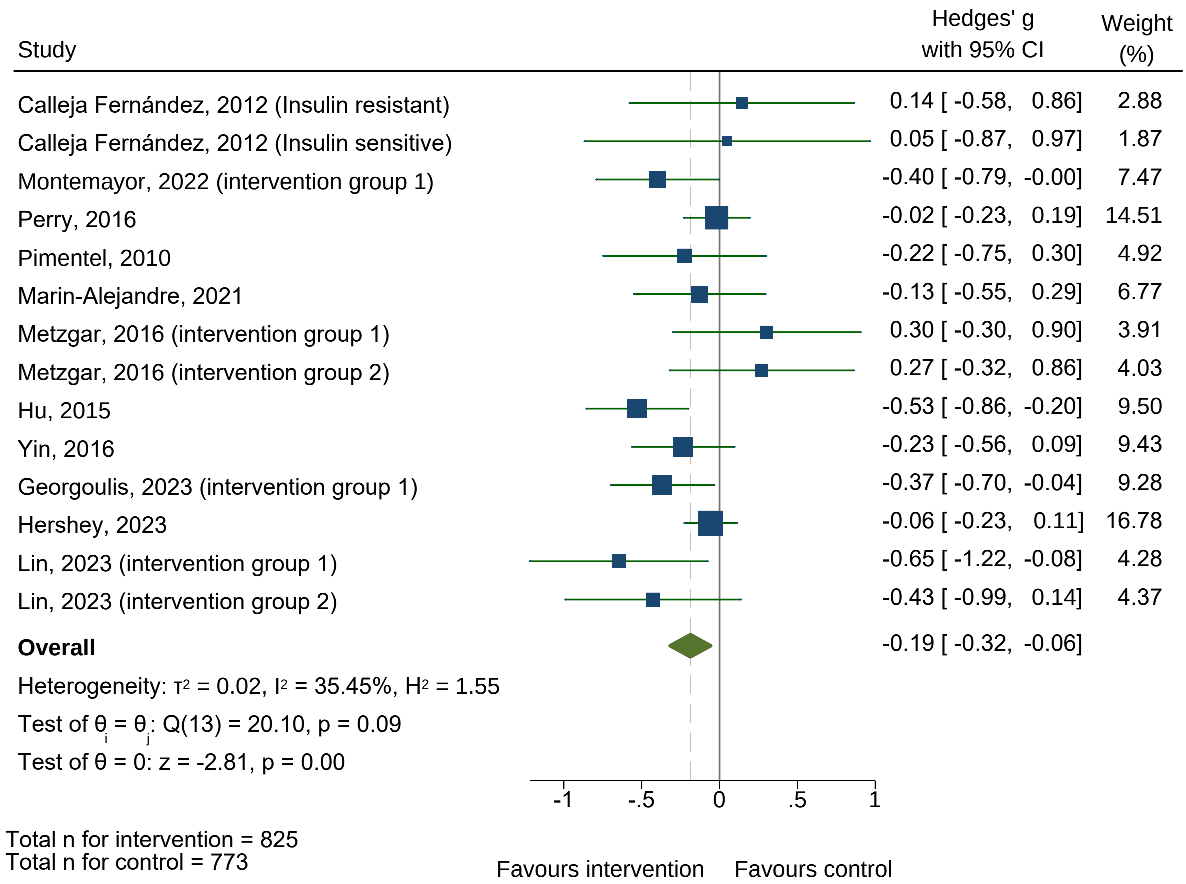


Young and middle-aged adults - Nutrition interventions versus untreated comparator (baseline to end-point)
Study
Hedges' g with 95% CI
Weight (%)
Bellicha, 2022 (intervention group 1) 0.06 [-0.52, 0.64] 31.61
Fontana, 2016 -1.59 [-1.88, -1.30] 33.99
Perry, 2016 -0.04 [-0.25, 0.18] 34.40
Overall -0.53 [-2.85, 1.78]
Heterogeneity: τ² = 0.84, I² = 96.91%, H² = 32.35
Test of θi = θj: Q(2) = 75.55, p = 0.00
Test of θ = 0: t(2) = -0.99, p = 0.42
-2.5
-1.5
-.5
.5
1.5
Total n for intervention = 319
Total n for control = 229
Favours intervention
Favours control

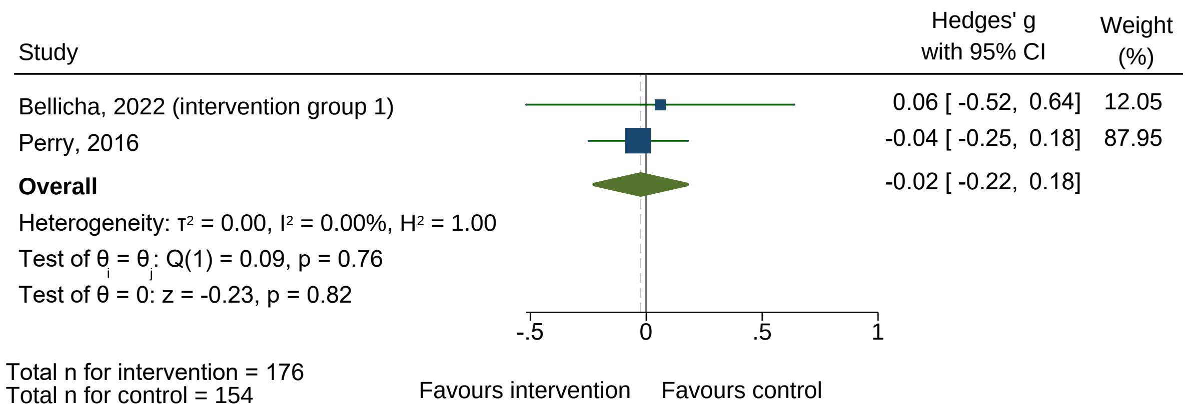


Young and middle-aged adults - Nutrition intervention versus any comparator (Baseline to final end-point)
Study
Hedges' g with 95% CI
Weight (%)
Arguin, 2012 -0.40 [-1.19, 0.39] 6.38
Bellicha, 2022 (intervention group 1) 0.06 [-0.52, 0.64] 7.98
Carter, 2019 -0.01 [-0.31, 0.30] 10.09
Due, 2017 (intervention group 1) -0.03 [-0.76, 0.70] 6.79
Due, 2017 (intervention group 2) -0.16 [-0.86, 0.54] 7.04
Fontana, 2016 -1.59 [-1.88, -1.30] 10.19
Franklin, 2022 -0.29 [-0.79, 0.20] 8.65
Lowe, 2018 (intervention group 2) -0.03 [-0.33, 0.27] 10.15
Mellberg, 2014 -0.52 [-1.08, 0.05] 8.09
Nybacka, 2011 (intervention group 1) -0.05 [-1.03, 0.93] 5.14
Perry, 2016 -0.04 [-0.25, 0.18] 10.66
Marin-Alejandre, 2021 -0.18 [-0.65, 0.29] 8.83
Overall -0.29 [-0.59, 0.01]
Heterogeneity: τ² = 0.21, I² = 82.63%, H² = 5.76
Test of θi = θj: Q(11) = 91.00, p = 0.00
Test of θ = 0: z = -1.88, p = 0.06
-2
-1
0
1
Total n for intervention = 625
Total n for control = 501
Favours intervention
Favours control

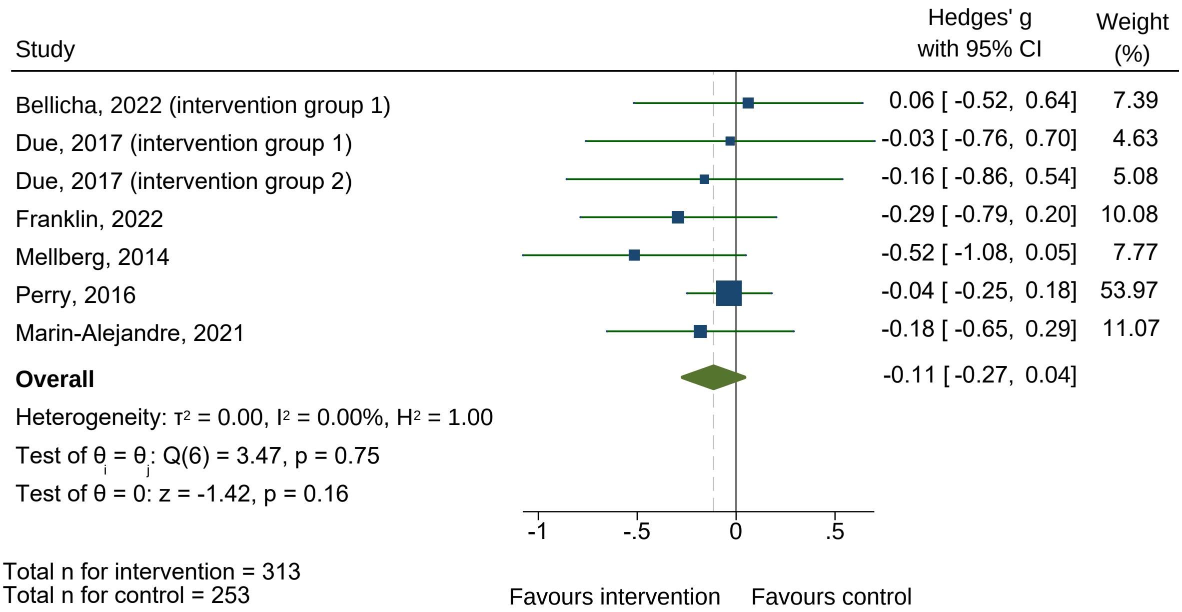
Young and middle-aged adults - Nutrition interventions with no specific daily energy intake goal versus any comparator (Baseline to 12 months)



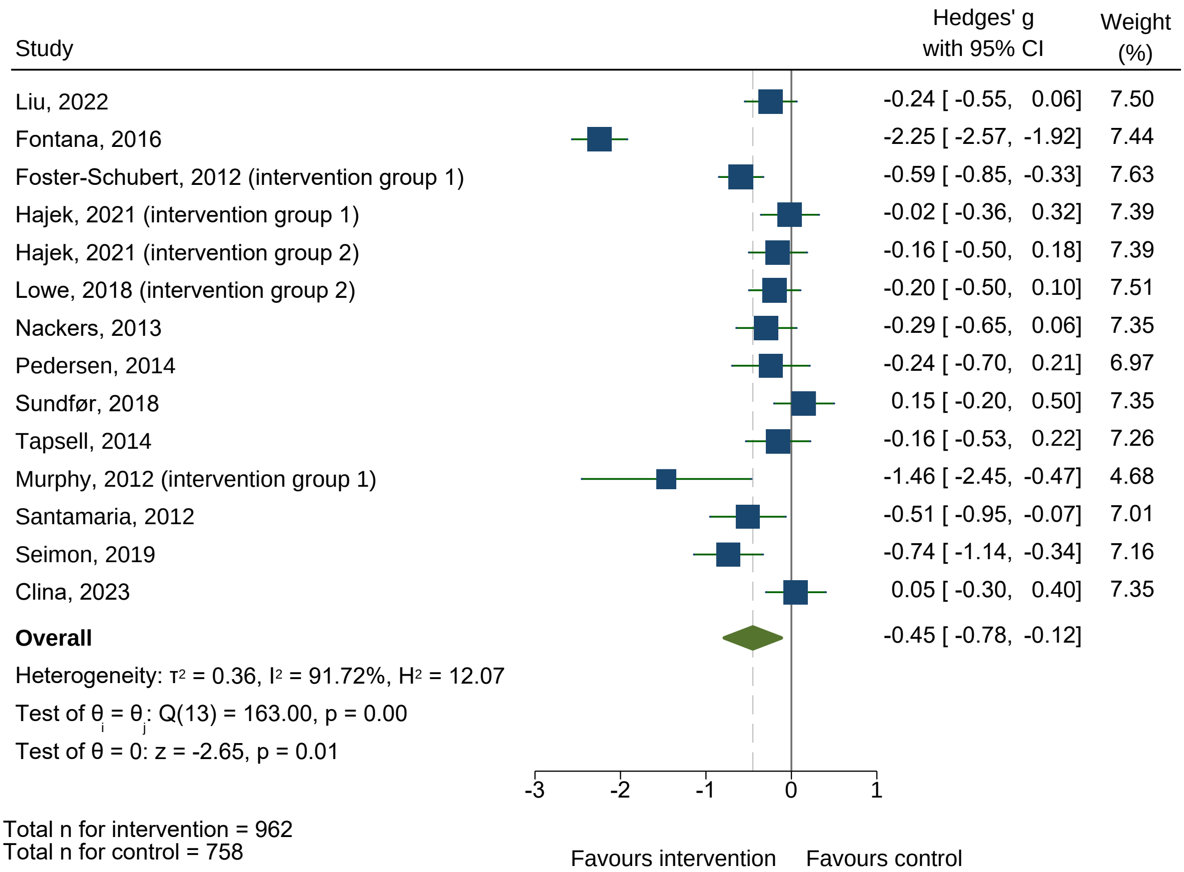
Young and middle-aged adults - Nutrition interventions with no specific daily energy intake goal versus untreated comparator (Baseline to final end-point)



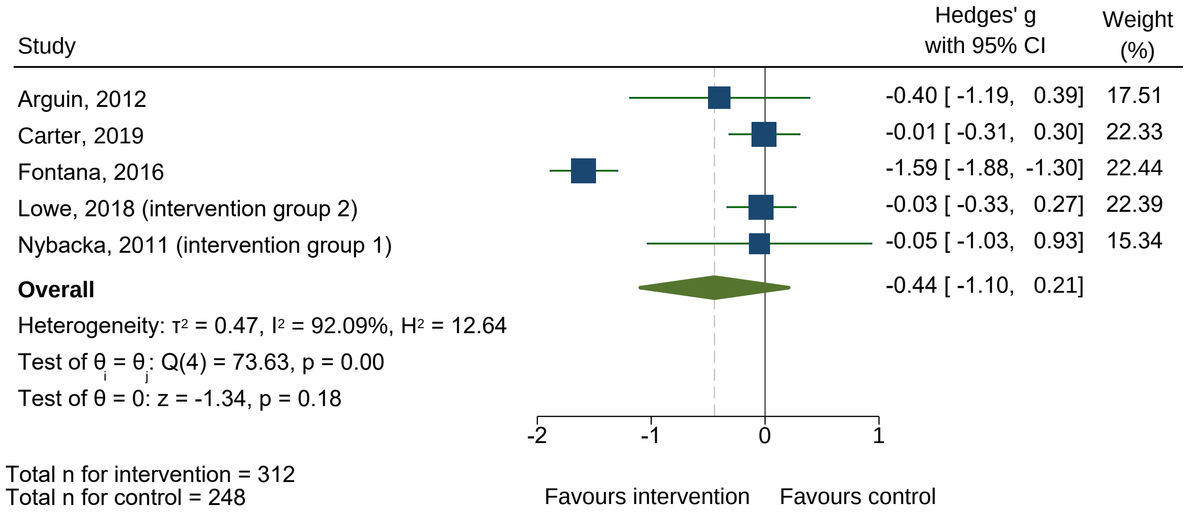
Young and middle-aged adults - Nutrition interventions with no specific daily energy intake goal versus any comparator (Baseline to final end-point)



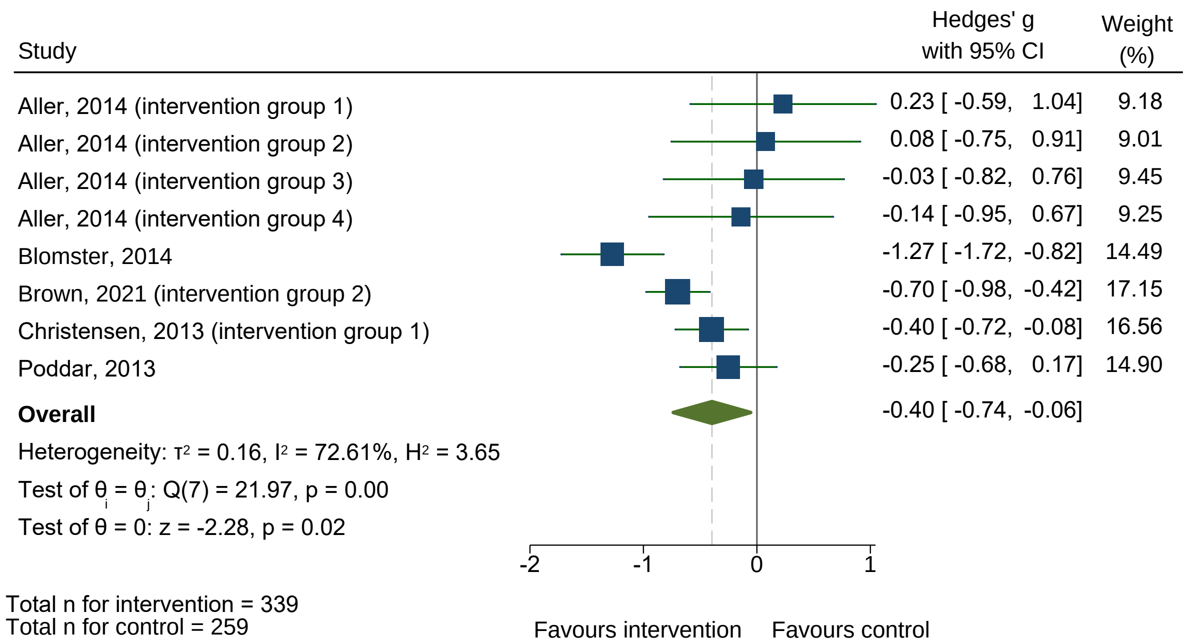
Young and middle-aged adults - Nutrition interventions with a daily energy intake goal versus any comparator (Baseline to 12 months)

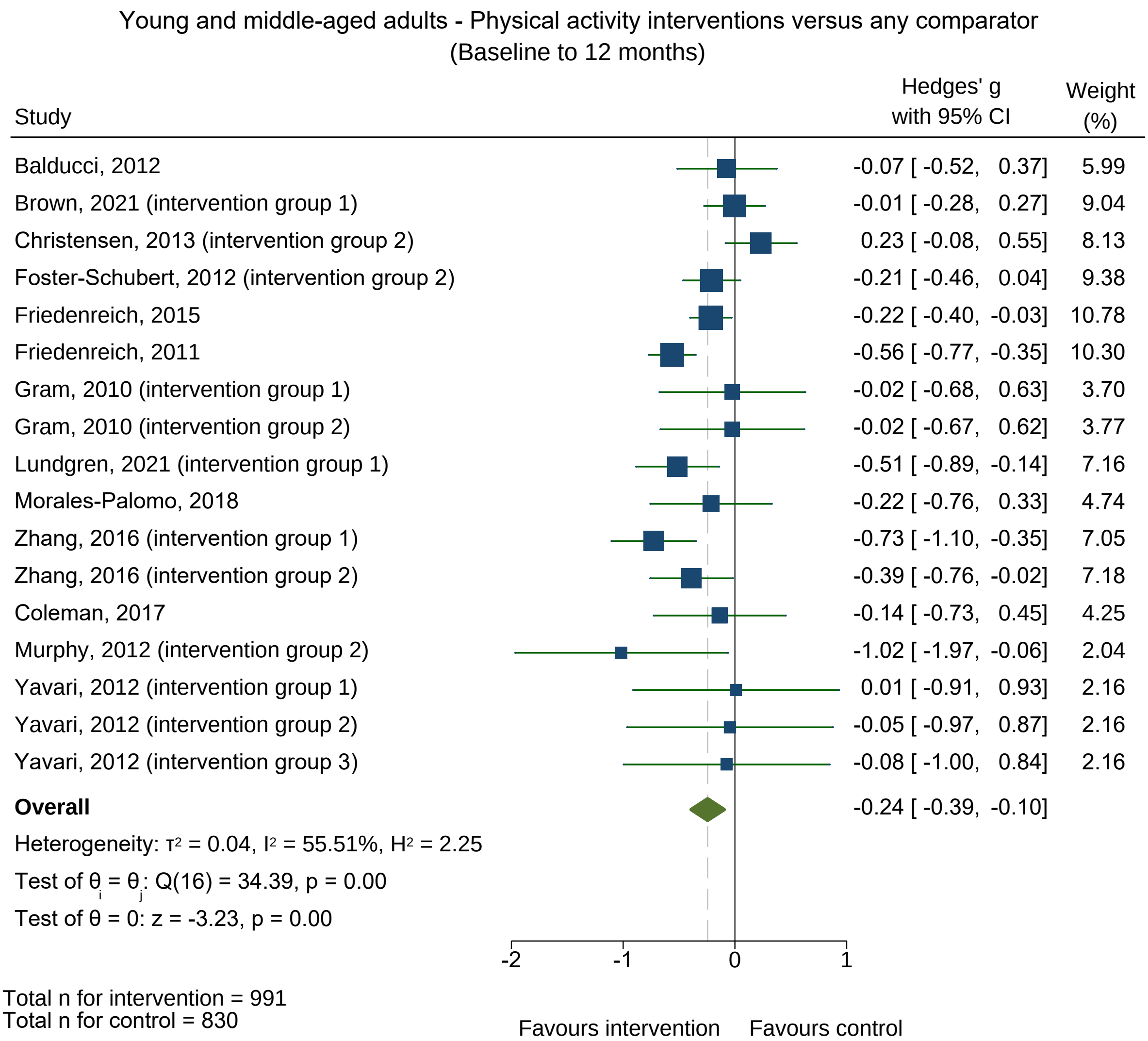


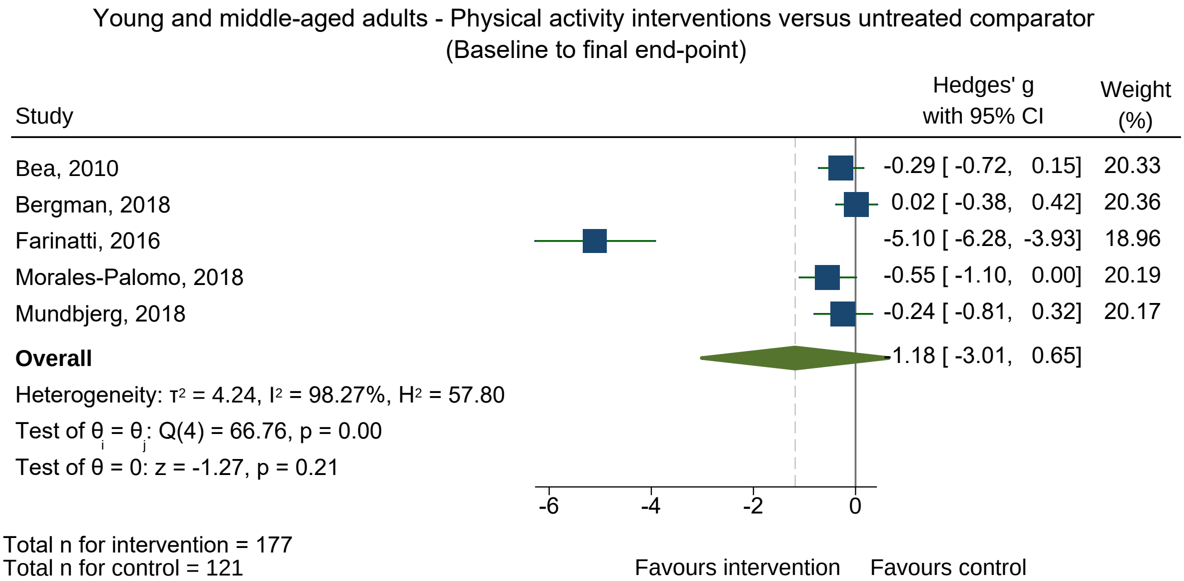
Young and middle-aged adults - Nutrition interventions with a daily energy intake goal versus any comparator (baseline to end-point)

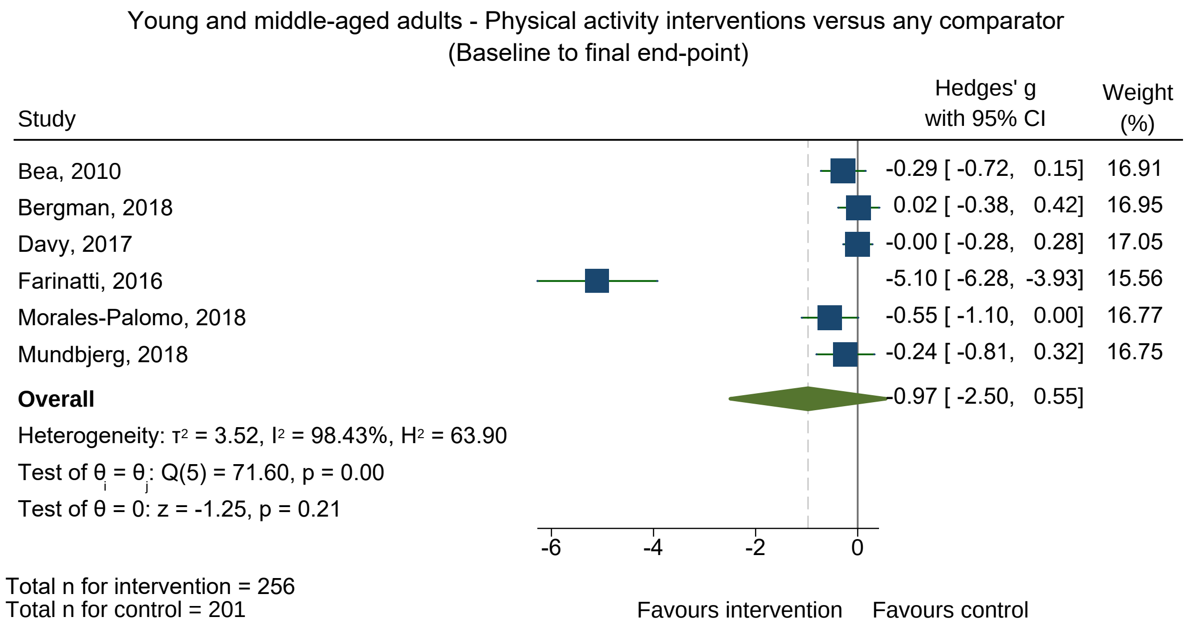


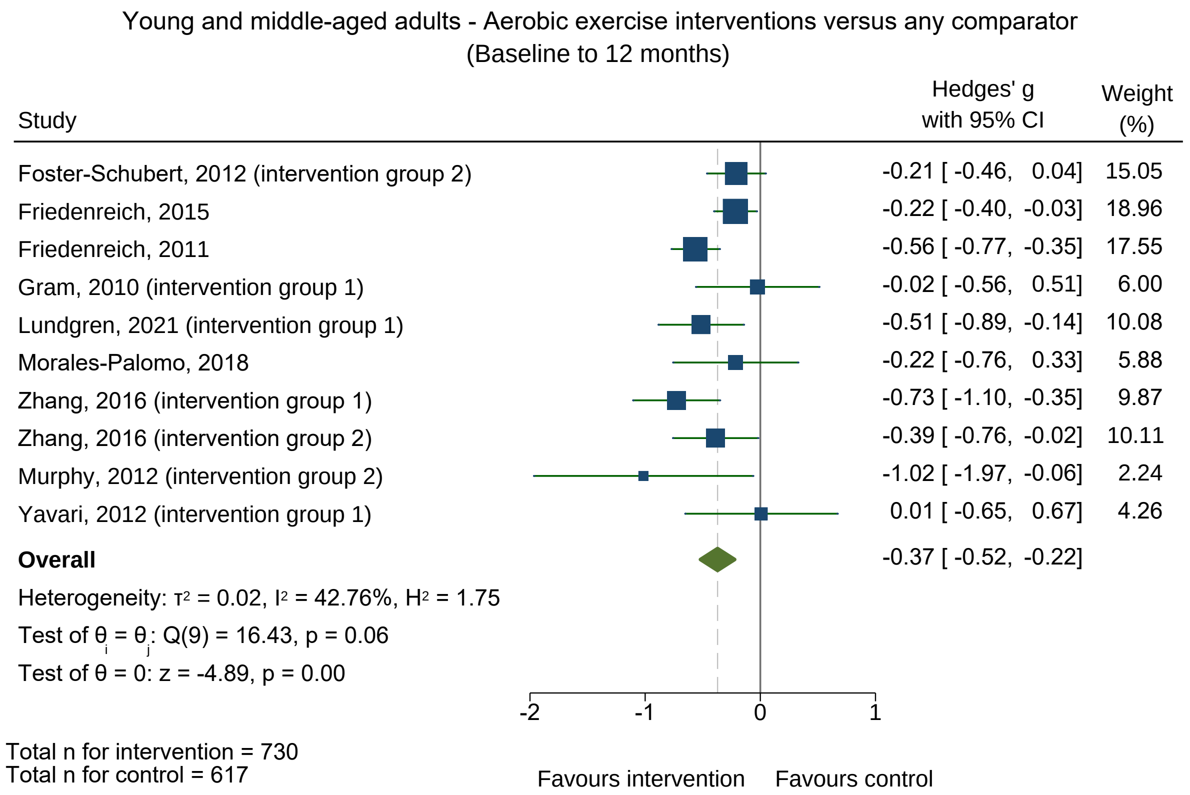
Young and middle-aged adults - Nutrition interventions with a daily energy intake goal followed by dietary approaches with no specific daily energy intake goal versus any comparator (Baseline to 12 months)



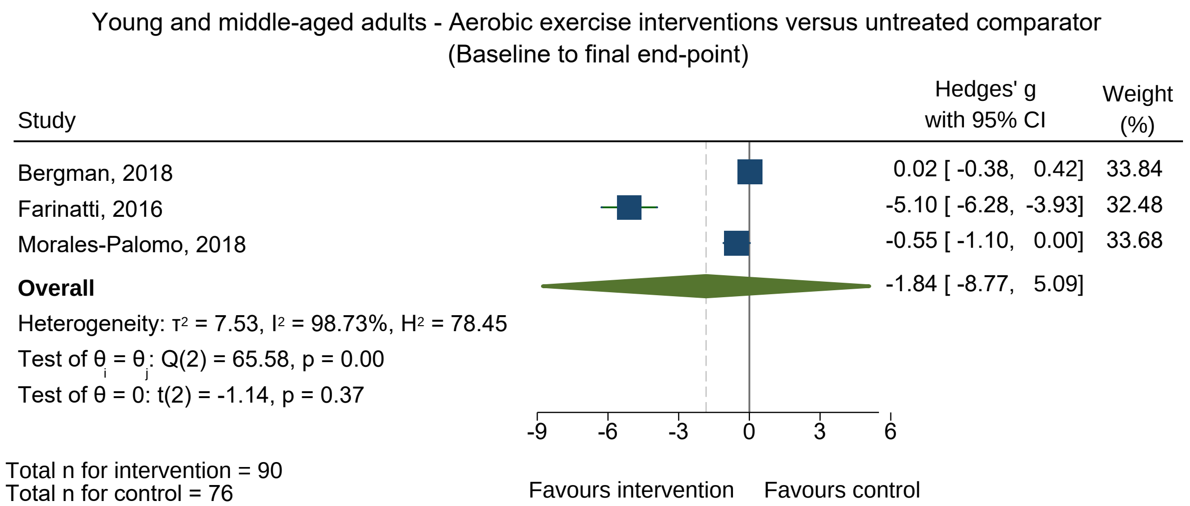

Young and middle-aged adults - Physical activity interventions versus any comparator
(Baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Balducci, 2012 -0.07 [-0.52, 0.37] 5.99
Brown, 2021 (intervention group 1) -0.01 [-0.28, 0.27] 9.04
Christensen, 2013 (intervention group 2) 0.23 [-0.08, 0.55] 8.13
Foster-Schubert, 2012 (intervention group 2) -0.21 [-0.46, 0.04] 9.38
Friedenreich, 2015 -0.22 [-0.40, -0.03] 10.78
Friedenreich, 2011 -0.56 [-0.77, -0.35] 10.30
Gram, 2010 (intervention group 1) -0.02 [-0.68, 0.63] 3.70
Gram, 2010 (intervention group 2) -0.02 [-0.67, 0.62] 3.77
Lundgren, 2021 (intervention group 1) -0.51 [-0.89, -0.14] 7.16
Morales-Palomo, 2018 -0.22 [-0.76, 0.33] 4.74
Zhang, 2016 (intervention group 1) -0.73 [-1.10, -0.35] 7.05
Zhang, 2016 (intervention group 2) -0.39 [-0.76, -0.02] 7.18
Coleman, 2017 -0.14 [-0.73, 0.45] 4.25
Murphy, 2012 (intervention group 2) -1.02 [-1.97, -0.06] 2.04
Yavari, 2012 (intervention group 1) 0.01 [-0.91, 0.93] 2.16
Yavari, 2012 (intervention group 2) -0.05 [-0.97, 0.87] 2.16
Yavari, 2012 (intervention group 3) -0.08 [-1.00, 0.84] 2.16
Overall -0.24 [-0.39, -0.10]
Heterogeneity: τ^2 = 0.04, I^2 = 55.51%, H^2 = 2.25
Test of $\theta_i = \theta_j$: Q(16) = 34.39, p = 0.00
Test of θ = 0: z = -3.23, p = 0.00
-2 -1 0 1
Total n for intervention = 991
Total n for control = 830
Favours intervention Favours control


Young and middle-aged adults - Physical activity interventions versus untreated comparator
(Baseline to final end-point)
Study
Hedges' g with 95% CI
Weight (%)
Bea, 2010 -0.29 [-0.72, 0.15] 20.33
Bergman, 2018 0.02 [-0.38, 0.42] 20.36
Farinatti, 2016 -5.10 [-6.28, -3.93] 18.96
Morales-Palomo, 2018 -0.55 [-1.10, 0.00] 20.19
Mundbjerg, 2018 -0.24 [-0.81, 0.32] 20.17
Overall -1.18 [-3.01, 0.65]
Heterogeneity: τ^2 = 4.24, I^2 = 98.27%, H^2 = 57.80
Test of $\theta_i = \theta_j$: Q(4) = 66.76, p = 0.00
Test of θ = 0: z = -1.27, p = 0.21
-6 -4 -2 0
Total n for intervention = 177
Total n for control = 121
Favours intervention Favours control


Young and middle-aged adults - Physical activity interventions versus any comparator
(Baseline to final end-point)
Study
Hedges' g with 95% CI
Weight (%)
Bea, 2010 -0.29 [-0.72, 0.15] 16.91
Bergman, 2018 0.02 [-0.38, 0.42] 16.95
Davy, 2017 -0.00 [-0.28, 0.28] 17.05
Farinatti, 2016 -5.10 [-6.28, -3.93] 15.56
Morales-Palomo, 2018 -0.55 [-1.10, 0.00] 16.77
Mundbjerg, 2018 -0.24 [-0.81, 0.32] 16.75
Overall -0.97 [-2.50, 0.55]
Heterogeneity: τ² = 3.52, I² = 98.43%, H² = 63.90
Test of θi = θj: Q(5) = 71.60, p = 0.00
Test of θ = 0: z = -1.25, p = 0.21
-6
-4
-2
0
Total n for intervention = 256
Total n for control = 201
Favours intervention
Favours control

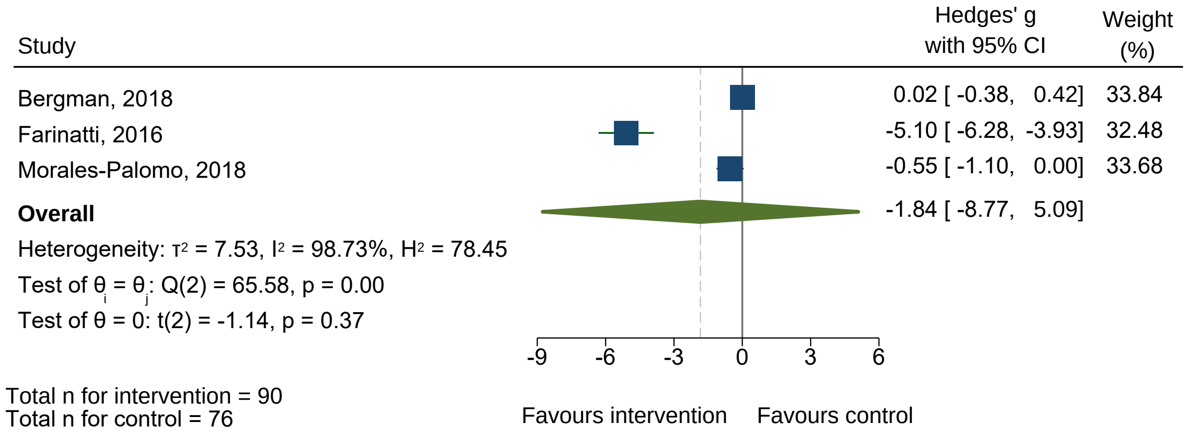


Young and middle-aged adults - Aerobic exercise interventions versus any comparator
(Baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Foster-Schubert, 2012 (intervention group 2) -0.21 [-0.46, 0.04] 15.05
Friedenreich, 2015 -0.22 [-0.40, -0.03] 18.96
Friedenreich, 2011 -0.56 [-0.77, -0.35] 17.55
Gram, 2010 (intervention group 1) -0.02 [-0.56, 0.51] 6.00
Lundgren, 2021 (intervention group 1) -0.51 [-0.89, -0.14] 10.08
Morales-Palomo, 2018 -0.22 [-0.76, 0.33] 5.88
Zhang, 2016 (intervention group 1) -0.73 [-1.10, -0.35] 9.87
Zhang, 2016 (intervention group 2) -0.39 [-0.76, -0.02] 10.11
Murphy, 2012 (intervention group 2) -1.02 [-1.97, -0.06] 2.24
Yavari, 2012 (intervention group 1) 0.01 [-0.65, 0.67] 4.26
Overall -0.37 [-0.52, -0.22]
Heterogeneity: τ^2 = 0.02, I^2 = 42.76%, H^2 = 1.75
Test of $\theta_i = \theta_j$: Q(9) = 16.43, p = 0.06
Test of θ = 0: z = -4.89, p = 0.00
-2 -1 0 1
Total n for intervention = 730
Total n for control = 617
Favours intervention Favours control

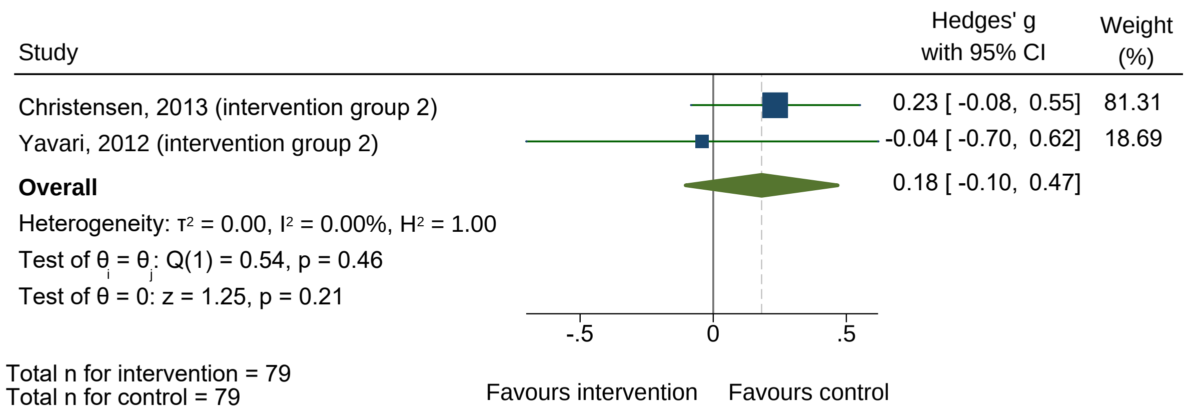


Young and middle-aged adults - Aerobic exercise interventions versus untreated comparator
(Baseline to final end-point)
Study
Hedges' g with 95% CI
Weight (%)
Bergman, 2018 0.02 [-0.38, 0.42] 33.84
Farinatti, 2016 -5.10 [-6.28, -3.93] 32.48
Morales-Palomo, 2018 -0.55 [-1.10, 0.00] 33.68
Overall -1.84 [-8.77, 5.09]
Heterogeneity: τ^2 = 7.53, I^2 = 98.73%, H^2 = 78.45
Test of $\theta_i = \theta_j$: Q(2) = 65.58, p = 0.00
Test of θ = 0: t(2) = -1.14, p = 0.37
-9 -6 -3 0 3 6
Total n for intervention = 90
Total n for control = 76
Favours intervention Favours control

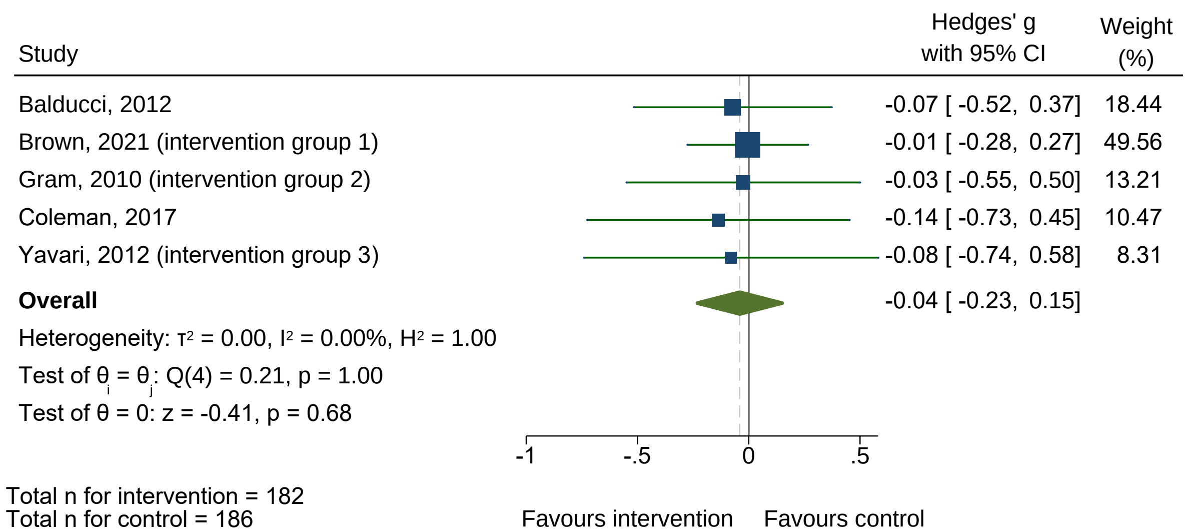
Young and middle-aged adults - Aerobic exercise interventions versus any comparator (Baseline to final end-point



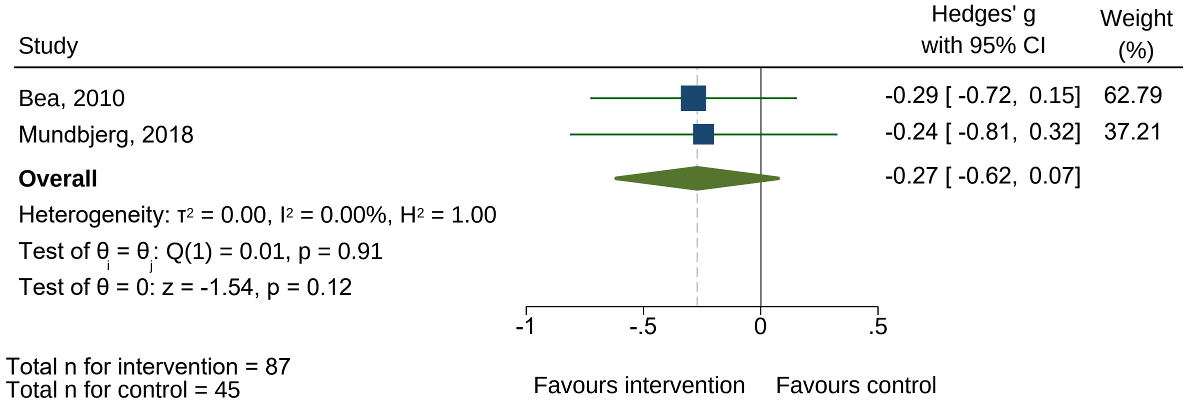
Young and middle-aged adults - Strengthening exercise interventions versus any comparator (baseline to 12 months)



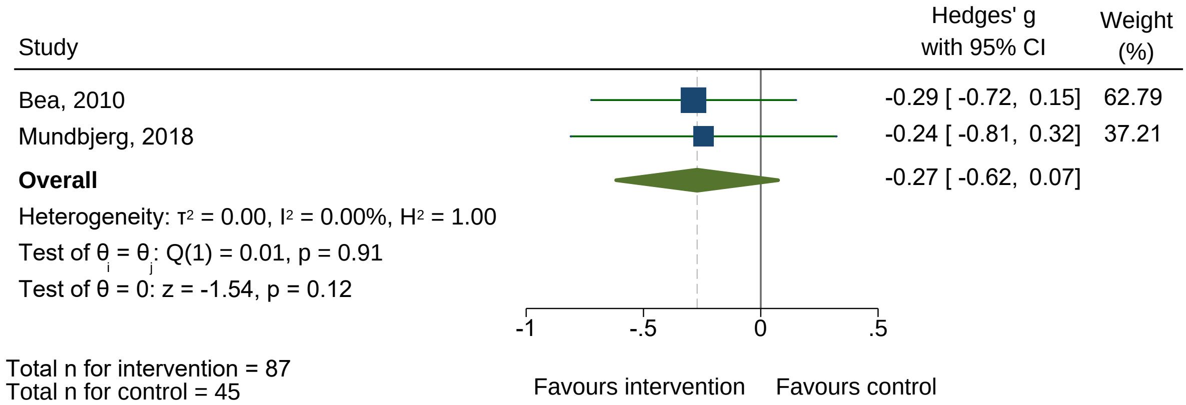
Young and middle-aged adults - Combined aerobic and strengthening physical activity interventions versus any comparator (baseline to 12 months)



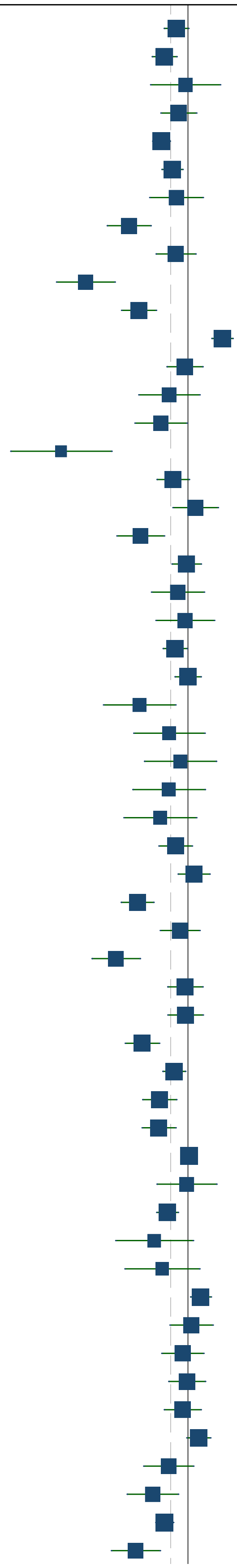
Young and middle-aged adults - Combined aerobic and strengthening physical activity interventions versus untreated comparator (baseline to end-point)



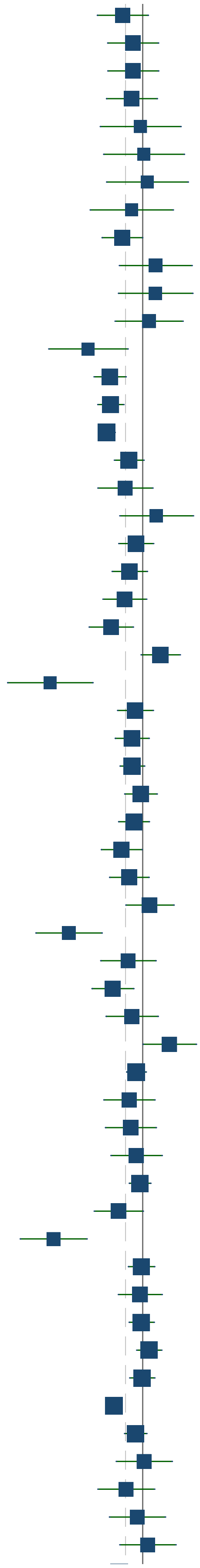
Young and middle-aged adults - Combined aerobic and strengthening physcial activity interventions versus any comparator (baseline to end-point)



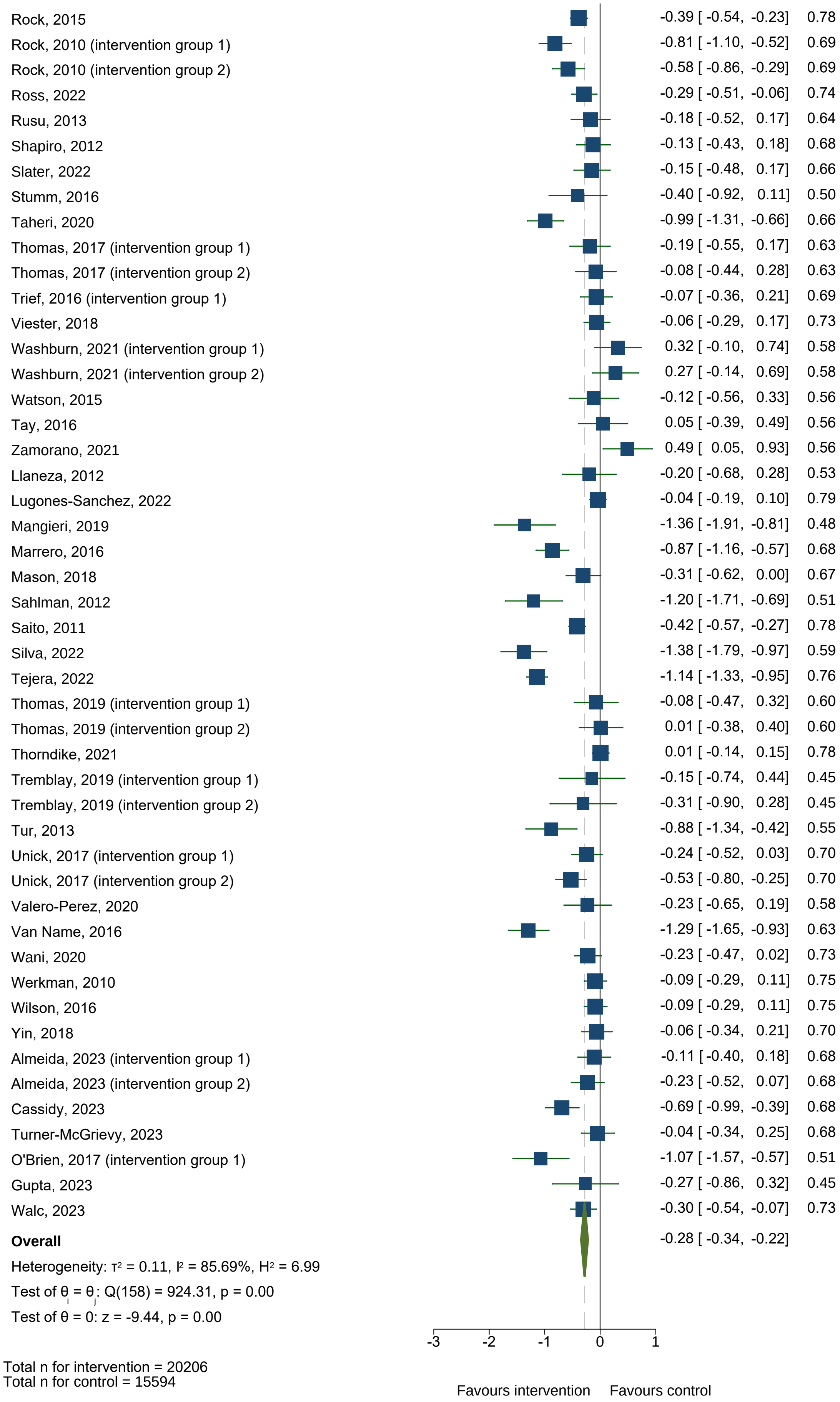
Young and middle-aged adults - Combined nutrition and physical activity (with or without sedentary behaviour) interventions versus any comparator (Baseline to 12 months)



Study	Hedges' g with 95% CI	Weight (%)
Ahern, 2017 (intervention group 1)	-0.19 [-0.39, 0.01]	0.75
Ahern, 2017 (intervention group 2)	-0.38 [-0.58, -0.18]	0.75
Akers, 2012	-0.04 [-0.61, 0.52]	0.47
Amer, 2020	-0.15 [-0.44, 0.14]	0.69
Andersen, 2021	-0.43 [-0.58, -0.29]	0.79
Anderson, 2021	-0.25 [-0.42, -0.09]	0.77
Artene, 2017	-0.19 [-0.62, 0.24]	0.57
Boutelle, 2022 (intervention group 2)	-0.96 [-1.31, -0.60]	0.63
Bowen, 2018	-0.20 [-0.52, 0.13]	0.66
Brown, 2020	-1.66 [-2.13, -1.19]	0.54
Brown, 2021 (intervention group 3)	-0.80 [-1.08, -0.52]	0.69
Burke, 2022	0.56 [0.39, 0.73]	0.77
Butryn, 2017 (intervention group 1)	-0.05 [-0.34, 0.24]	0.69
Cabrera-Rode, 2013	-0.30 [-0.80, 0.19]	0.52
Cadmus-Bertram, 2016	-0.44 [-0.86, -0.02]	0.58
Cheng, 2013	-2.06 [-2.88, -1.24]	0.32
Conroy, 2019	-0.24 [-0.50, 0.02]	0.71
Conroy, 2015	0.12 [-0.25, 0.49]	0.62
Cornelli, 2017	-0.77 [-1.16, -0.39]	0.61
Das, 2021	-0.02 [-0.26, 0.21]	0.73
Evans, 2012 (Women)	-0.17 [-0.59, 0.26]	0.57
Evans, 2012 (Men)	-0.05 [-0.52, 0.43]	0.54
de Vos, 2014	-0.21 [-0.40, -0.02]	0.76
Debussche, 2012	-0.00 [-0.21, 0.21]	0.75
Demark-Wahnefried, 2014 (Mothers) (intervention group 1)	-0.79 [-1.37, -0.20]	0.45
Demark-Wahnefried, 2014 (Daughters) (intervention group 1)	-0.30 [-0.88, 0.27]	0.46
Duncan, 2020 (intervention group 2)	-0.12 [-0.71, 0.46]	0.45
Dutheil, 2013 (intervention group 1)	-0.31 [-0.90, 0.28]	0.45
Dutheil, 2013 (intervention group 2)	-0.45 [-1.04, 0.14]	0.45
Eaton, 2016	-0.20 [-0.47, 0.07]	0.70
Fjeldsoe, 2019	0.10 [-0.16, 0.35]	0.71
Foster-Schubert, 2012 (intervention group 3)	-0.82 [-1.08, -0.56]	0.71
Gessler, 2021	-0.13 [-0.45, 0.19]	0.66
Gilcharan Singh, 2020 (intervention group 2)	-1.17 [-1.56, -0.78]	0.60
Glasgow, 2012 (intervention group 1)	-0.05 [-0.33, 0.24]	0.69
Glasgow, 2012 (intervention group 2)	-0.04 [-0.33, 0.24]	0.69
Goodwin, 2014	-0.74 [-1.02, -0.47]	0.70
Halle, 2021	-0.23 [-0.41, -0.04]	0.76
Harvie, 2019 (intervention group 1)	-0.46 [-0.74, -0.19]	0.70
Harvie, 2019 (intervention group 2)	-0.47 [-0.75, -0.20]	0.70
Hersey, 2012 (intervention group 1)	0.02 [-0.10, 0.13]	0.80
Hintze, 2018	-0.02 [-0.50, 0.46]	0.53
Hoerster, 2022	-0.33 [-0.51, -0.16]	0.77
Hunter, 2010 (intervention group 1)	-0.55 [-1.18, 0.08]	0.42
Hunter, 2010 (intervention group 2)	-0.42 [-1.02, 0.19]	0.44
Jakicic, 2016	0.21 [0.04, 0.37]	0.77
Jakicic, 2011 (intervention group 1)	0.05 [-0.29, 0.40]	0.64
Jakicic, 2011 (intervention group 2)	-0.09 [-0.43, 0.25]	0.65
Jakicic, 2022 (intervention group 1)	-0.02 [-0.31, 0.28]	0.68
Jakicic, 2022 (intervention group 2)	-0.09 [-0.39, 0.21]	0.68
Jakicic, 2012	0.17 [-0.02, 0.37]	0.76
Jansson, 2013	-0.32 [-0.72, 0.09]	0.59
Janus, 2012	-0.57 [-0.99, -0.16]	0.58
Jebb, 2011	-0.38 [-0.52, -0.24]	0.79
Johansen, 2017	-0.85 [-1.25, -0.45]	0.60

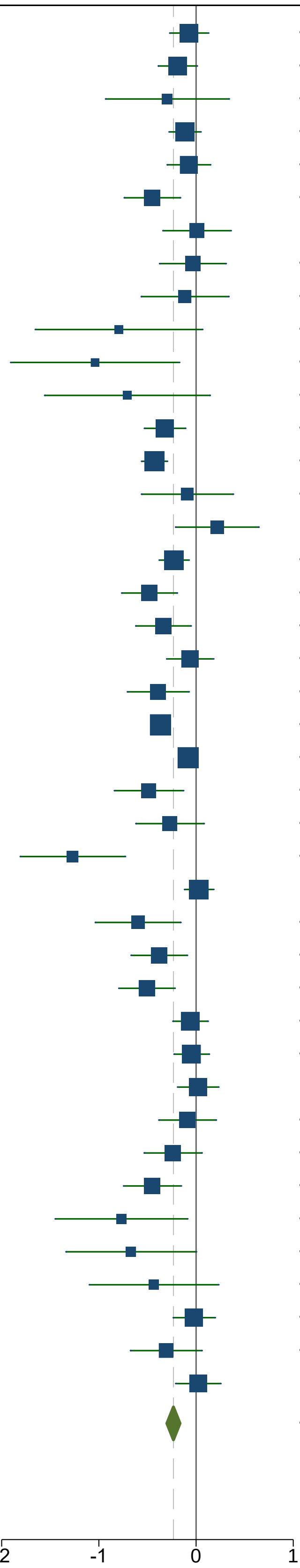


Jolly, 2011 (intervention group 1)	-0.33 [-0.74, 0.09]	0.58
Jolly, 2011 (intervention group 2)	-0.16 [-0.57, 0.25]	0.59
Jolly, 2011 (intervention group 3)	-0.16 [-0.57, 0.25]	0.59
Jolly, 2011 (intervention group 4)	-0.18 [-0.59, 0.23]	0.59
Jospe, 2017 (intervention group 1)	-0.04 [-0.70, 0.62]	0.40
Jospe, 2017 (intervention group 2)	0.02 [-0.64, 0.68]	0.40
Jospe, 2017 (intervention group 3)	0.07 [-0.59, 0.74]	0.40
Jospe, 2017 (intervention group 4)	-0.18 [-0.86, 0.49]	0.39
Juul, 2016	-0.34 [-0.67, -0.01]	0.65
Kabisch, 2019 (intervention group 1)	0.21 [-0.38, 0.80]	0.45
Kabisch, 2019 (intervention group 2)	0.21 [-0.40, 0.82]	0.44
Kabisch, 2019 (intervention group 3)	0.10 [-0.45, 0.65]	0.48
Kalarchian, 2012	-0.89 [-1.54, -0.24]	0.41
Kalter-Leibovici, 2010	-0.54 [-0.80, -0.28]	0.71
Katula, 2013	-0.52 [-0.74, -0.31]	0.75
Katzmarzyk, 2020	-0.59 [-0.72, -0.45]	0.79
Kegler, 2016	-0.22 [-0.46, 0.02]	0.73
Kempf, 2019 (intervention group 1)	-0.29 [-0.73, 0.16]	0.56
Kennedy, 2015	0.22 [-0.38, 0.82]	0.44
Knauper, 2018	-0.11 [-0.39, 0.17]	0.69
Kumanyika, 2012	-0.21 [-0.50, 0.07]	0.69
Leahey, 2015 (intervention group 1)	-0.30 [-0.65, 0.06]	0.63
Leahey, 2015 (intervention group 2)	-0.52 [-0.88, -0.16]	0.63
Levy, 2010	0.29 [-0.03, 0.61]	0.66
Lopez-Padros, 2020	-1.52 [-2.21, -0.82]	0.38
Lowe, 2018 (intervention group 1)	-0.12 [-0.41, 0.17]	0.69
Lutes, 2017a	-0.18 [-0.45, 0.10]	0.70
Ma, 2015	-0.17 [-0.37, 0.03]	0.75
Mason, 2014	-0.03 [-0.30, 0.23]	0.71
McRobbie, 2019	-0.15 [-0.40, 0.10]	0.72
Miguel Soca, 2012	-0.35 [-0.68, -0.01]	0.65
Molenaar, 2010	-0.22 [-0.54, 0.10]	0.66
Montemayor, 2022 (intervention group 2)	0.12 [-0.28, 0.51]	0.60
Moreno, 2014	-1.21 [-1.75, -0.67]	0.49
Morgan, 2011	-0.24 [-0.69, 0.21]	0.56
Nakade, 2012	-0.49 [-0.83, -0.15]	0.65
Ortner Hadziabdic, 2016	-0.18 [-0.60, 0.25]	0.58
Parker, 2022	0.44 [0.01, 0.87]	0.57
Paskett, 2018	-0.11 [-0.26, 0.05]	0.78
Patel, 2021 (intervention group 1)	-0.22 [-0.64, 0.19]	0.58
Patel, 2021 (intervention group 2)	-0.20 [-0.61, 0.22]	0.59
Patel, 2021 (intervention group 3)	-0.10 [-0.52, 0.31]	0.58
Patrick, 2011	-0.05 [-0.22, 0.13]	0.77
Pavic, 2019	-0.40 [-0.79, 0.00]	0.60
Pedersen, 2019	-1.46 [-2.00, -0.92]	0.48
Phillips, 2017	-0.02 [-0.24, 0.19]	0.75
Psota, 2020	-0.04 [-0.40, 0.31]	0.63
Raben, 2021 (intervention group 1)	-0.02 [-0.22, 0.18]	0.75
Raben, 2021 (intervention group 2)	0.10 [-0.10, 0.31]	0.75
Raben, 2021 (intervention group 3)	-0.01 [-0.21, 0.19]	0.75
Redmon, 2010	-0.47 [-0.53, -0.41]	0.82
Reid, 2014	-0.12 [-0.30, 0.06]	0.77
Risica, 2013 (intervention group 1)	0.02 [-0.43, 0.48]	0.55
Risica, 2013 (intervention group 2)	-0.27 [-0.74, 0.19]	0.55
Risica, 2013 (intervention group 3)	-0.09 [-0.54, 0.37]	0.55
Risica, 2013 (intervention group 4)	0.08 [-0.38, 0.54]	0.55


Rock, 2015 -0.39 [-0.54, -0.23] 0.78
Rock, 2010 (intervention group 1) -0.81 [-1.10, -0.52] 0.69
Rock, 2010 (intervention group 2) -0.58 [-0.86, -0.29] 0.69
Ross, 2022 -0.29 [-0.51, -0.06] 0.74
Rusu, 2013 -0.18 [-0.52, 0.17] 0.64
Shapiro, 2012 -0.13 [-0.43, 0.18] 0.68
Slater, 2022 -0.15 [-0.48, 0.17] 0.66
Stumm, 2016 -0.40 [-0.92, 0.11] 0.50
Taheri, 2020 -0.99 [-1.31, -0.66] 0.66
Thomas, 2017 (intervention group 1) -0.19 [-0.55, 0.17] 0.63
Thomas, 2017 (intervention group 2) -0.08 [-0.44, 0.28] 0.63
Trief, 2016 (intervention group 1) -0.07 [-0.36, 0.21] 0.69
Viester, 2018 -0.06 [-0.29, 0.17] 0.73
Washburn, 2021 (intervention group 1) 0.32 [-0.10, 0.74] 0.58
Washburn, 2021 (intervention group 2) 0.27 [-0.14, 0.69] 0.58
Watson, 2015 -0.12 [-0.56, 0.33] 0.56
Tay, 2016 0.05 [-0.39, 0.49] 0.56
Zamorano, 2021 0.49 [0.05, 0.93] 0.56
Llaneza, 2012 -0.20 [-0.68, 0.28] 0.53
Lugones-Sanchez, 2022 -0.04 [-0.19, 0.10] 0.79
Mangieri, 2019 -1.36 [-1.91, -0.81] 0.48
Marrero, 2016 -0.87 [-1.16, -0.57] 0.68
Mason, 2018 -0.31 [-0.62, 0.00] 0.67
Sahlman, 2012 -1.20 [-1.71, -0.69] 0.51
Saito, 2011 -0.42 [-0.57, -0.27] 0.78
Silva, 2022 -1.38 [-1.79, -0.97] 0.59
Tejera, 2022 -1.14 [-1.33, -0.95] 0.76
Thomas, 2019 (intervention group 1) -0.08 [-0.47, 0.32] 0.60
Thomas, 2019 (intervention group 2) 0.01 [-0.38, 0.40] 0.60
Thorndike, 2021 0.01 [-0.14, 0.15] 0.78
Tremblay, 2019 (intervention group 1) -0.15 [-0.74, 0.44] 0.45
Tremblay, 2019 (intervention group 2) -0.31 [-0.90, 0.28] 0.45
Tur, 2013 -0.88 [-1.34, -0.42] 0.55
Unick, 2017 (intervention group 1) -0.24 [-0.52, 0.03] 0.70
Unick, 2017 (intervention group 2) -0.53 [-0.80, -0.25] 0.70
Valero-Perez, 2020 -0.23 [-0.65, 0.19] 0.58
Van Name, 2016 -1.29 [-1.65, -0.93] 0.63
Wani, 2020 -0.23 [-0.47, 0.02] 0.73
Werkman, 2010 -0.09 [-0.29, 0.11] 0.75
Wilson, 2016 -0.09 [-0.29, 0.11] 0.75
Yin, 2018 -0.06 [-0.34, 0.21] 0.70
Almeida, 2023 (intervention group 1) -0.11 [-0.40, 0.18] 0.68
Almeida, 2023 (intervention group 2) -0.23 [-0.52, 0.07] 0.68
Cassidy, 2023 -0.69 [-0.99, -0.39] 0.68
Turner-McGrievy, 2023 -0.04 [-0.34, 0.25] 0.68
O'Brien, 2017 (intervention group 1) -1.07 [-1.57, -0.57] 0.51
Gupta, 2023 -0.27 [-0.86, 0.32] 0.45
Walc, 2023 -0.30 [-0.54, -0.07] 0.73
Overall -0.28 [-0.34, -0.22]
Heterogeneity: τ² = 0.11, I² = 85.69%, H² = 6.99
Test of θi = θj: Q(158) = 924.31, p = 0.00
Test of θ = 0: z = -9.44, p = 0.00
-3 -2 -1 0 1
Total n for intervention = 20206
Total n for control = 15594
Favours intervention Favours control

Young and middle-aged adults - Combined nutrition and physical activity (with or without sedentary behaviour) interventions versus untreated comparator (baseline to end-point)

Study	Hedges' g with 95% CI	Weight (%)
Ahern, 2017 (intervention group 1)	-0.07 [-0.27, 0.13]	3.27
Ahern, 2017 (intervention group 2)	-0.19 [-0.39, 0.01]	3.27
Bellicha, 2022 (intervention group 2)	-0.30 [-0.93, 0.34]	0.90
Coughlin, 2013 (intervention group 1)	-0.12 [-0.28, 0.05]	3.61
Driehuis, 2012	-0.08 [-0.30, 0.15]	3.05
Goodwin, 2014	-0.45 [-0.74, -0.16]	2.49
Jakicic, 2011 (intervention group 1)	0.01 [-0.34, 0.36]	2.05
Jakicic, 2011 (intervention group 2)	-0.03 [-0.38, 0.31]	2.10
Jansson, 2013	-0.12 [-0.56, 0.33]	1.50
Kaikkonen, 2019 (intervention group 1)	-0.80 [-1.65, 0.06]	0.54
Kaikkonen, 2019 (intervention group 2)	-1.04 [-1.91, -0.17]	0.53
Kaikkonen, 2019 (intervention group 3)	-0.71 [-1.56, 0.14]	0.55
Katula, 2013	-0.32 [-0.53, -0.11]	3.16
Katzmarzyk, 2020	-0.43 [-0.56, -0.30]	3.89
Kempf, 2019 (intervention group 1)	-0.09 [-0.56, 0.38]	1.41
Lisevick, 2021	0.22 [-0.21, 0.64]	1.61
Rock, 2015	-0.23 [-0.38, -0.08]	3.70
Rock, 2010 (intervention group 1)	-0.48 [-0.76, -0.20]	2.51
Rock, 2010 (intervention group 2)	-0.34 [-0.62, -0.05]	2.52
Ross, 2022	-0.06 [-0.30, 0.18]	2.88
Ruusunen, 2012	-0.39 [-0.71, -0.08]	2.27
Wadden, 2011a	-0.37 [-0.42, -0.31]	4.42
Wing, 2013	-0.08 [-0.13, -0.03]	4.44
Ma, 2013 (intervention group 1)	-0.49 [-0.84, -0.13]	2.02
Ma, 2013 (intervention group 2)	-0.27 [-0.62, 0.08]	2.05
Mangieri, 2019	-1.27 [-1.81, -0.73]	1.16
Thorndike, 2021	0.03 [-0.12, 0.18]	3.73
Tuomilehto, 2010	-0.60 [-1.04, -0.16]	1.55
Unick, 2017 (intervention group 1)	-0.38 [-0.67, -0.09]	2.49
Unick, 2017 (intervention group 2)	-0.51 [-0.79, -0.22]	2.49
van Wier, 2011 (intervention group 1)	-0.06 [-0.24, 0.12]	3.45
van Wier, 2011 (intervention group 2)	-0.05 [-0.23, 0.13]	3.44
Werkman, 2010	0.02 [-0.19, 0.23]	3.16
Almeida, 2023 (intervention group 1)	-0.09 [-0.38, 0.20]	2.44
Almeida, 2023 (intervention group 2)	-0.24 [-0.53, 0.06]	2.42
Cassidy, 2023	-0.45 [-0.75, -0.16]	2.43
Kaikkonen, 2023 (intervention group 1)	-0.77 [-1.45, -0.09]	0.81
Kaikkonen, 2023 (intervention group 2)	-0.67 [-1.34, -0.00]	0.83
Kaikkonen, 2023 (intervention group 3)	-0.43 [-1.10, 0.23]	0.84
Chair, 2024	-0.02 [-0.24, 0.19]	3.12
Chang, 2023	-0.31 [-0.68, 0.06]	1.94
Walc, 2023	0.02 [-0.21, 0.25]	2.97
Overall	-0.23 [-0.30, -0.17]	



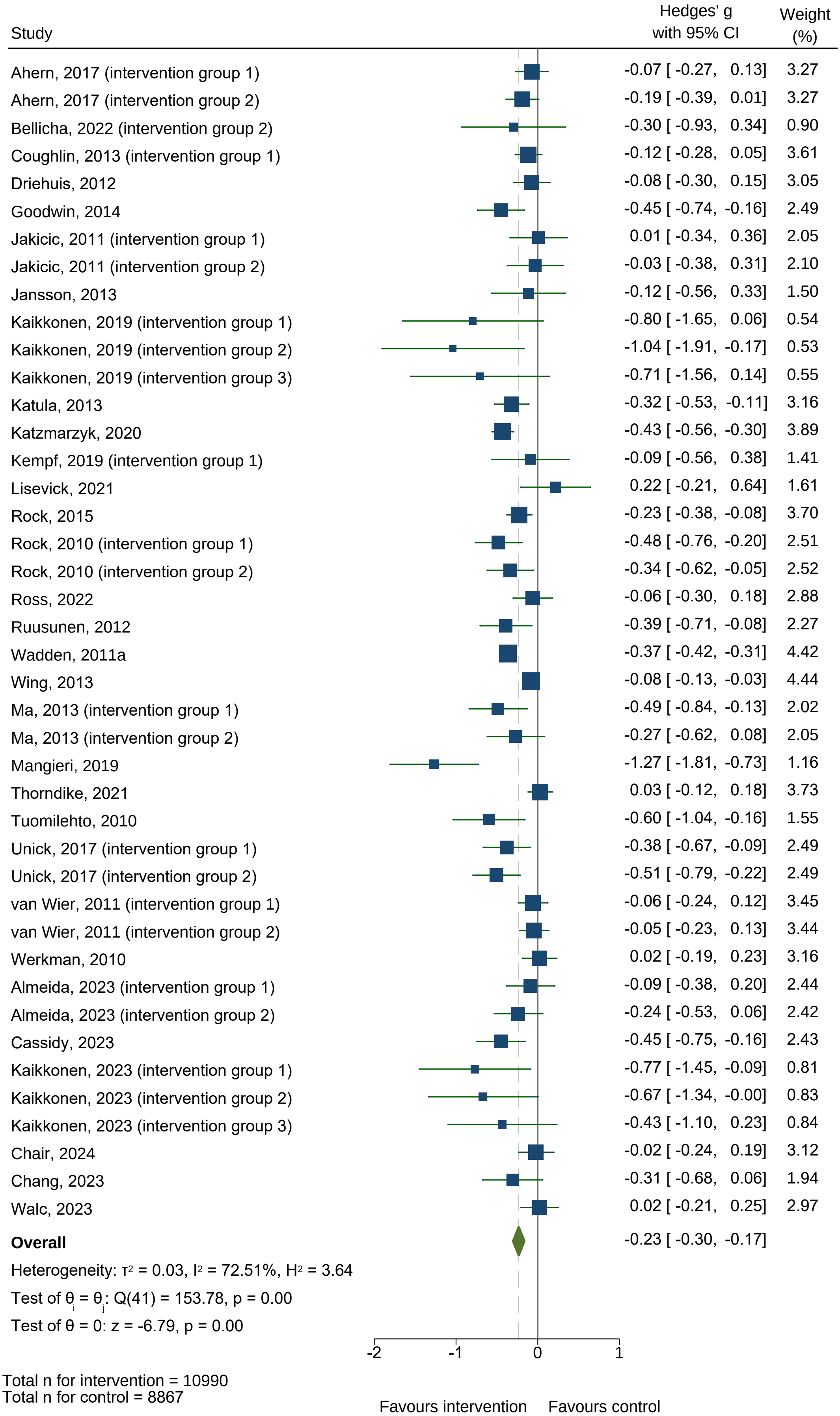
Heterogeneity: $\tau^2 = 0.03$, $I^2 = 72.51\%$, $H^2 = 3.64$

Test of $\theta_i = \theta_j$: $Q(41) = 153.78$, $p = 0.00$

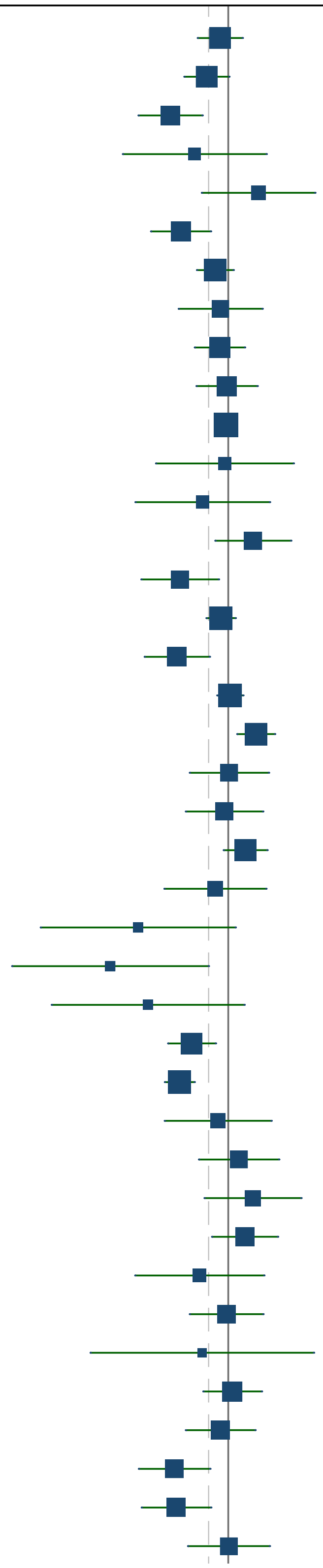
Test of $\theta = 0$: $z = -6.79$, $p = 0.00$

Total n for intervention = 10990
Total n for control = 8867

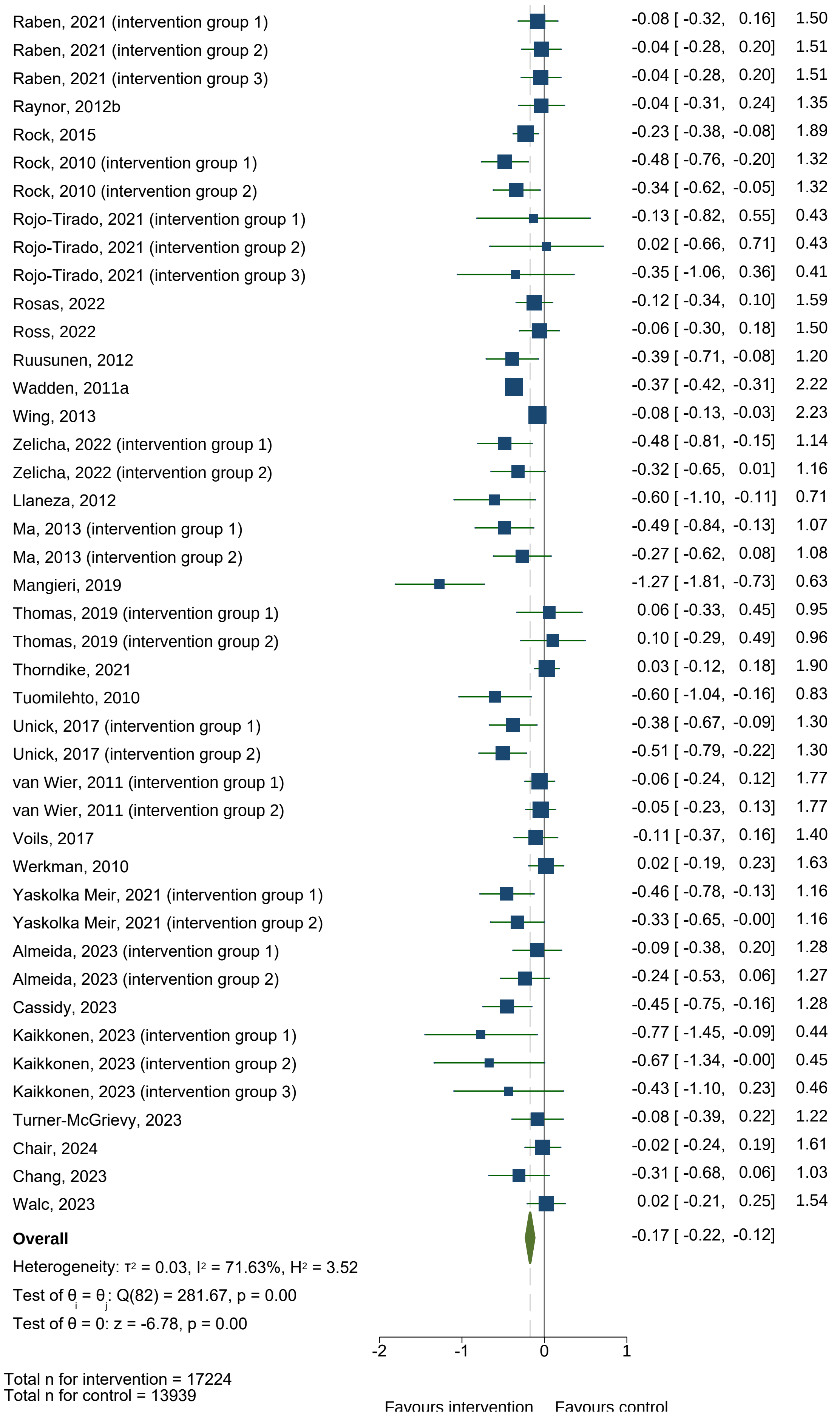
Young and middle-aged adults - Combined nutrition and physical activity (with or without sedentary behaviour) interventions versus untreated comparator (baseline to end-point)



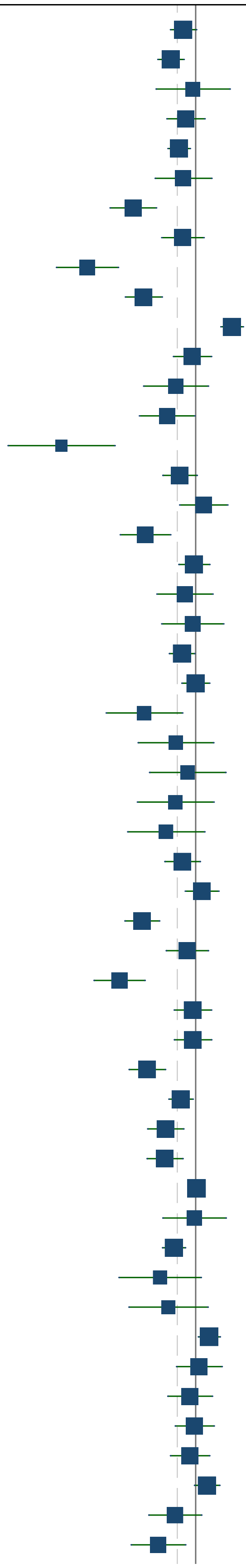
Young and middle-aged adults - Combined nutrition and physical activity (with or without sedentary behaviour
interventions versus any comparator (baseline to end-point)



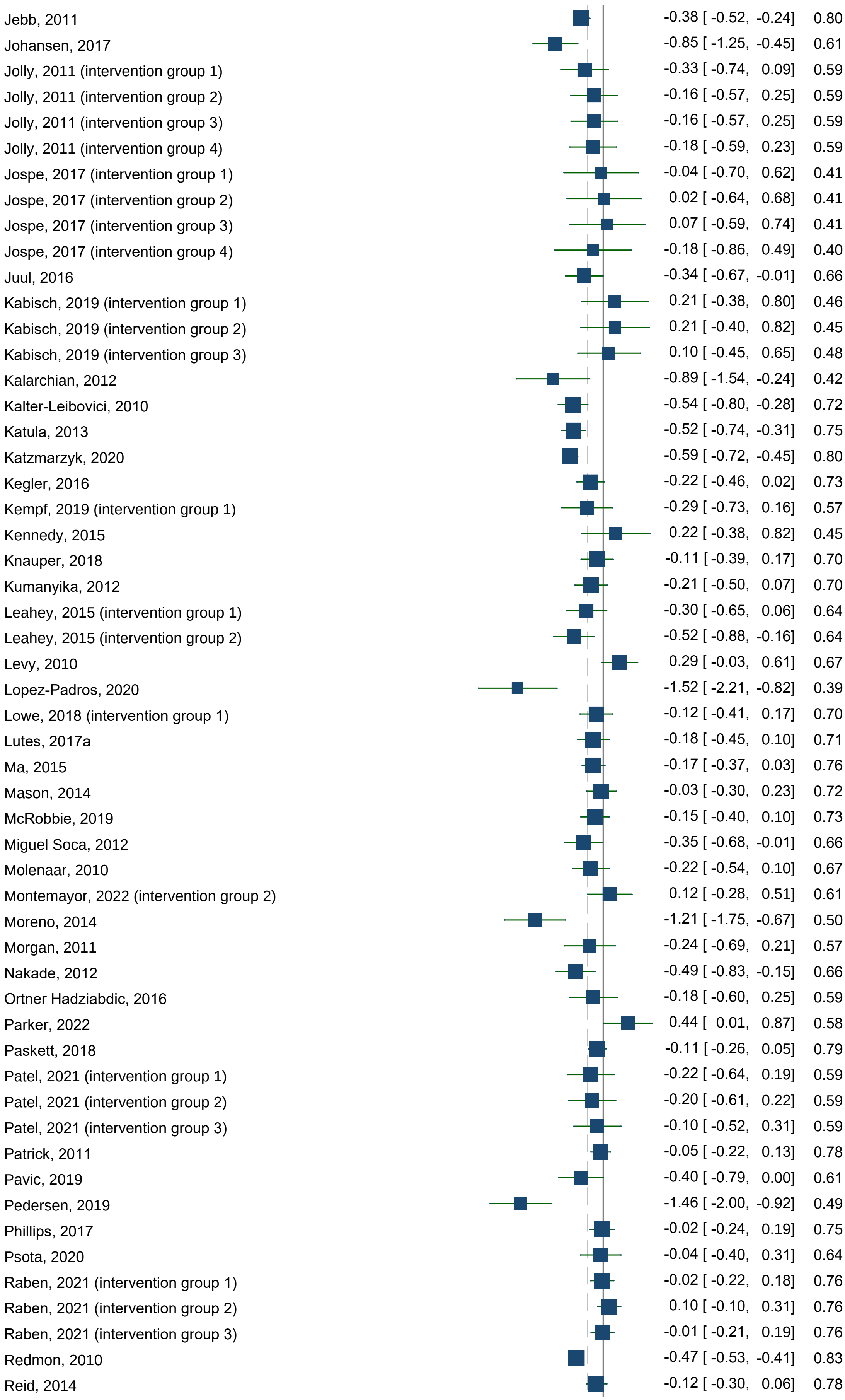
Study	Hedges' g with 95% CI	Weight (%)
Ahern, 2017 (intervention group 1)	-0.07 [-0.27, 0.13]	1.68
Ahern, 2017 (intervention group 2)	-0.19 [-0.39, 0.01]	1.68
Astbury, 2021	-0.51 [-0.79, -0.23]	1.33
Bellicha, 2022 (intervention group 2)	-0.30 [-0.93, 0.34]	0.49
Boutelle, 2022 (intervention group 2)	0.27 [-0.23, 0.76]	0.70
Conroy, 2019	-0.42 [-0.68, -0.15]	1.40
Coughlin, 2013 (intervention group 1)	-0.12 [-0.28, 0.05]	1.85
Cox, 2021	-0.07 [-0.44, 0.30]	1.02
Driehuis, 2012	-0.08 [-0.30, 0.15]	1.58
Eaton, 2016	-0.01 [-0.28, 0.26]	1.38
Fichtner, 2022	-0.02 [-0.09, 0.05]	2.19
Fisher, 2012 (intervention group 1)	-0.03 [-0.64, 0.58]	0.52
Fisher, 2012 (intervention group 2)	-0.23 [-0.82, 0.37]	0.55
Foster, 2012	0.22 [-0.12, 0.55]	1.13
Gepner, 2018 (intervention group 1)	-0.43 [-0.77, -0.08]	1.11
Gomez-Marcos, 2018	-0.06 [-0.19, 0.06]	1.99
Goodwin, 2014	-0.45 [-0.74, -0.16]	1.31
Hersey, 2012 (intervention group 1)	0.02 [-0.10, 0.13]	2.04
Jakicic, 2016	0.24 [0.08, 0.41]	1.83
Jakicic, 2011 (intervention group 1)	0.01 [-0.34, 0.36]	1.09
Jakicic, 2011 (intervention group 2)	-0.03 [-0.38, 0.31]	1.11
Jakicic, 2012	0.15 [-0.04, 0.34]	1.71
Jansson, 2013	-0.12 [-0.56, 0.33]	0.81
Kaikkonen, 2019 (intervention group 1)	-0.80 [-1.65, 0.06]	0.30
Kaikkonen, 2019 (intervention group 2)	-1.04 [-1.91, -0.17]	0.29
Kaikkonen, 2019 (intervention group 3)	-0.71 [-1.56, 0.14]	0.30
Katula, 2013	-0.32 [-0.53, -0.11]	1.63
Katzmarzyk, 2020	-0.43 [-0.56, -0.30]	1.98
Kempf, 2019 (intervention group 1)	-0.09 [-0.56, 0.38]	0.76
Knauper, 2020	0.09 [-0.26, 0.45]	1.07
Lisevick, 2021	0.22 [-0.21, 0.64]	0.86
Lowe, 2018 (intervention group 1)	0.15 [-0.14, 0.44]	1.29
Mensinger, 2016	-0.25 [-0.82, 0.32]	0.58
Nakata, 2014	-0.02 [-0.34, 0.31]	1.17
Nybacka, 2011 (intervention group 2)	-0.23 [-1.22, 0.75]	0.23
Pekkarinen, 2015	0.04 [-0.22, 0.29]	1.42
Perri, 2014 (intervention group 1)	-0.07 [-0.38, 0.24]	1.23
Perri, 2014 (intervention group 2)	-0.48 [-0.79, -0.16]	1.20
Perri, 2014 (intervention group 3)	-0.46 [-0.76, -0.15]	1.23
Purcell, 2014	0.00 [-0.36, 0.36]	1.05


Raben, 2021 (intervention group 1) -0.08 [-0.32, 0.16] 1.50
Raben, 2021 (intervention group 2) -0.04 [-0.28, 0.20] 1.51
Raben, 2021 (intervention group 3) -0.04 [-0.28, 0.20] 1.51
Raynor, 2012b -0.04 [-0.31, 0.24] 1.35
Rock, 2015 -0.23 [-0.38, -0.08] 1.89
Rock, 2010 (intervention group 1) -0.48 [-0.76, -0.20] 1.32
Rock, 2010 (intervention group 2) -0.34 [-0.62, -0.05] 1.32
Rojo-Tirado, 2021 (intervention group 1) -0.13 [-0.82, 0.55] 0.43
Rojo-Tirado, 2021 (intervention group 2) 0.02 [-0.66, 0.71] 0.43
Rojo-Tirado, 2021 (intervention group 3) -0.35 [-1.06, 0.36] 0.41
Rosas, 2022 -0.12 [-0.34, 0.10] 1.59
Ross, 2022 -0.06 [-0.30, 0.18] 1.50
Ruusunen, 2012 -0.39 [-0.71, -0.08] 1.20
Wadden, 2011a -0.37 [-0.42, -0.31] 2.22
Wing, 2013 -0.08 [-0.13, -0.03] 2.23
Zelicha, 2022 (intervention group 1) -0.48 [-0.81, -0.15] 1.14
Zelicha, 2022 (intervention group 2) -0.32 [-0.65, 0.01] 1.16
Llaneza, 2012 -0.60 [-1.10, -0.11] 0.71
Ma, 2013 (intervention group 1) -0.49 [-0.84, -0.13] 1.07
Ma, 2013 (intervention group 2) -0.27 [-0.62, 0.08] 1.08
Mangieri, 2019 -1.27 [-1.81, -0.73] 0.63
Thomas, 2019 (intervention group 1) 0.06 [-0.33, 0.45] 0.95
Thomas, 2019 (intervention group 2) 0.10 [-0.29, 0.49] 0.96
Thorndike, 2021 0.03 [-0.12, 0.18] 1.90
Tuomilehto, 2010 -0.60 [-1.04, -0.16] 0.83
Unick, 2017 (intervention group 1) -0.38 [-0.67, -0.09] 1.30
Unick, 2017 (intervention group 2) -0.51 [-0.79, -0.22] 1.30
van Wier, 2011 (intervention group 1) -0.06 [-0.24, 0.12] 1.77
van Wier, 2011 (intervention group 2) -0.05 [-0.23, 0.13] 1.77
Voils, 2017 -0.11 [-0.37, 0.16] 1.40
Werkman, 2010 0.02 [-0.19, 0.23] 1.63
Yaskolka Meir, 2021 (intervention group 1) -0.46 [-0.78, -0.13] 1.16
Yaskolka Meir, 2021 (intervention group 2) -0.33 [-0.65, -0.00] 1.16
Almeida, 2023 (intervention group 1) -0.09 [-0.38, 0.20] 1.28
Almeida, 2023 (intervention group 2) -0.24 [-0.53, 0.06] 1.27
Cassidy, 2023 -0.45 [-0.75, -0.16] 1.28
Kaikkonen, 2023 (intervention group 1) -0.77 [-1.45, -0.09] 0.44
Kaikkonen, 2023 (intervention group 2) -0.67 [-1.34, -0.00] 0.45
Kaikkonen, 2023 (intervention group 3) -0.43 [-1.10, 0.23] 0.46
Turner-McGrievy, 2023 -0.08 [-0.39, 0.22] 1.22
Chair, 2024 -0.02 [-0.24, 0.19] 1.61
Chang, 2023 -0.31 [-0.68, 0.06] 1.03
Walc, 2023 0.02 [-0.21, 0.25] 1.54
Overall -0.17 [-0.22, -0.12]
Heterogeneity: τ2 = 0.03, I2 = 71.63%, H2 = 3.52
Test of θi = θj: Q(82) = 281.67, p = 0.00
Test of θ = 0: z = -6.78, p = 0.00
-2 -1 0 1
Total n for intervention = 17224
Total n for control = 13939
Favours intervention Favours control

Young and middle-aged adults - Combined nutrition and physical activity interventions versus any comparator (Baseline to 12 months)



Study	Hedges' g with 95% CI	Weight (%)
Ahern, 2017 (intervention group 1)	-0.19 [-0.39, 0.01]	0.76
Ahern, 2017 (intervention group 2)	-0.38 [-0.58, -0.18]	0.76
Akers, 2012	-0.04 [-0.61, 0.52]	0.48
Amer, 2020	-0.15 [-0.44, 0.14]	0.70
Anderson, 2021	-0.25 [-0.42, -0.09]	0.78
Artene, 2017	-0.19 [-0.62, 0.24]	0.58
Boutelle, 2022 (intervention group 2)	-0.96 [-1.31, -0.60]	0.64
Bowen, 2018	-0.20 [-0.52, 0.13]	0.67
Brown, 2020	-1.66 [-2.13, -1.19]	0.55
Brown, 2021 (intervention group 3)	-0.80 [-1.08, -0.52]	0.70
Burke, 2022	0.56 [0.39, 0.73]	0.78
Butryn, 2017 (intervention group 1)	-0.05 [-0.34, 0.24]	0.70
Cabrera-Rode, 2013	-0.30 [-0.80, 0.19]	0.53
Cadmus-Bertram, 2016	-0.44 [-0.86, -0.02]	0.59
Cheng, 2013	-2.06 [-2.88, -1.24]	0.32
Conroy, 2019	-0.24 [-0.50, 0.02]	0.72
Conroy, 2015	0.12 [-0.25, 0.49]	0.63
Cornelli, 2017	-0.77 [-1.16, -0.39]	0.62
Das, 2021	-0.02 [-0.26, 0.21]	0.74
Evans, 2012 (Women)	-0.17 [-0.59, 0.26]	0.58
Evans, 2012 (Men)	-0.05 [-0.52, 0.43]	0.55
de Vos, 2014	-0.21 [-0.40, -0.02]	0.77
Debussche, 2012	-0.00 [-0.21, 0.21]	0.76
Demark-Wahnefried, 2014 (Mothers) (intervention group 1)	-0.79 [-1.37, -0.20]	0.46
Demark-Wahnefried, 2014 (Daughters) (intervention group 1)	-0.30 [-0.88, 0.27]	0.47
Duncan, 2020 (intervention group 2)	-0.12 [-0.71, 0.46]	0.46
Dutheil, 2013 (intervention group 1)	-0.31 [-0.90, 0.28]	0.46
Dutheil, 2013 (intervention group 2)	-0.45 [-1.04, 0.14]	0.46
Eaton, 2016	-0.20 [-0.47, 0.07]	0.71
Fjeldsoe, 2019	0.10 [-0.16, 0.35]	0.72
Foster-Schubert, 2012 (intervention group 3)	-0.82 [-1.08, -0.56]	0.72
Gessler, 2021	-0.13 [-0.45, 0.19]	0.67
Gilcharan Singh, 2020 (intervention group 2)	-1.17 [-1.56, -0.78]	0.61
Glasgow, 2012 (intervention group 1)	-0.05 [-0.33, 0.24]	0.70
Glasgow, 2012 (intervention group 2)	-0.04 [-0.33, 0.24]	0.70
Goodwin, 2014	-0.74 [-1.02, -0.47]	0.71
Halle, 2021	-0.23 [-0.41, -0.04]	0.77
Harvie, 2019 (intervention group 1)	-0.46 [-0.74, -0.19]	0.71
Harvie, 2019 (intervention group 2)	-0.47 [-0.75, -0.20]	0.71
Hersey, 2012 (intervention group 1)	0.02 [-0.10, 0.13]	0.81
Hintze, 2018	-0.02 [-0.50, 0.46]	0.54
Hoerster, 2022	-0.33 [-0.51, -0.16]	0.78
Hunter, 2010 (intervention group 1)	-0.55 [-1.18, 0.08]	0.43
Hunter, 2010 (intervention group 2)	-0.42 [-1.02, 0.19]	0.45
Jakicic, 2016	0.21 [0.04, 0.37]	0.78
Jakicic, 2011 (intervention group 1)	0.05 [-0.29, 0.40]	0.65
Jakicic, 2011 (intervention group 2)	-0.09 [-0.43, 0.25]	0.66
Jakicic, 2022 (intervention group 1)	-0.02 [-0.31, 0.28]	0.69
Jakicic, 2022 (intervention group 2)	-0.09 [-0.39, 0.21]	0.69
Jakicic, 2012	0.17 [-0.02, 0.37]	0.77
Jansson, 2013	-0.32 [-0.72, 0.09]	0.60
Janus, 2012	-0.57 [-0.99, -0.16]	0.59



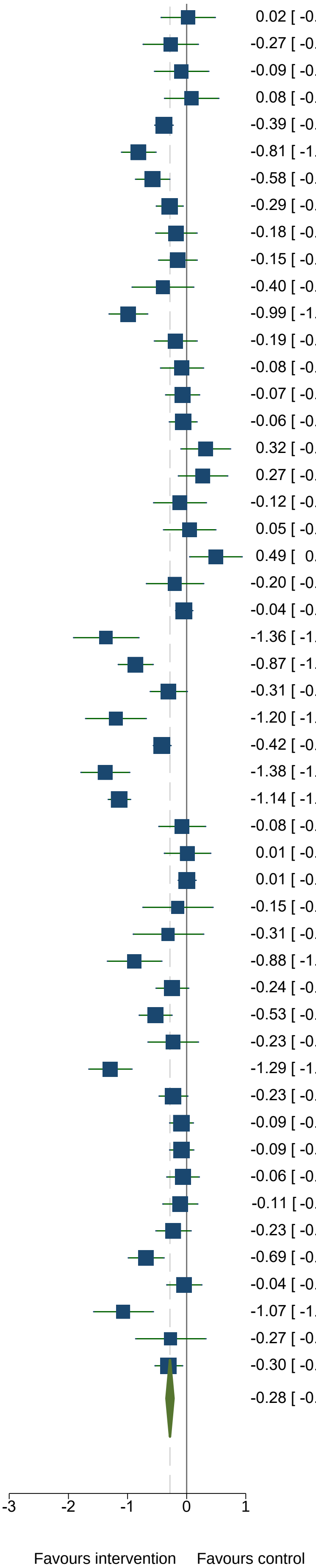
Jebb, 2011 -0.38 [-0.52, -0.24] 0.80
Johansen, 2017 -0.85 [-1.25, -0.45] 0.61
Jolly, 2011 (intervention group 1) -0.33 [-0.74, 0.09] 0.59
Jolly, 2011 (intervention group 2) -0.16 [-0.57, 0.25] 0.59
Jolly, 2011 (intervention group 3) -0.16 [-0.57, 0.25] 0.59
Jolly, 2011 (intervention group 4) -0.18 [-0.59, 0.23] 0.59
Jospe, 2017 (intervention group 1) -0.04 [-0.70, 0.62] 0.41
Jospe, 2017 (intervention group 2) 0.02 [-0.64, 0.68] 0.41
Jospe, 2017 (intervention group 3) 0.07 [-0.59, 0.74] 0.41
Jospe, 2017 (intervention group 4) -0.18 [-0.86, 0.49] 0.40
Juul, 2016 -0.34 [-0.67, -0.01] 0.66
Kabisch, 2019 (intervention group 1) 0.21 [-0.38, 0.80] 0.46
Kabisch, 2019 (intervention group 2) 0.21 [-0.40, 0.82] 0.45
Kabisch, 2019 (intervention group 3) 0.10 [-0.45, 0.65] 0.48
Kalarchian, 2012 -0.89 [-1.54, -0.24] 0.42
Kalter-Leibovici, 2010 -0.54 [-0.80, -0.28] 0.72
Katula, 2013 -0.52 [-0.74, -0.31] 0.75
Katzmarzyk, 2020 -0.59 [-0.72, -0.45] 0.80
Kegler, 2016 -0.22 [-0.46, 0.02] 0.73
Kempf, 2019 (intervention group 1) -0.29 [-0.73, 0.16] 0.57
Kennedy, 2015 0.22 [-0.38, 0.82] 0.45
Knauper, 2018 -0.11 [-0.39, 0.17] 0.70
Kumanyika, 2012 -0.21 [-0.50, 0.07] 0.70
Leahey, 2015 (intervention group 1) -0.30 [-0.65, 0.06] 0.64
Leahey, 2015 (intervention group 2) -0.52 [-0.88, -0.16] 0.64
Levy, 2010 0.29 [-0.03, 0.61] 0.67
Lopez-Padros, 2020 -1.52 [-2.21, -0.82] 0.39
Lowe, 2018 (intervention group 1) -0.12 [-0.41, 0.17] 0.70
Lutes, 2017a -0.18 [-0.45, 0.10] 0.71
Ma, 2015 -0.17 [-0.37, 0.03] 0.76
Mason, 2014 -0.03 [-0.30, 0.23] 0.72
McRobbie, 2019 -0.15 [-0.40, 0.10] 0.73
Miguel Soca, 2012 -0.35 [-0.68, -0.01] 0.66
Molenaar, 2010 -0.22 [-0.54, 0.10] 0.67
Montemayor, 2022 (intervention group 2) 0.12 [-0.28, 0.51] 0.61
Moreno, 2014 -1.21 [-1.75, -0.67] 0.50
Morgan, 2011 -0.24 [-0.69, 0.21] 0.57
Nakade, 2012 -0.49 [-0.83, -0.15] 0.66
Ortner Hadziabdic, 2016 -0.18 [-0.60, 0.25] 0.59
Parker, 2022 0.44 [0.01, 0.87] 0.58
Paskett, 2018 -0.11 [-0.26, 0.05] 0.79
Patel, 2021 (intervention group 1) -0.22 [-0.64, 0.19] 0.59
Patel, 2021 (intervention group 2) -0.20 [-0.61, 0.22] 0.59
Patel, 2021 (intervention group 3) -0.10 [-0.52, 0.31] 0.59
Patrick, 2011 -0.05 [-0.22, 0.13] 0.78
Pavic, 2019 -0.40 [-0.79, 0.00] 0.61
Pedersen, 2019 -1.46 [-2.00, -0.92] 0.49
Phillips, 2017 -0.02 [-0.24, 0.19] 0.75
Psota, 2020 -0.04 [-0.40, 0.31] 0.64
Raben, 2021 (intervention group 1) -0.02 [-0.22, 0.18] 0.76
Raben, 2021 (intervention group 2) 0.10 [-0.10, 0.31] 0.76
Raben, 2021 (intervention group 3) -0.01 [-0.21, 0.19] 0.76
Redmon, 2010 -0.47 [-0.53, -0.41] 0.83
Reid, 2014 -0.12 [-0.30, 0.06] 0.78

Study	Effect [95% CI]	Weight
Risica, 2013 (intervention group 1)	0.02 [-0.43, 0.48]	0.56
Risica, 2013 (intervention group 2)	-0.27 [-0.74, 0.19]	0.55
Risica, 2013 (intervention group 3)	-0.09 [-0.54, 0.37]	0.56
Risica, 2013 (intervention group 4)	0.08 [-0.38, 0.54]	0.56
Rock, 2015	-0.39 [-0.54, -0.23]	0.79
Rock, 2010 (intervention group 1)	-0.81 [-1.10, -0.52]	0.70
Rock, 2010 (intervention group 2)	-0.58 [-0.86, -0.29]	0.70
Ross, 2022	-0.29 [-0.51, -0.06]	0.75
Rusu, 2013	-0.18 [-0.52, 0.17]	0.65
Slater, 2022	-0.15 [-0.48, 0.17]	0.67
Stumm, 2016	-0.40 [-0.92, 0.11]	0.51
Taheri, 2020	-0.99 [-1.31, -0.66]	0.67
Thomas, 2017 (intervention group 1)	-0.19 [-0.55, 0.17]	0.64
Thomas, 2017 (intervention group 2)	-0.08 [-0.44, 0.28]	0.64
Trief, 2016 (intervention group 1)	-0.07 [-0.36, 0.21]	0.70
Viester, 2018	-0.06 [-0.29, 0.17]	0.74
Washburn, 2021 (intervention group 1)	0.32 [-0.10, 0.74]	0.59
Washburn, 2021 (intervention group 2)	0.27 [-0.14, 0.69]	0.59
Watson, 2015	-0.12 [-0.56, 0.33]	0.57
Tay, 2016	0.05 [-0.39, 0.49]	0.57
Zamorano, 2021	0.49 [0.05, 0.93]	0.57
Llaneza, 2012	-0.20 [-0.68, 0.28]	0.54
Lugones-Sanchez, 2022	-0.04 [-0.19, 0.10]	0.80
Mangieri, 2019	-1.36 [-1.91, -0.81]	0.49
Marrero, 2016	-0.87 [-1.16, -0.57]	0.69
Mason, 2018	-0.31 [-0.62, 0.00]	0.68
Sahlman, 2012	-1.20 [-1.71, -0.69]	0.52
Saito, 2011	-0.42 [-0.57, -0.27]	0.79
Silva, 2022	-1.38 [-1.79, -0.97]	0.60
Tejera, 2022	-1.14 [-1.33, -0.95]	0.77
Thomas, 2019 (intervention group 1)	-0.08 [-0.47, 0.32]	0.61
Thomas, 2019 (intervention group 2)	0.01 [-0.38, 0.40]	0.61
Thorndike, 2021	0.01 [-0.14, 0.15]	0.79
Tremblay, 2019 (intervention group 1)	-0.15 [-0.74, 0.44]	0.46
Tremblay, 2019 (intervention group 2)	-0.31 [-0.90, 0.28]	0.46
Tur, 2013	-0.88 [-1.34, -0.42]	0.56
Unick, 2017 (intervention group 1)	-0.24 [-0.52, 0.03]	0.71
Unick, 2017 (intervention group 2)	-0.53 [-0.80, -0.25]	0.71
Valero-Perez, 2020	-0.23 [-0.65, 0.19]	0.59
Van Name, 2016	-1.29 [-1.65, -0.93]	0.64
Wani, 2020	-0.23 [-0.47, 0.02]	0.73
Werkman, 2010	-0.09 [-0.29, 0.11]	0.76
Wilson, 2016	-0.09 [-0.29, 0.11]	0.76
Yin, 2018	-0.06 [-0.34, 0.21]	0.71
Almeida, 2023 (intervention group 1)	-0.11 [-0.40, 0.18]	0.69
Almeida, 2023 (intervention group 2)	-0.23 [-0.52, 0.07]	0.69
Cassidy, 2023	-0.69 [-0.99, -0.39]	0.69
Turner-McGrievy, 2023	-0.04 [-0.34, 0.25]	0.69
O'Brien, 2017 (intervention group 1)	-1.07 [-1.57, -0.57]	0.52
Gupta, 2023	-0.27 [-0.86, 0.32]	0.46
Walc, 2023	-0.30 [-0.54, -0.07]	0.74
Overall	-0.28 [-0.34, -0.22]	

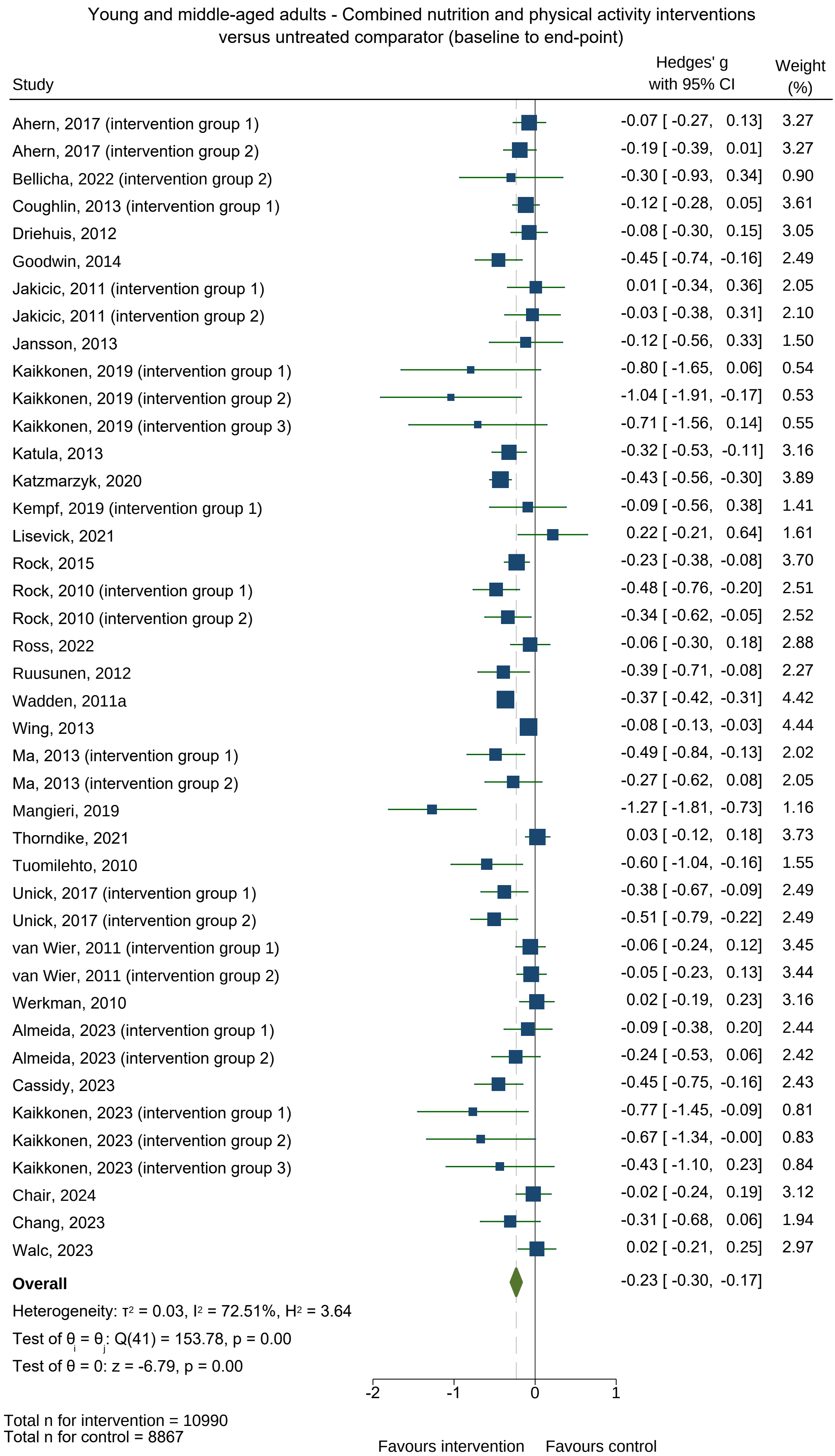
Heterogeneity: $\tau^2 = 0.11$, $I^2 = 85.72\%$, $H^2 = 7.00$

Test of $\theta_i = \theta_j$: $Q(156) = 917.95$, $p = 0.00$

Test of $\theta = 0$: $z = -9.30$, $p = 0.00$

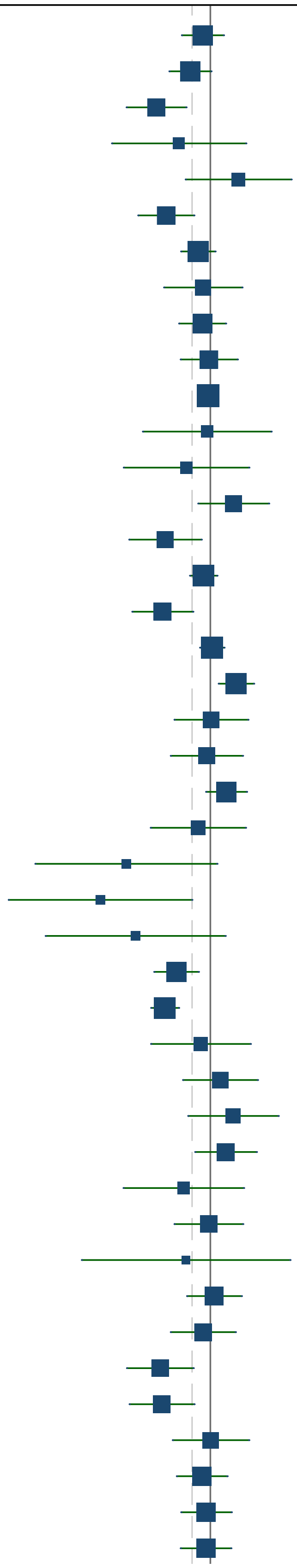


Total n for intervention = 19779
Total n for control = 15147



Young and middle-aged adults - Combined nutrition and physical activity interventions versus untreated comparator (baseline to end-point)
Study
Hedges' g with 95% CI
Weight (%)
Ahern, 2017 (intervention group 1) -0.07 [-0.27, 0.13] 3.27
Ahern, 2017 (intervention group 2) -0.19 [-0.39, 0.01] 3.27
Bellicha, 2022 (intervention group 2) -0.30 [-0.93, 0.34] 0.90
Coughlin, 2013 (intervention group 1) -0.12 [-0.28, 0.05] 3.61
Driehuis, 2012 -0.08 [-0.30, 0.15] 3.05
Goodwin, 2014 -0.45 [-0.74, -0.16] 2.49
Jakicic, 2011 (intervention group 1) 0.01 [-0.34, 0.36] 2.05
Jakicic, 2011 (intervention group 2) -0.03 [-0.38, 0.31] 2.10
Jansson, 2013 -0.12 [-0.56, 0.33] 1.50
Kaikkonen, 2019 (intervention group 1) -0.80 [-1.65, 0.06] 0.54
Kaikkonen, 2019 (intervention group 2) -1.04 [-1.91, -0.17] 0.53
Kaikkonen, 2019 (intervention group 3) -0.71 [-1.56, 0.14] 0.55
Katula, 2013 -0.32 [-0.53, -0.11] 3.16
Katzmarzyk, 2020 -0.43 [-0.56, -0.30] 3.89
Kempf, 2019 (intervention group 1) -0.09 [-0.56, 0.38] 1.41
Lisevick, 2021 0.22 [-0.21, 0.64] 1.61
Rock, 2015 -0.23 [-0.38, -0.08] 3.70
Rock, 2010 (intervention group 1) -0.48 [-0.76, -0.20] 2.51
Rock, 2010 (intervention group 2) -0.34 [-0.62, -0.05] 2.52
Ross, 2022 -0.06 [-0.30, 0.18] 2.88
Ruusunen, 2012 -0.39 [-0.71, -0.08] 2.27
Wadden, 2011a -0.37 [-0.42, -0.31] 4.42
Wing, 2013 -0.08 [-0.13, -0.03] 4.44
Ma, 2013 (intervention group 1) -0.49 [-0.84, -0.13] 2.02
Ma, 2013 (intervention group 2) -0.27 [-0.62, 0.08] 2.05
Mangieri, 2019 -1.27 [-1.81, -0.73] 1.16
Thorndike, 2021 0.03 [-0.12, 0.18] 3.73
Tuomilehto, 2010 -0.60 [-1.04, -0.16] 1.55
Unick, 2017 (intervention group 1) -0.38 [-0.67, -0.09] 2.49
Unick, 2017 (intervention group 2) -0.51 [-0.79, -0.22] 2.49
van Wier, 2011 (intervention group 1) -0.06 [-0.24, 0.12] 3.45
van Wier, 2011 (intervention group 2) -0.05 [-0.23, 0.13] 3.44
Werkman, 2010 0.02 [-0.19, 0.23] 3.16
Almeida, 2023 (intervention group 1) -0.09 [-0.38, 0.20] 2.44
Almeida, 2023 (intervention group 2) -0.24 [-0.53, 0.06] 2.42
Cassidy, 2023 -0.45 [-0.75, -0.16] 2.43
Kaikkonen, 2023 (intervention group 1) -0.77 [-1.45, -0.09] 0.81
Kaikkonen, 2023 (intervention group 2) -0.67 [-1.34, -0.00] 0.83
Kaikkonen, 2023 (intervention group 3) -0.43 [-1.10, 0.23] 0.84
Chair, 2024 -0.02 [-0.24, 0.19] 3.12
Chang, 2023 -0.31 [-0.68, 0.06] 1.94
Walc, 2023 0.02 [-0.21, 0.25] 2.97
Overall -0.23 [-0.30, -0.17]
Heterogeneity: τ^2 = 0.03, I^2 = 72.51%, H^2 = 3.64
Test of $\theta_i = \theta_j$: Q(41) = 153.78, p = 0.00
Test of θ = 0: z = -6.79, p = 0.00
-2
-1
0
1
Total n for intervention = 10990
Total n for control = 8867
Favours intervention
Favours control

Young and middle-aged adults - Combined nutrition and physical activity interventions versus any comparator (baseline to end-point)



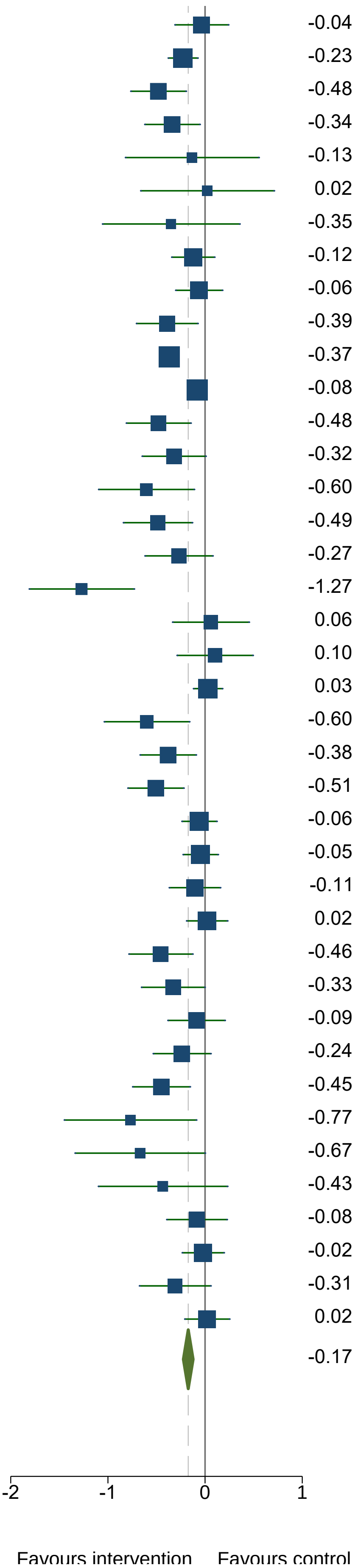
Study	Hedges' g with 95% CI	Weight (%)
Ahern, 2017 (intervention group 1)	-0.07 [-0.27, 0.13]	1.68
Ahern, 2017 (intervention group 2)	-0.19 [-0.39, 0.01]	1.68
Astbury, 2021	-0.51 [-0.79, -0.23]	1.33
Bellicha, 2022 (intervention group 2)	-0.30 [-0.93, 0.34]	0.49
Boutelle, 2022 (intervention group 2)	0.27 [-0.23, 0.76]	0.70
Conroy, 2019	-0.42 [-0.68, -0.15]	1.40
Coughlin, 2013 (intervention group 1)	-0.12 [-0.28, 0.05]	1.85
Cox, 2021	-0.07 [-0.44, 0.30]	1.02
Driehuis, 2012	-0.08 [-0.30, 0.15]	1.58
Eaton, 2016	-0.01 [-0.28, 0.26]	1.38
Fichtner, 2022	-0.02 [-0.09, 0.05]	2.19
Fisher, 2012 (intervention group 1)	-0.03 [-0.64, 0.58]	0.52
Fisher, 2012 (intervention group 2)	-0.23 [-0.82, 0.37]	0.55
Foster, 2012	0.22 [-0.12, 0.55]	1.13
Gepner, 2018 (intervention group 1)	-0.43 [-0.77, -0.08]	1.11
Gomez-Marcos, 2018	-0.06 [-0.19, 0.06]	1.99
Goodwin, 2014	-0.45 [-0.74, -0.16]	1.31
Hersey, 2012 (intervention group 1)	0.02 [-0.10, 0.13]	2.04
Jakicic, 2016	0.24 [0.08, 0.41]	1.83
Jakicic, 2011 (intervention group 1)	0.01 [-0.34, 0.36]	1.09
Jakicic, 2011 (intervention group 2)	-0.03 [-0.38, 0.31]	1.11
Jakicic, 2012	0.15 [-0.04, 0.34]	1.71
Jansson, 2013	-0.12 [-0.56, 0.33]	0.81
Kaikkonen, 2019 (intervention group 1)	-0.80 [-1.65, 0.06]	0.30
Kaikkonen, 2019 (intervention group 2)	-1.04 [-1.91, -0.17]	0.29
Kaikkonen, 2019 (intervention group 3)	-0.71 [-1.56, 0.14]	0.30
Katula, 2013	-0.32 [-0.53, -0.11]	1.63
Katzmarzyk, 2020	-0.43 [-0.56, -0.30]	1.98
Kempf, 2019 (intervention group 1)	-0.09 [-0.56, 0.38]	0.76
Knauper, 2020	0.09 [-0.26, 0.45]	1.07
Lisevick, 2021	0.22 [-0.21, 0.64]	0.86
Lowe, 2018 (intervention group 1)	0.15 [-0.14, 0.44]	1.29
Mensinger, 2016	-0.25 [-0.82, 0.32]	0.58
Nakata, 2014	-0.02 [-0.34, 0.31]	1.17
Nybacka, 2011 (intervention group 2)	-0.23 [-1.22, 0.75]	0.23
Pekkarinen, 2015	0.04 [-0.22, 0.29]	1.42
Perri, 2014 (intervention group 1)	-0.07 [-0.38, 0.24]	1.23
Perri, 2014 (intervention group 2)	-0.48 [-0.79, -0.16]	1.20
Perri, 2014 (intervention group 3)	-0.46 [-0.76, -0.15]	1.23
Purcell, 2014	0.00 [-0.36, 0.36]	1.05
Raben, 2021 (intervention group 1)	-0.08 [-0.32, 0.16]	1.50
Raben, 2021 (intervention group 2)	-0.04 [-0.28, 0.20]	1.51
Raben, 2021 (intervention group 3)	-0.04 [-0.28, 0.20]	1.51

Raynor, 2012b	-0.04 [-0.31, 0.24]	1.35
Rock, 2015	-0.23 [-0.38, -0.08]	1.89
Rock, 2010 (intervention group 1)	-0.48 [-0.76, -0.20]	1.32
Rock, 2010 (intervention group 2)	-0.34 [-0.62, -0.05]	1.32
Rojo-Tirado, 2021 (intervention group 1)	-0.13 [-0.82, 0.55]	0.43
Rojo-Tirado, 2021 (intervention group 2)	0.02 [-0.66, 0.71]	0.43
Rojo-Tirado, 2021 (intervention group 3)	-0.35 [-1.06, 0.36]	0.41
Rosas, 2022	-0.12 [-0.34, 0.10]	1.59
Ross, 2022	-0.06 [-0.30, 0.18]	1.50
Ruusunen, 2012	-0.39 [-0.71, -0.08]	1.20
Wadden, 2011a	-0.37 [-0.42, -0.31]	2.22
Wing, 2013	-0.08 [-0.13, -0.03]	2.23
Zelicha, 2022 (intervention group 1)	-0.48 [-0.81, -0.15]	1.14
Zelicha, 2022 (intervention group 2)	-0.32 [-0.65, 0.01]	1.16
Llaneza, 2012	-0.60 [-1.10, -0.11]	0.71
Ma, 2013 (intervention group 1)	-0.49 [-0.84, -0.13]	1.07
Ma, 2013 (intervention group 2)	-0.27 [-0.62, 0.08]	1.08
Mangieri, 2019	-1.27 [-1.81, -0.73]	0.63
Thomas, 2019 (intervention group 1)	0.06 [-0.33, 0.45]	0.95
Thomas, 2019 (intervention group 2)	0.10 [-0.29, 0.49]	0.96
Thorndike, 2021	0.03 [-0.12, 0.18]	1.90
Tuomilehto, 2010	-0.60 [-1.04, -0.16]	0.83
Unick, 2017 (intervention group 1)	-0.38 [-0.67, -0.09]	1.30
Unick, 2017 (intervention group 2)	-0.51 [-0.79, -0.22]	1.30
van Wier, 2011 (intervention group 1)	-0.06 [-0.24, 0.12]	1.77
van Wier, 2011 (intervention group 2)	-0.05 [-0.23, 0.13]	1.77
Voils, 2017	-0.11 [-0.37, 0.16]	1.40
Werkman, 2010	0.02 [-0.19, 0.23]	1.63
Yaskolka Meir, 2021 (intervention group 1)	-0.46 [-0.78, -0.13]	1.16
Yaskolka Meir, 2021 (intervention group 2)	-0.33 [-0.65, -0.00]	1.16
Almeida, 2023 (intervention group 1)	-0.09 [-0.38, 0.20]	1.28
Almeida, 2023 (intervention group 2)	-0.24 [-0.53, 0.06]	1.27
Cassidy, 2023	-0.45 [-0.75, -0.16]	1.28
Kaikkonen, 2023 (intervention group 1)	-0.77 [-1.45, -0.09]	0.44
Kaikkonen, 2023 (intervention group 2)	-0.67 [-1.34, -0.00]	0.45
Kaikkonen, 2023 (intervention group 3)	-0.43 [-1.10, 0.23]	0.46
Turner-McGrievy, 2023	-0.08 [-0.39, 0.22]	1.22
Chair, 2024	-0.02 [-0.24, 0.19]	1.61
Chang, 2023	-0.31 [-0.68, 0.06]	1.03
Walc, 2023	0.02 [-0.21, 0.25]	1.54
Overall	-0.17 [-0.22, -0.12]	

Heterogeneity: $\tau^2 = 0.03$, $I^2 = 71.63\%$, $H^2 = 3.52$

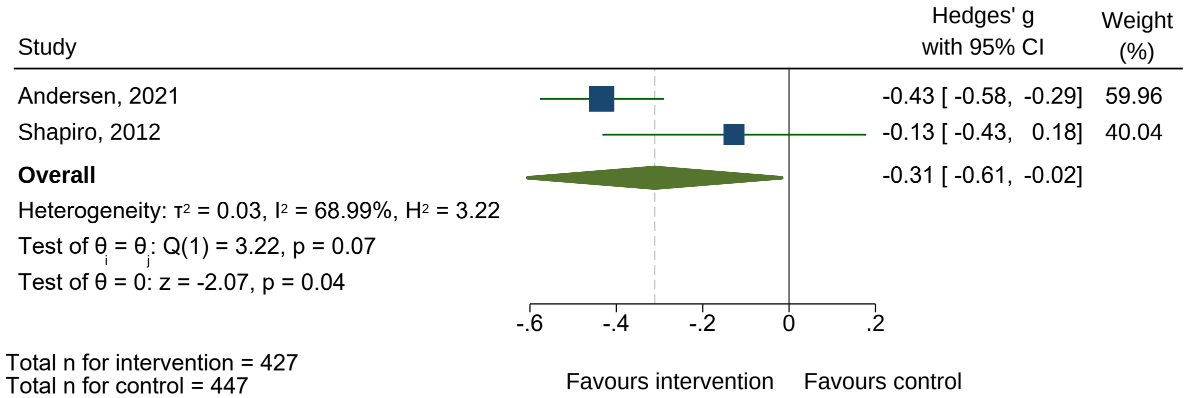
Test of $\theta_i = \theta_j$: $Q(82) = 281.67$, $p = 0.00$

Test of $\theta = 0$: $z = -6.78$, $p = 0.00$

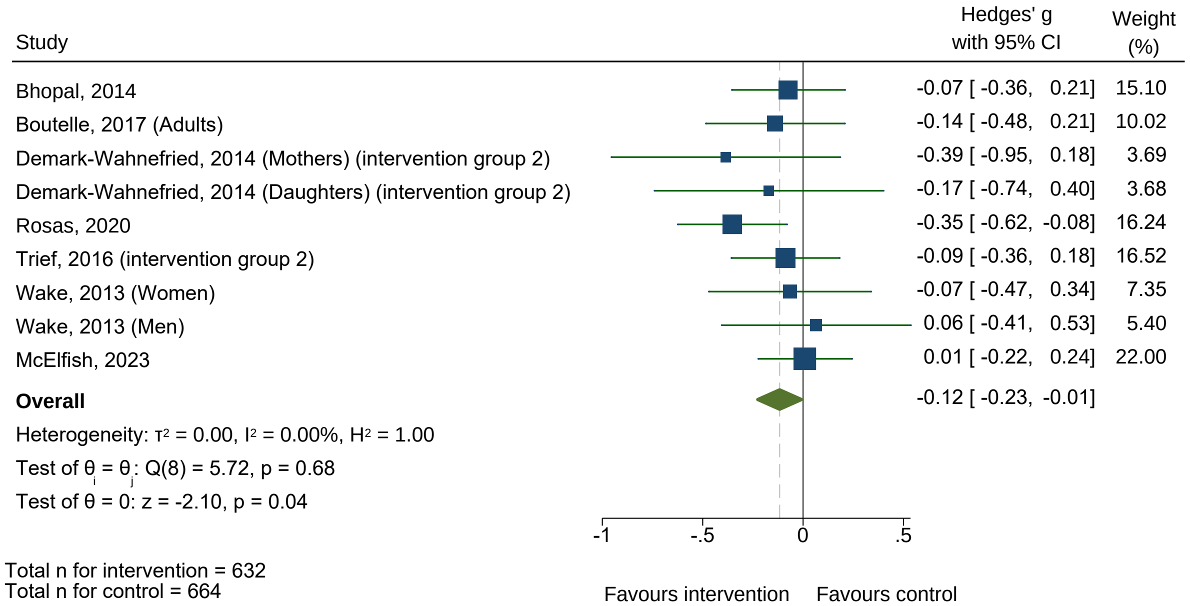


Total n for intervention = 17224
Total n for control = 13939

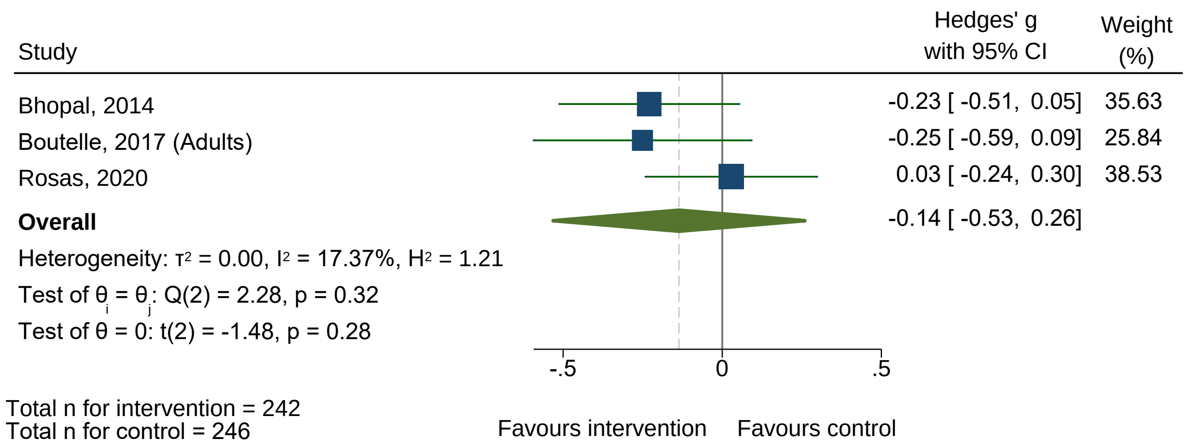
Young and middle-aged adults - Combined nutrition, physical activity and sedentary behaviour interventions versus any comparator (baseline to 12 months)



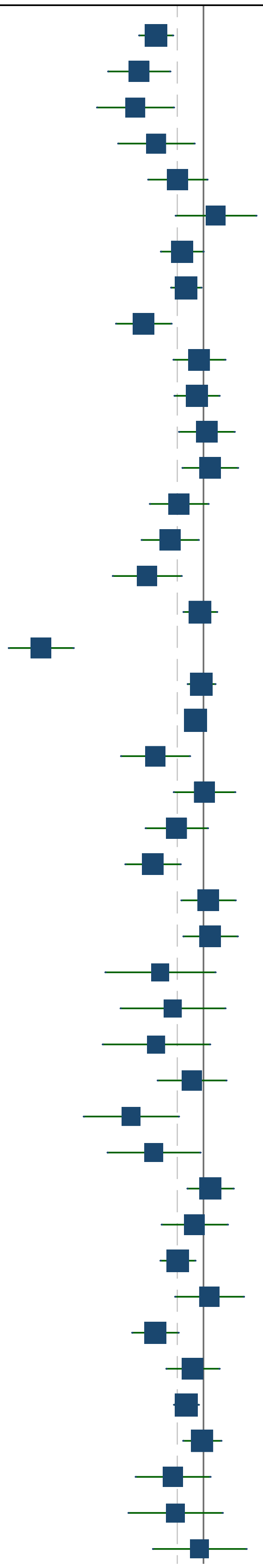
Young and middle-aged adults - Combined nutrition, physical activity, and family-centred interventions versus any comparator (baseline to 12 months)



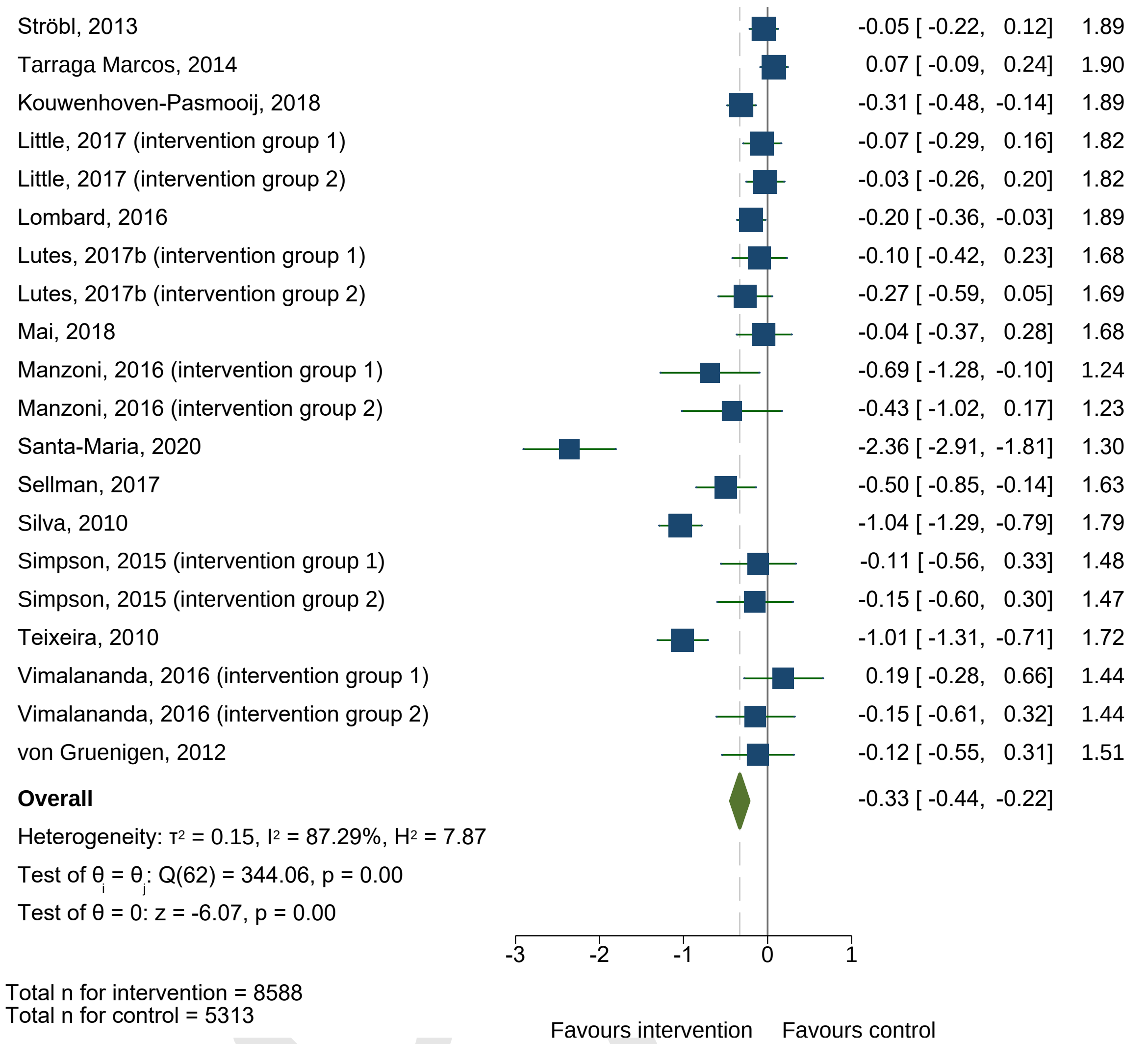
Young and middle-aged adults - Combined nutrition, physical activity, and family-centred interventions versus any comparator (baseline to end-point)



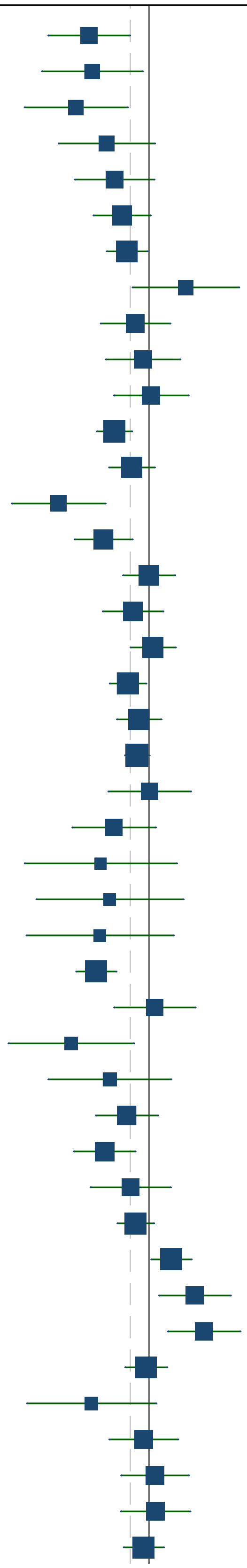
ʼoung and middle-aged adults - Combined nutrition, physical activity, and psychological treatment intervention versus any comparator (baseline to 12 months)



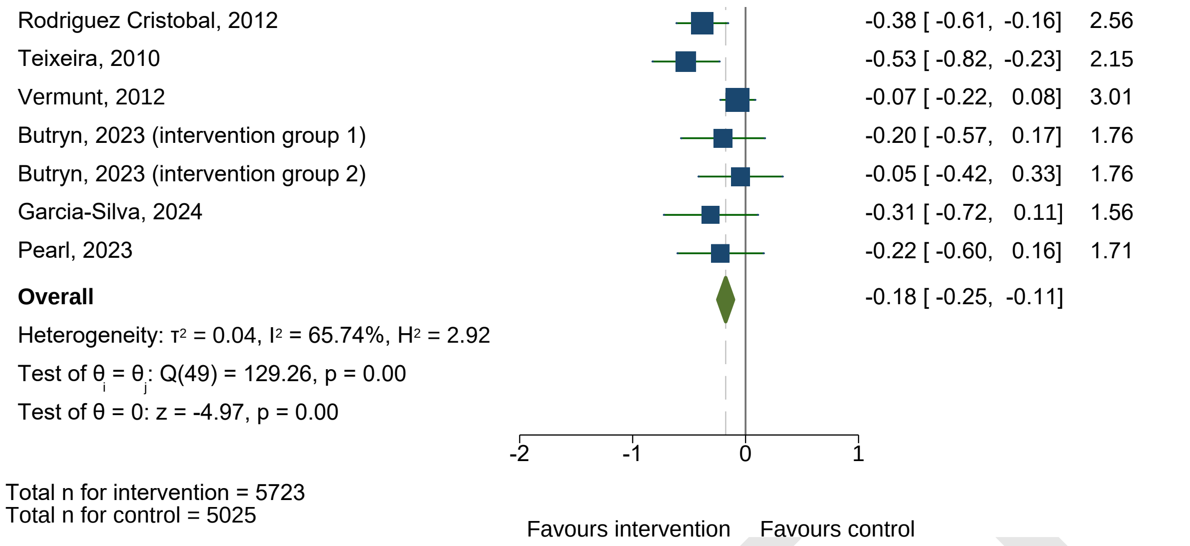
Study	Hedges' g with 95% CI	Weight (%)
Anderson, 2014	-0.60 [-0.81, -0.39]	1.84
Annesi, 2017	-0.81 [-1.21, -0.42]	1.57
Annesi, 2019 (intervention group 1)	-0.86 [-1.35, -0.38]	1.41
Annesi, 2019 (intervention group 2)	-0.60 [-1.08, -0.11]	1.41
Annesi, 2016	-0.33 [-0.70, 0.05]	1.60
Benasi, 2022	0.16 [-0.35, 0.66]	1.37
Bennett, 2013	-0.27 [-0.54, -0.00]	1.76
Bennett, 2012	-0.22 [-0.41, -0.03]	1.87
Boutelle, 2022 (intervention group 3)	-0.76 [-1.11, -0.41]	1.64
Burke, 2015	-0.05 [-0.38, 0.27]	1.67
Butryn, 2017 (intervention group 2)	-0.08 [-0.37, 0.20]	1.74
Butryn, 2021 (intervention group 1)	0.04 [-0.31, 0.39]	1.64
Butryn, 2021 (intervention group 2)	0.08 [-0.27, 0.43]	1.64
Christensen, 2012	-0.31 [-0.68, 0.06]	1.60
Dutton, 2017	-0.42 [-0.78, -0.06]	1.62
Fernandez-Ruiz, 2018	-0.71 [-1.15, -0.28]	1.50
Foster, 2010	-0.04 [-0.25, 0.17]	1.84
Gilcharan Singh, 2020 (intervention group 1)	-2.05 [-2.46, -1.64]	1.54
Gómez-Pardo, 2016	-0.03 [-0.20, 0.15]	1.89
Hersey, 2012 (intervention group 2)	-0.10 [-0.22, 0.01]	1.94
Howden, 2013	-0.61 [-1.04, -0.17]	1.49
Jakicic, 2015 (intervention group 1)	0.01 [-0.38, 0.40]	1.57
Jakicic, 2015 (intervention group 2)	-0.34 [-0.73, 0.05]	1.57
Jiang, 2017	-0.64 [-0.99, -0.29]	1.64
Jolly, 2011 (intervention group 5)	0.06 [-0.28, 0.40]	1.65
Jolly, 2011 (intervention group 6)	0.09 [-0.26, 0.43]	1.65
Kalarchian, 2011 (intervention group 1)	-0.55 [-1.24, 0.15]	1.08
Kalarchian, 2011 (intervention group 2)	-0.39 [-1.05, 0.27]	1.13
Kalarchian, 2011 (intervention group 3)	-0.60 [-1.27, 0.08]	1.10
Kirby, 2011	-0.15 [-0.58, 0.29]	1.50
Lillis, 2021 (intervention group 1)	-0.91 [-1.51, -0.31]	1.22
Lillis, 2021 (intervention group 2)	-0.63 [-1.21, -0.04]	1.24
Lillis, 2016	0.09 [-0.20, 0.38]	1.73
Moncrieft, 2016	-0.11 [-0.53, 0.30]	1.52
Ockene, 2012	-0.32 [-0.54, -0.11]	1.83
Pearl, 2020	0.07 [-0.36, 0.51]	1.50
Reeves, 2021	-0.61 [-0.90, -0.32]	1.73
Rieger, 2017	-0.14 [-0.47, 0.20]	1.66
Ross, 2012	-0.22 [-0.37, -0.06]	1.90
Sniehotta, 2019	-0.02 [-0.26, 0.22]	1.80
Spring, 2013	-0.39 [-0.86, 0.08]	1.43
Spring, 2017 (intervention group 1)	-0.35 [-0.95, 0.24]	1.23
Spring, 2017 (intervention group 2)	-0.05 [-0.64, 0.54]	1.24


Ströbl, 2013 -0.05 [-0.22, 0.12] 1.89
Tarraga Marcos, 2014 0.07 [-0.09, 0.24] 1.90
Kouwenhoven-Pasmooij, 2018 -0.31 [-0.48, -0.14] 1.89
Little, 2017 (intervention group 1) -0.07 [-0.29, 0.16] 1.82
Little, 2017 (intervention group 2) -0.03 [-0.26, 0.20] 1.82
Lombard, 2016 -0.20 [-0.36, -0.03] 1.89
Lutes, 2017b (intervention group 1) -0.10 [-0.42, 0.23] 1.68
Lutes, 2017b (intervention group 2) -0.27 [-0.59, 0.05] 1.69
Mai, 2018 -0.04 [-0.37, 0.28] 1.68
Manzoni, 2016 (intervention group 1) -0.69 [-1.28, -0.10] 1.24
Manzoni, 2016 (intervention group 2) -0.43 [-1.02, 0.17] 1.23
Santa-Maria, 2020 -2.36 [-2.91, -1.81] 1.30
Sellman, 2017 -0.50 [-0.85, -0.14] 1.63
Silva, 2010 -1.04 [-1.29, -0.79] 1.79
Simpson, 2015 (intervention group 1) -0.11 [-0.56, 0.33] 1.48
Simpson, 2015 (intervention group 2) -0.15 [-0.60, 0.30] 1.47
Teixeira, 2010 -1.01 [-1.31, -0.71] 1.72
Vimalananda, 2016 (intervention group 1) 0.19 [-0.28, 0.66] 1.44
Vimalananda, 2016 (intervention group 2) -0.15 [-0.61, 0.32] 1.44
von Gruenigen, 2012 -0.12 [-0.55, 0.31] 1.51
Overall -0.33 [-0.44, -0.22]
Heterogeneity: τ² = 0.15, I² = 87.29%, H² = 7.87
Test of θi = θj: Q(62) = 344.06, p = 0.00
Test of θ = 0: z = -6.07, p = 0.00
-3 -2 -1 0 1
Total n for intervention = 8588
Total n for control = 5313
Favours intervention Favours control

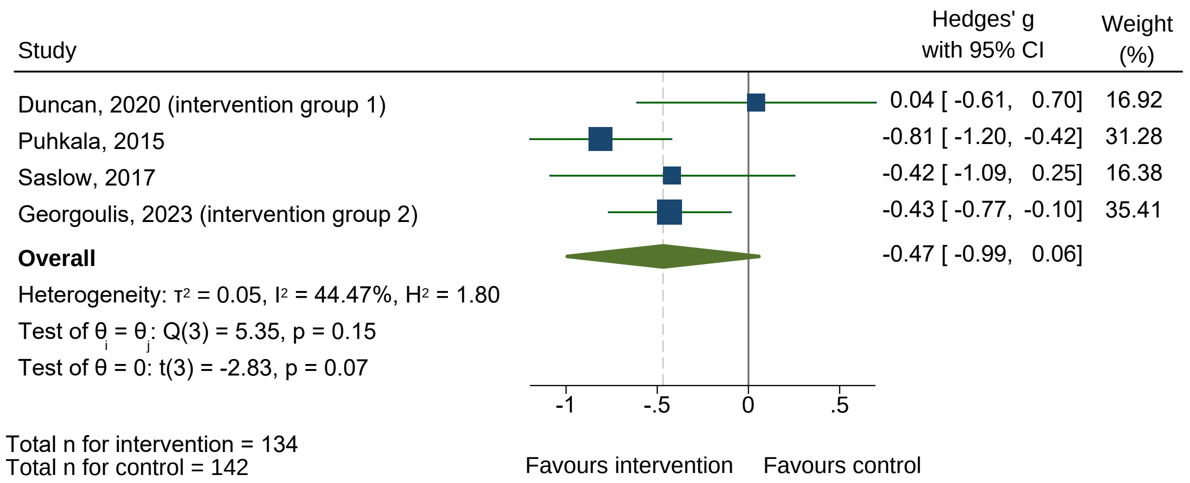
Young and middle-aged adults - Combined nutrition, physical activity, and psychological treatment interventions versus any comparator (baseline to end-point)



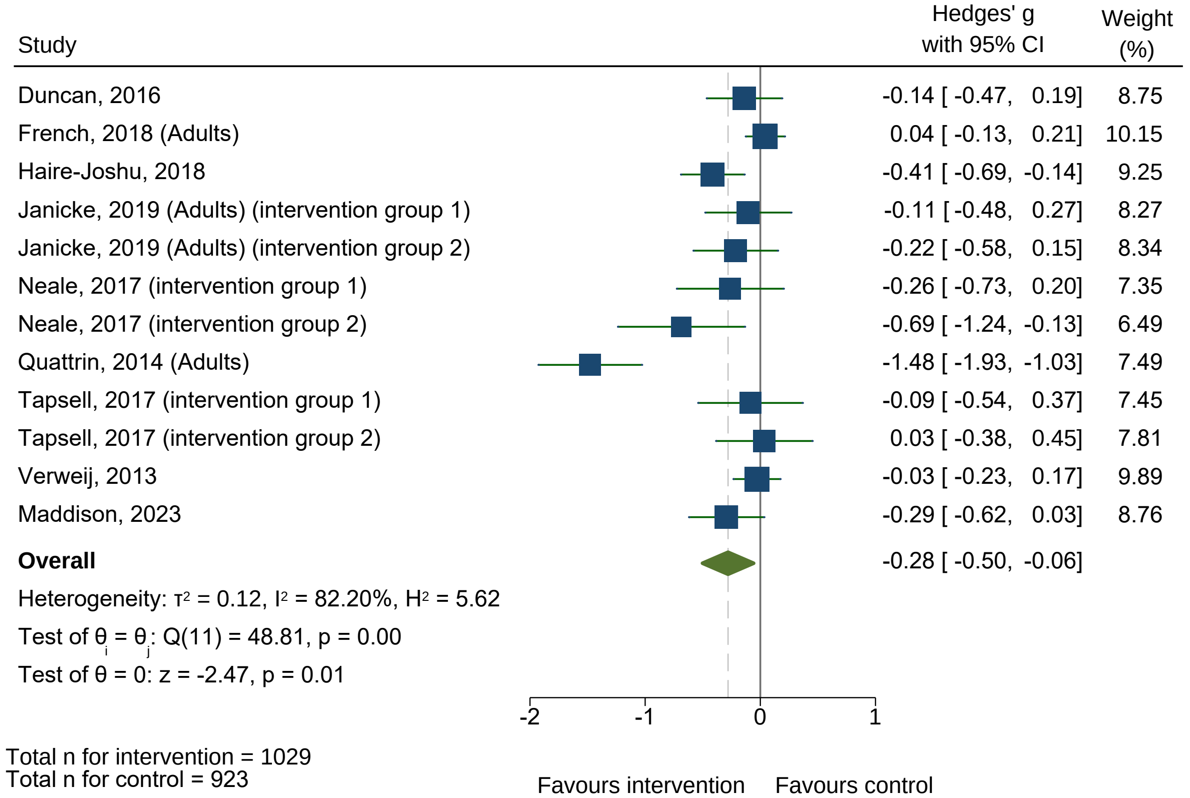
Study	Hedges' g with 95% CI	Weight (%)
Annesi, 2017	-0.57 [-0.95, -0.18]	1.70
Annesi, 2019 (intervention group 1)	-0.54 [-1.01, -0.06]	1.34
Annesi, 2019 (intervention group 2)	-0.69 [-1.17, -0.20]	1.30
Annesi, 2020	-0.40 [-0.85, 0.05]	1.41
Annesi, 2016	-0.32 [-0.70, 0.05]	1.75
Bennett, 2013	-0.25 [-0.52, 0.02]	2.31
Bennett, 2012	-0.21 [-0.40, -0.02]	2.79
Boutelle, 2022 (intervention group 3)	0.35 [-0.15, 0.85]	1.24
Burke, 2015	-0.13 [-0.45, 0.20]	1.98
Butryn, 2021 (intervention group 1)	-0.06 [-0.41, 0.29]	1.86
Butryn, 2021 (intervention group 2)	0.02 [-0.33, 0.37]	1.86
Coughlin, 2013 (intervention group 2)	-0.33 [-0.49, -0.16]	2.96
Eakin, 2014	-0.16 [-0.38, 0.05]	2.65
Fernandez-Ruiz, 2018	-0.85 [-1.29, -0.41]	1.46
Fitzgibbon, 2010	-0.43 [-0.70, -0.16]	2.29
Forman, 2013	0.00 [-0.24, 0.24]	2.46
Forman, 2019	-0.15 [-0.43, 0.13]	2.22
Foster, 2010	0.04 [-0.17, 0.25]	2.66
Gabriel, 2011	-0.20 [-0.37, -0.03]	2.91
Hardcastle, 2013	-0.09 [-0.30, 0.11]	2.69
Hersey, 2012 (intervention group 2)	-0.11 [-0.23, 0.00]	3.23
Jakicic, 2015 (intervention group 1)	0.01 [-0.38, 0.39]	1.68
Jakicic, 2015 (intervention group 2)	-0.33 [-0.72, 0.06]	1.66
Kalarchian, 2011 (intervention group 1)	-0.45 [-1.17, 0.26]	0.74
Kalarchian, 2011 (intervention group 2)	-0.37 [-1.06, 0.32]	0.78
Kalarchian, 2011 (intervention group 3)	-0.46 [-1.15, 0.23]	0.78
Kuller, 2012	-0.50 [-0.69, -0.31]	2.81
Latner, 2013	0.05 [-0.33, 0.44]	1.71
Lillis, 2021 (intervention group 1)	-0.73 [-1.32, -0.14]	0.99
Lillis, 2021 (intervention group 2)	-0.37 [-0.95, 0.21]	1.03
Lillis, 2016	-0.21 [-0.50, 0.08]	2.18
Reeves, 2021	-0.42 [-0.71, -0.13]	2.20
Rieger, 2017	-0.17 [-0.55, 0.20]	1.73
Ross, 2012	-0.13 [-0.30, 0.04]	2.91
Tarraga Marcos, 2014	0.21 [0.02, 0.40]	2.81
West, 2011 (intervention group 1)	0.43 [0.10, 0.77]	1.93
West, 2011 (intervention group 2)	0.52 [0.18, 0.86]	1.91
West, 2016	-0.03 [-0.22, 0.17]	2.76
Iłowiecka , 2021	-0.54 [-1.15, 0.07]	0.95
Lutes, 2017b (intervention group 1)	-0.05 [-0.37, 0.27]	2.00
Lutes, 2017b (intervention group 2)	0.06 [-0.26, 0.37]	2.03
Mai, 2018	0.06 [-0.27, 0.39]	1.99
Ostbye, 2015	-0.05 [-0.24, 0.14]	2.81



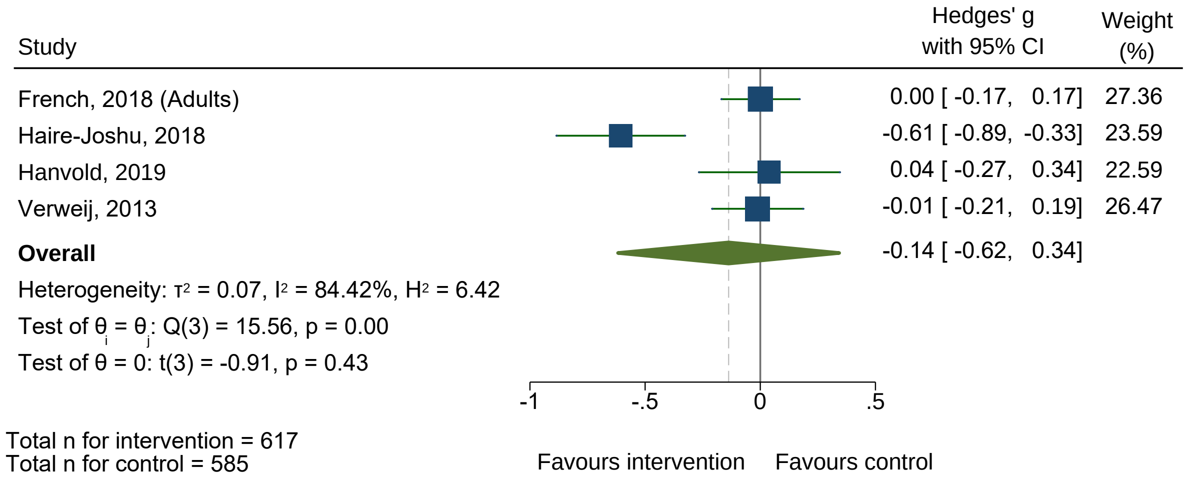
Young and middle-aged adults - Combined nutrition, physical activity, and sleep interventions versus any comparator (baseline to 12 months)



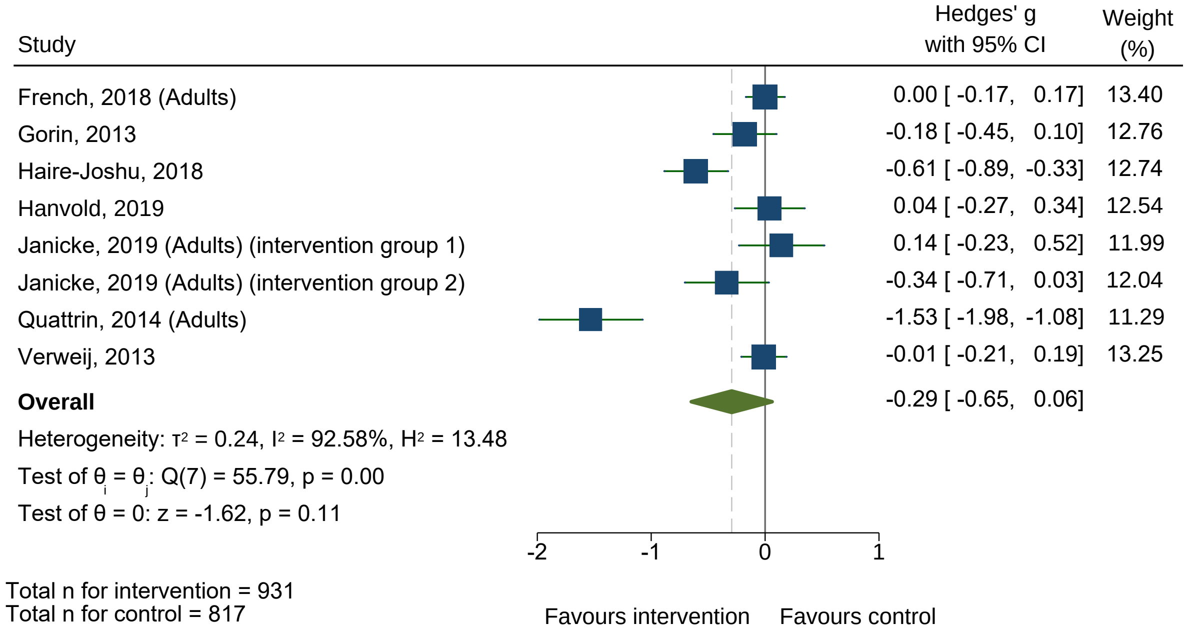
Young and middle-aged adults - Combination of 4 or more lifestyle interventions versus any comparator (baseline to 12 months)

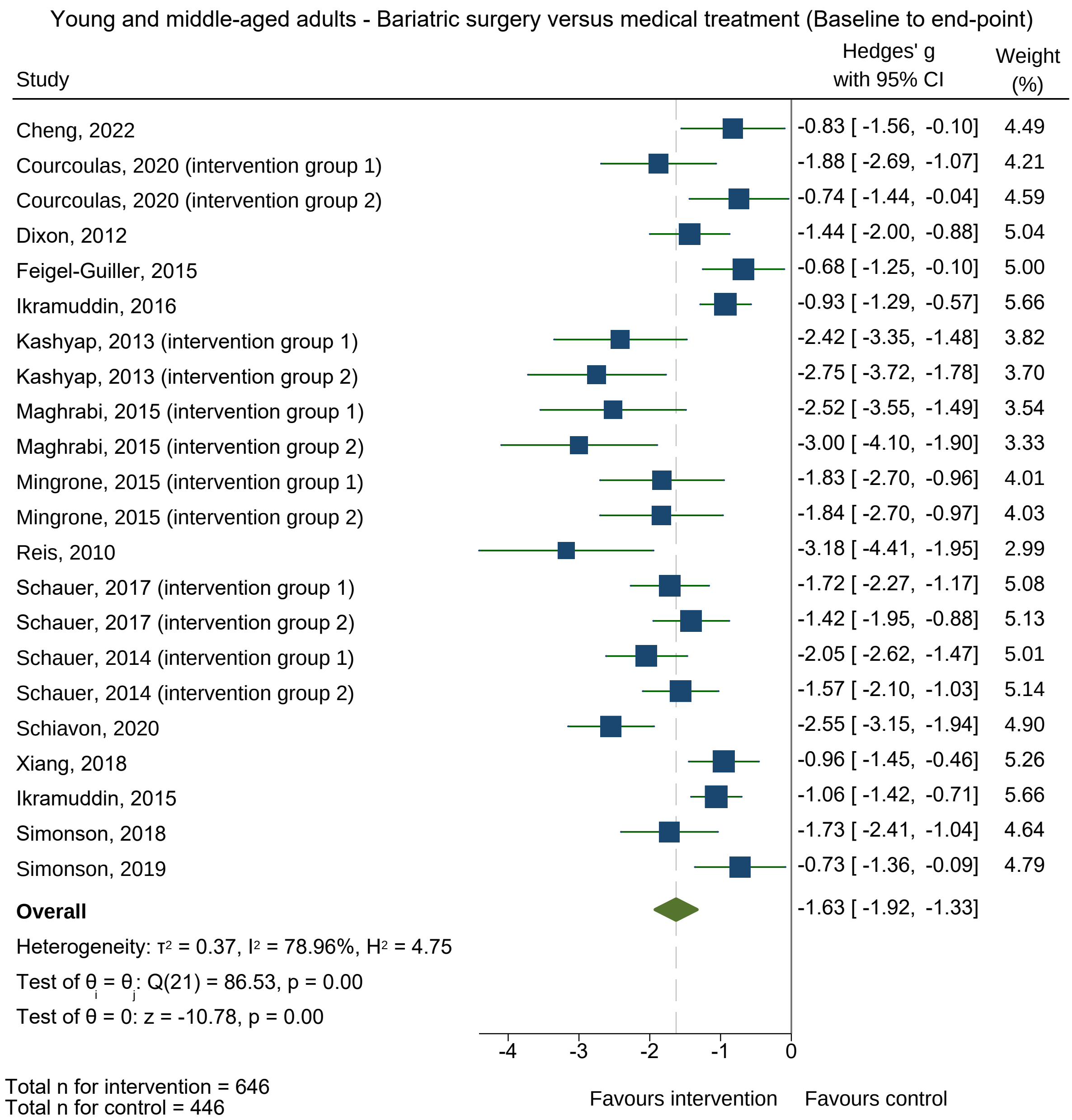


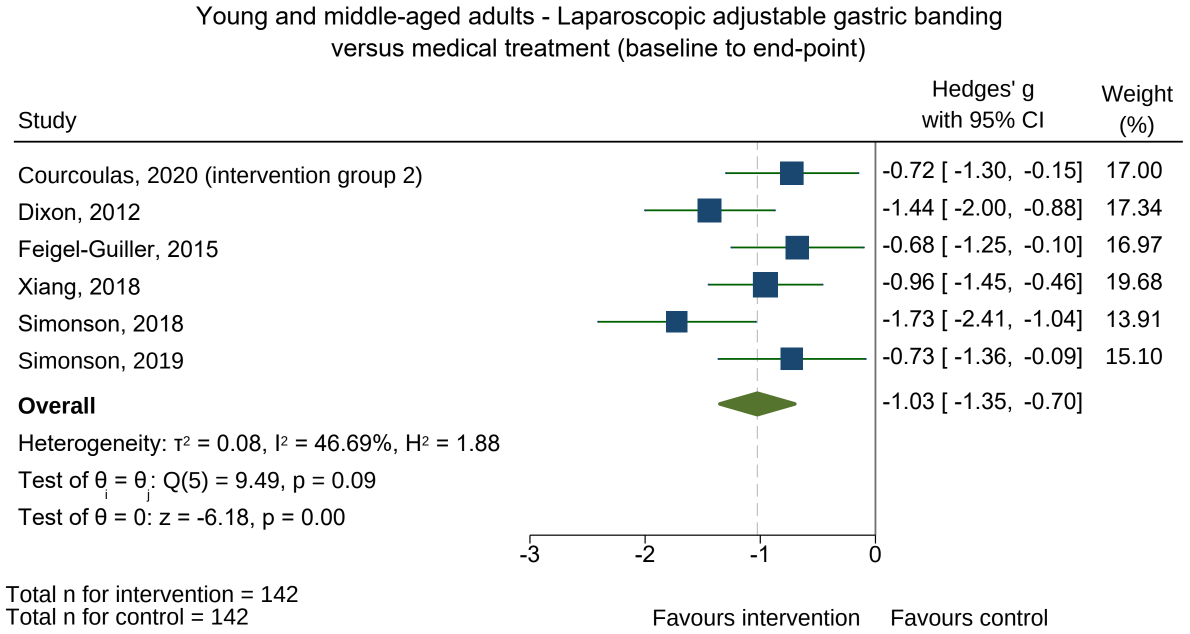
Young and middle-aged adults - Combination of 4 or more lifestyle interventions versus untreated comparator (baseline to end point)

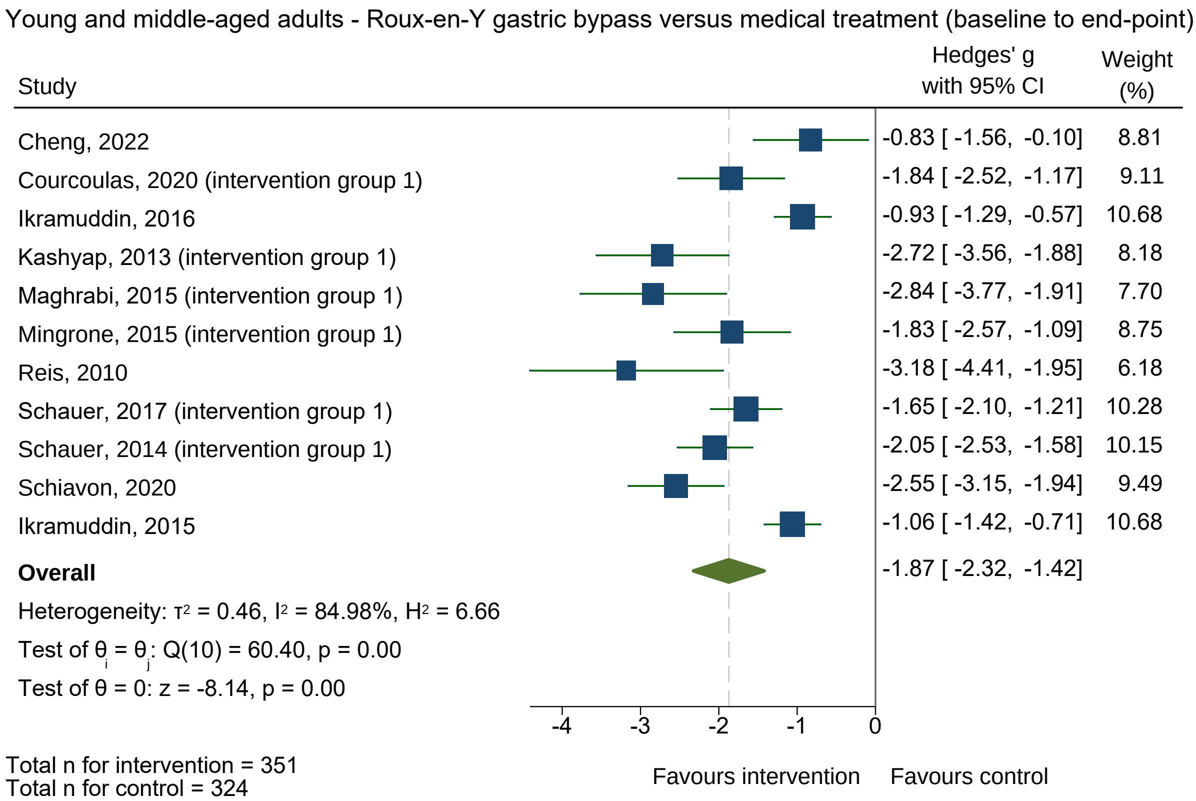


Young and middle-aged adults - Combination of 4 or more lifestyle interventions versus any comparator (baseline to end point)

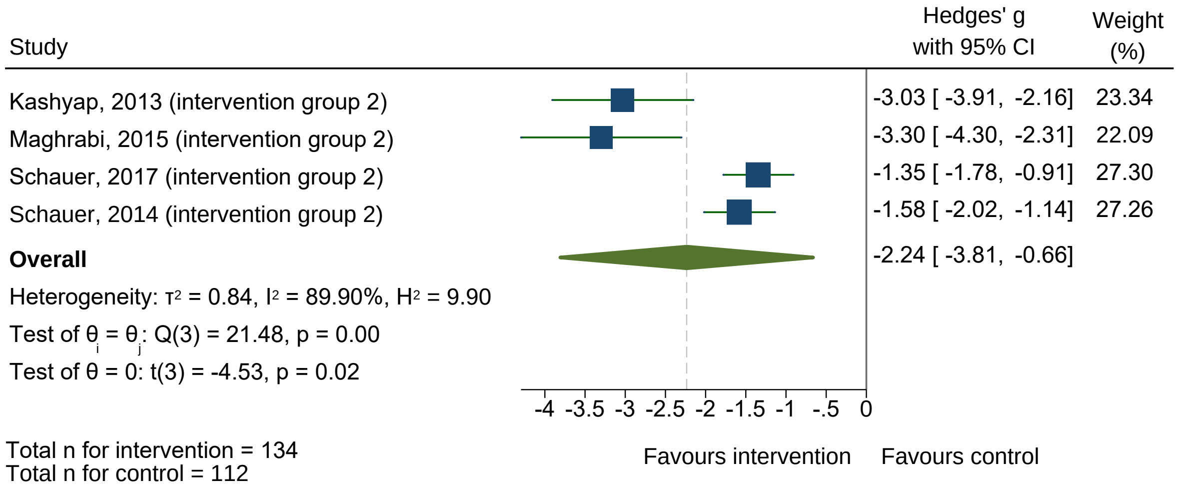



Young and middle-aged adults - Bariatric surgery versus medical treatment (Baseline to end-point)
Study
Hedges' g with 95% CI
Weight (%)
Cheng, 2022 -0.83 [-1.56, -0.10] 4.49
Courcoulas, 2020 (intervention group 1) -1.88 [-2.69, -1.07] 4.21
Courcoulas, 2020 (intervention group 2) -0.74 [-1.44, -0.04] 4.59
Dixon, 2012 -1.44 [-2.00, -0.88] 5.04
Feigel-Guiller, 2015 -0.68 [-1.25, -0.10] 5.00
Ikramuddin, 2016 -0.93 [-1.29, -0.57] 5.66
Kashyap, 2013 (intervention group 1) -2.42 [-3.35, -1.48] 3.82
Kashyap, 2013 (intervention group 2) -2.75 [-3.72, -1.78] 3.70
Maghrabi, 2015 (intervention group 1) -2.52 [-3.55, -1.49] 3.54
Maghrabi, 2015 (intervention group 2) -3.00 [-4.10, -1.90] 3.33
Mingrone, 2015 (intervention group 1) -1.83 [-2.70, -0.96] 4.01
Mingrone, 2015 (intervention group 2) -1.84 [-2.70, -0.97] 4.03
Reis, 2010 -3.18 [-4.41, -1.95] 2.99
Schauer, 2017 (intervention group 1) -1.72 [-2.27, -1.17] 5.08
Schauer, 2017 (intervention group 2) -1.42 [-1.95, -0.88] 5.13
Schauer, 2014 (intervention group 1) -2.05 [-2.62, -1.47] 5.01
Schauer, 2014 (intervention group 2) -1.57 [-2.10, -1.03] 5.14
Schiavon, 2020 -2.55 [-3.15, -1.94] 4.90
Xiang, 2018 -0.96 [-1.45, -0.46] 5.26
Ikramuddin, 2015 -1.06 [-1.42, -0.71] 5.66
Simonson, 2018 -1.73 [-2.41, -1.04] 4.64
Simonson, 2019 -0.73 [-1.36, -0.09] 4.79
Overall -1.63 [-1.92, -1.33]
Heterogeneity: τ^2 = 0.37, I^2 = 78.96%, H^2 = 4.75
Test of $\theta_i = \theta_j$: Q(21) = 86.53, p = 0.00
Test of θ = 0: z = -10.78, p = 0.00
-4 -3 -2 -1 0
Total n for intervention = 646
Total n for control = 446
Favours intervention
Favours control

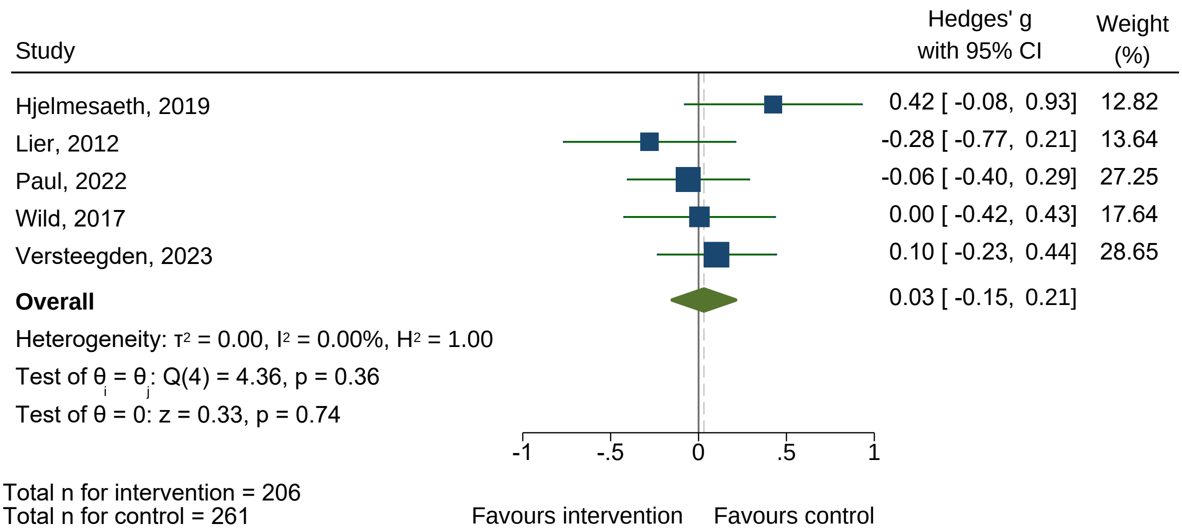

Young and middle-aged adults - Laparoscopic adjustable gastric banding versus medical treatment (baseline to end-point)
Study
Hedges' g with 95% CI
Weight (%)
Courcoulas, 2020 (intervention group 2) -0.72 [-1.30, -0.15] 17.00
Dixon, 2012 -1.44 [-2.00, -0.88] 17.34
Feigel-Guiller, 2015 -0.68 [-1.25, -0.10] 16.97
Xiang, 2018 -0.96 [-1.45, -0.46] 19.68
Simonson, 2018 -1.73 [-2.41, -1.04] 13.91
Simonson, 2019 -0.73 [-1.36, -0.09] 15.10
Overall -1.03 [-1.35, -0.70]
Heterogeneity: τ² = 0.08, I² = 46.69%, H² = 1.88
Test of θi = θj: Q(5) = 9.49, p = 0.09
Test of θ = 0: z = -6.18, p = 0.00
-3
-2
-1
0
Total n for intervention = 142
Total n for control = 142
Favours intervention
Favours control


Young and middle-aged adults - Roux-en-Y gastric bypass versus medical treatment (baseline to end-point)
Study
Hedges' g with 95% CI
Weight (%)
Cheng, 2022 -0.83 [-1.56, -0.10] 8.81
Courcoulas, 2020 (intervention group 1) -1.84 [-2.52, -1.17] 9.11
Ikramuddin, 2016 -0.93 [-1.29, -0.57] 10.68
Kashyap, 2013 (intervention group 1) -2.72 [-3.56, -1.88] 8.18
Maghrabi, 2015 (intervention group 1) -2.84 [-3.77, -1.91] 7.70
Mingrone, 2015 (intervention group 1) -1.83 [-2.57, -1.09] 8.75
Reis, 2010 -3.18 [-4.41, -1.95] 6.18
Schauer, 2017 (intervention group 1) -1.65 [-2.10, -1.21] 10.28
Schauer, 2014 (intervention group 1) -2.05 [-2.53, -1.58] 10.15
Schiavon, 2020 -2.55 [-3.15, -1.94] 9.49
Ikramuddin, 2015 -1.06 [-1.42, -0.71] 10.68
Overall -1.87 [-2.32, -1.42]
Heterogeneity: τ² = 0.46, I² = 84.98%, H² = 6.66
Test of θi = θj: Q(10) = 60.40, p = 0.00
Test of θ = 0: z = -8.14, p = 0.00
-4
-3
-2
-1
0
Total n for intervention = 351
Total n for control = 324
Favours intervention
Favours control

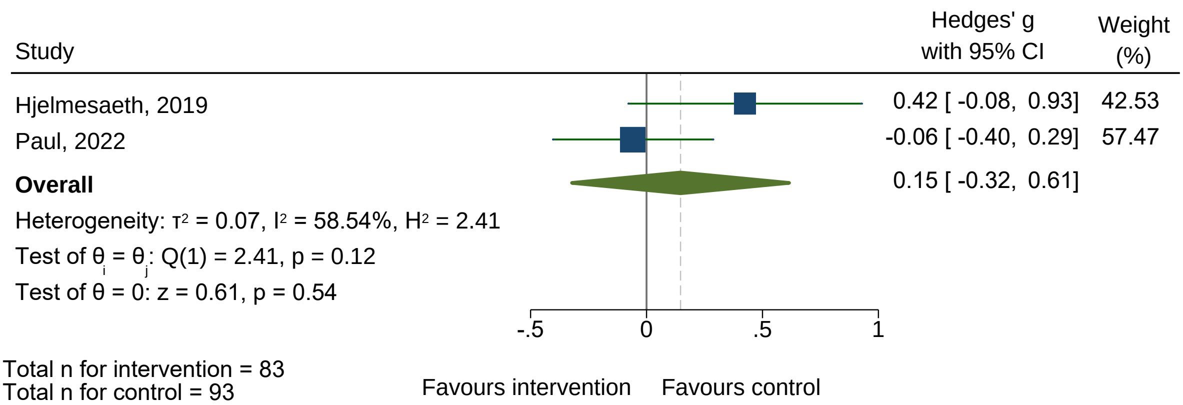
Young and middle-aged adults - Sleeve gastrectomy versus medical treatment (Baseline to final end-point)

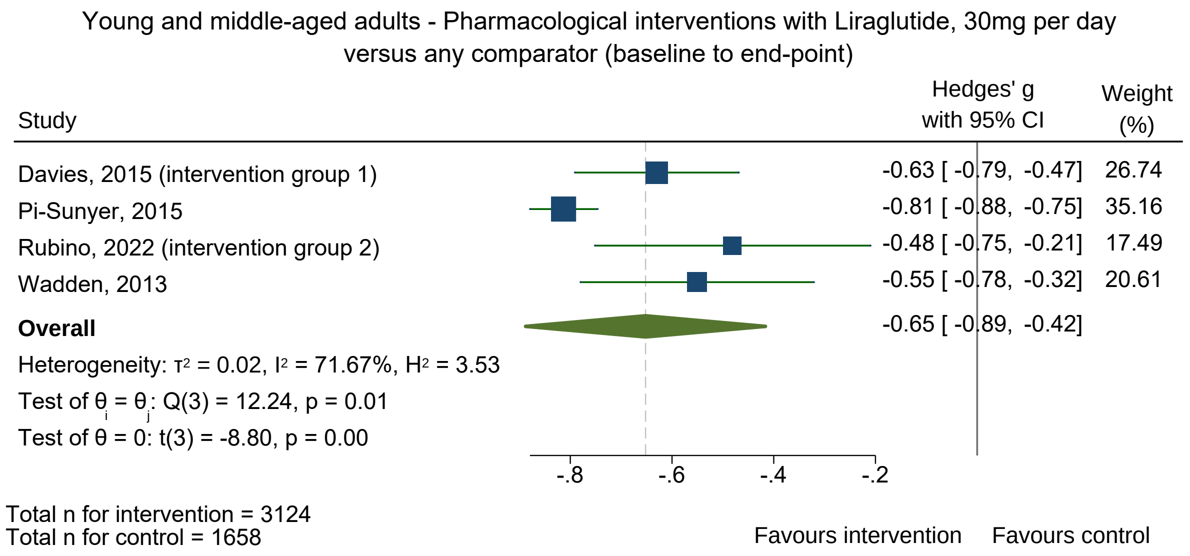


Young and middle-aged adults - Bariatric surgery plus adjunct therapy intervention versus bariatric surgery plus usual care/placebo (baseline to end-point)

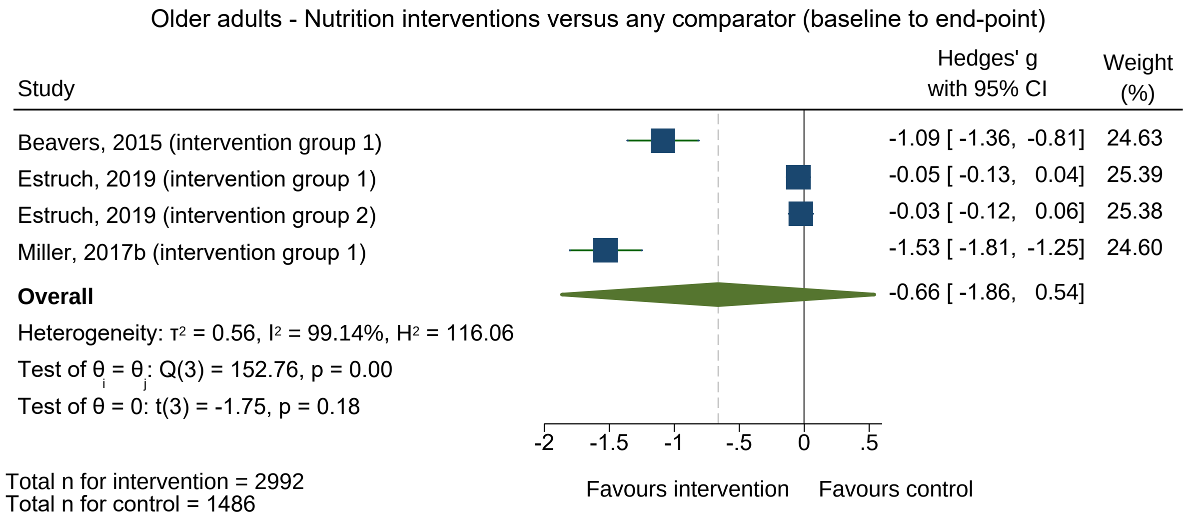


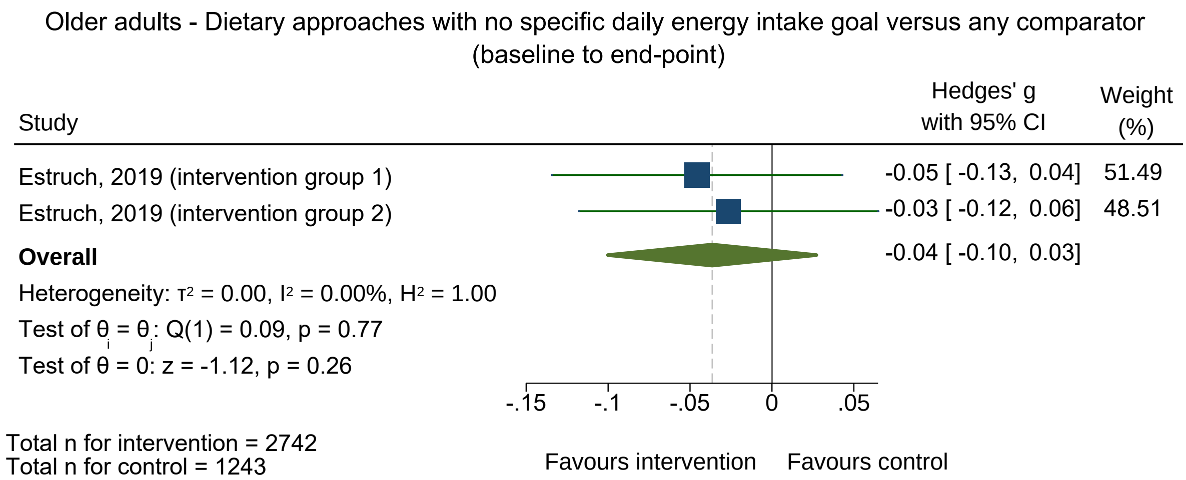
Young and middle-aged adults - Roux-en-Y gastric bypass or sleeve gastrectomy plus adjunct therapy versus bariatric surgery plus usual care/placebo (baseline to end-point)

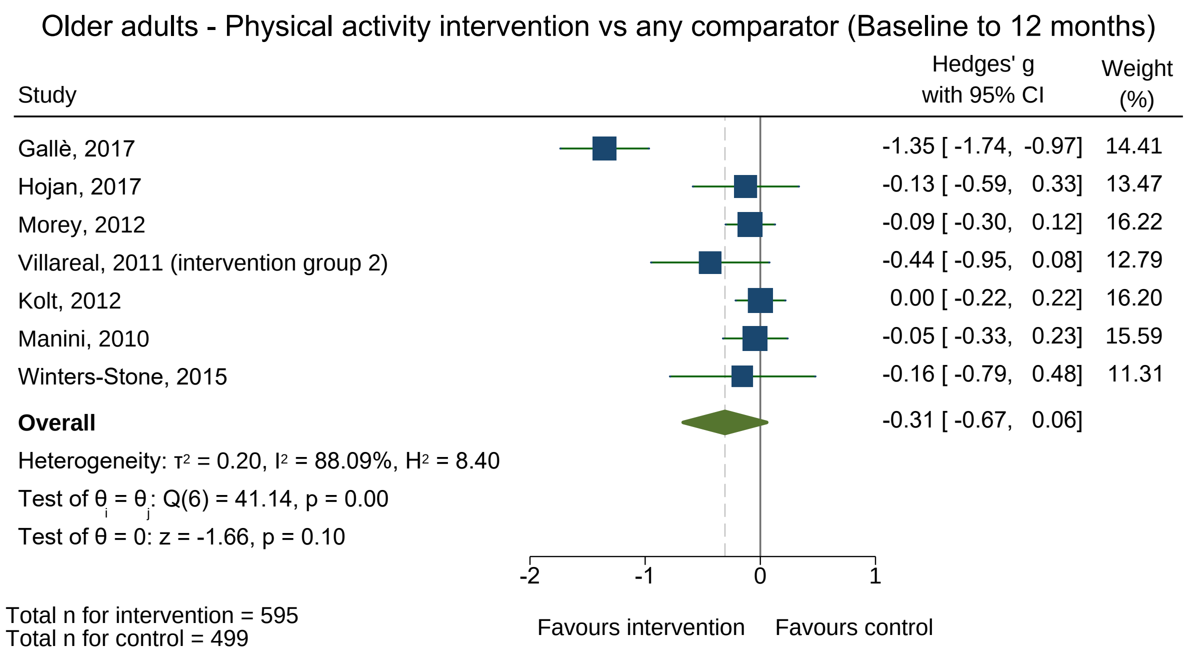



Young and middle-aged adults - Pharmacological interventions with Liraglutide, 30mg per day versus any comparator (baseline to end-point)
Study
Hedges' g with 95% CI
Weight (%)
Davies, 2015 (intervention group 1)
-0.63 [-0.79, -0.47]
26.74
Pi-Sunyer, 2015
-0.81 [-0.88, -0.75]
35.16
Rubino, 2022 (intervention group 2)
-0.48 [-0.75, -0.21]
17.49
Wadden, 2013
-0.55 [-0.78, -0.32]
20.61
Overall
-0.65 [-0.89, -0.42]
Heterogeneity: τ² = 0.02, I² = 71.67%, H² = 3.53
Test of θi = θj: Q(3) = 12.24, p = 0.01
Test of θ = 0: t(3) = -8.80, p = 0.00
-.8
-.6
-.4
-.2
Total n for intervention = 3124
Total n for control = 1658
Favours intervention
Favours control

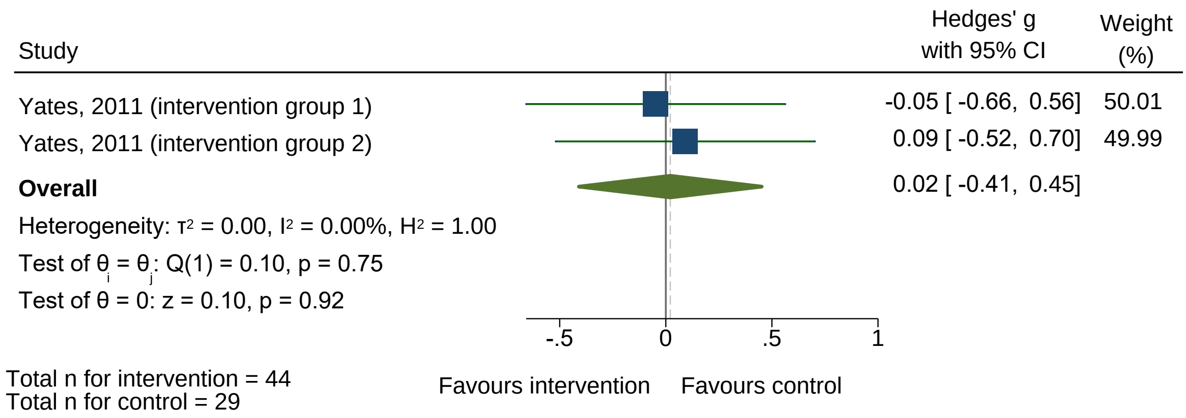
Older adults



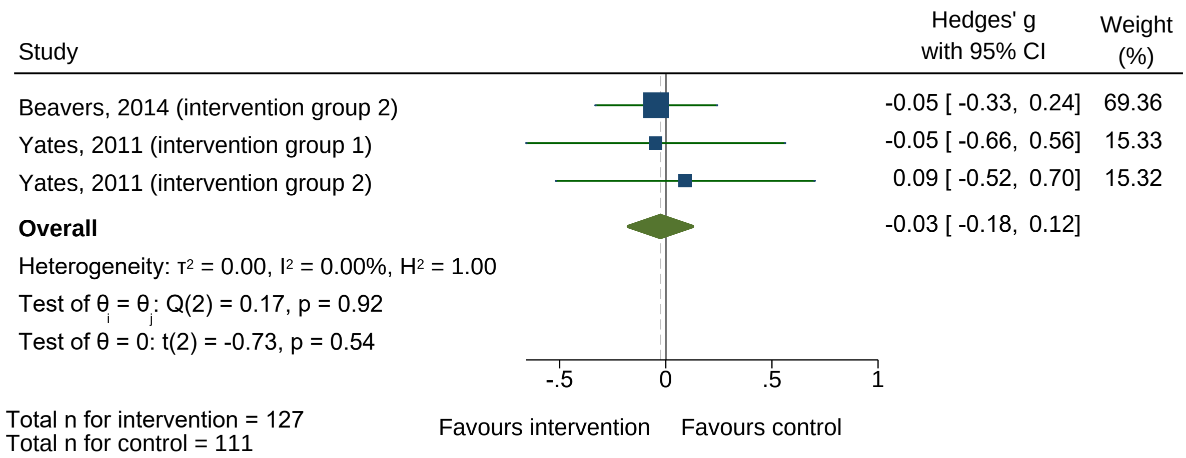




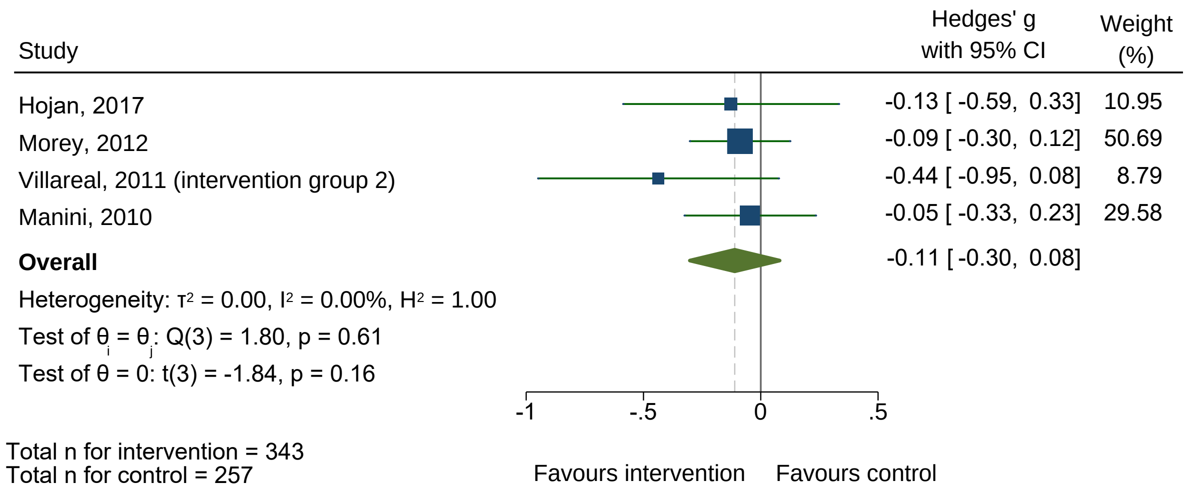
Older adults - Physical activity intervention vs untreated comparator (Baseline to end-point)

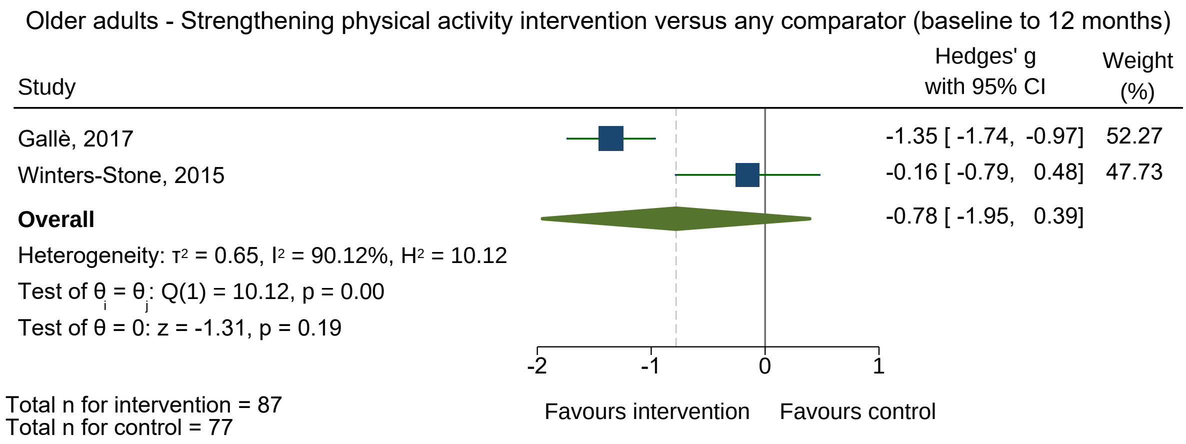


Older adults - Physical activity intervention vs any comparator (Baseline to end-point)

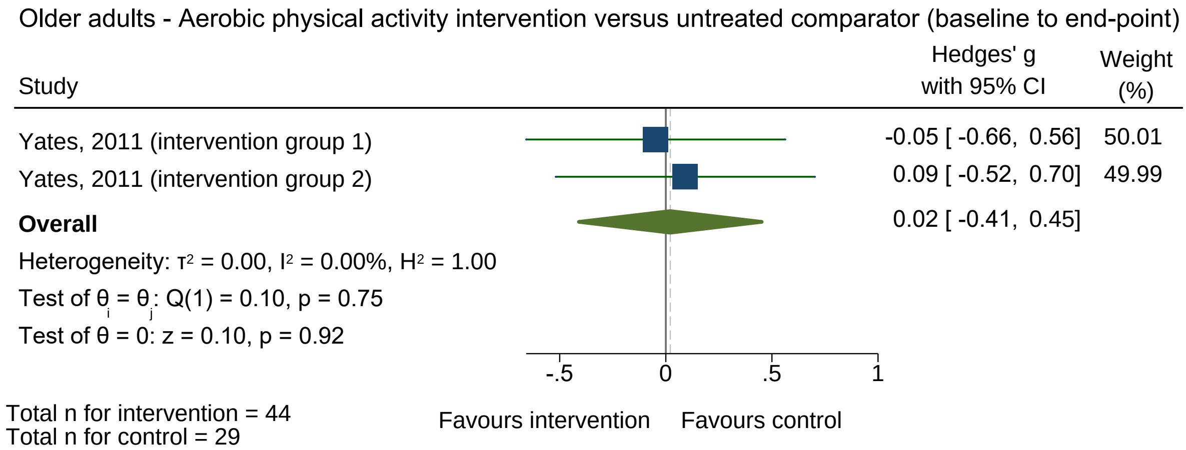


Older adults - Combination of aerobic exercise and strengthening exercise interventions versus any comparator (baseline to 12 months)

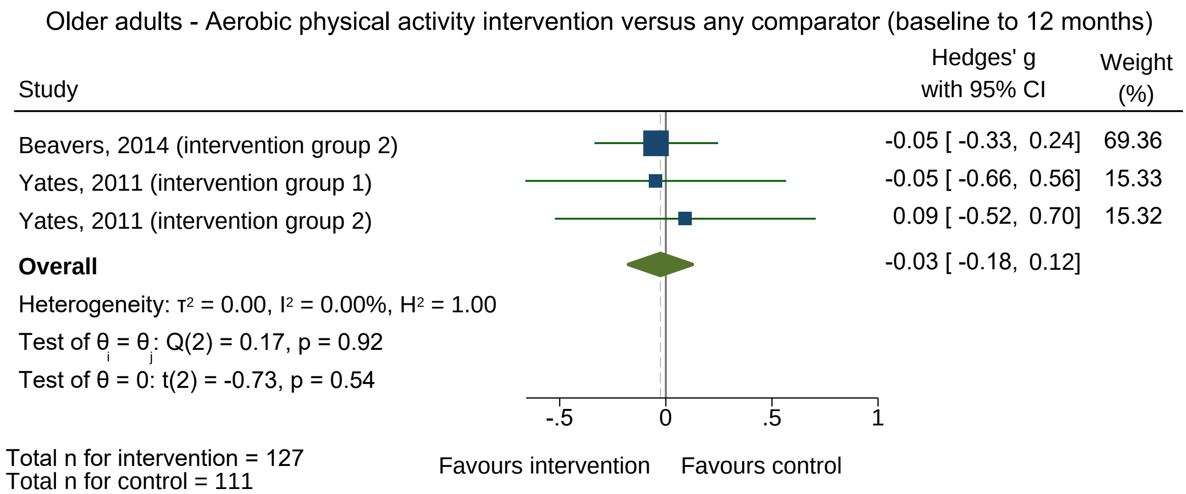




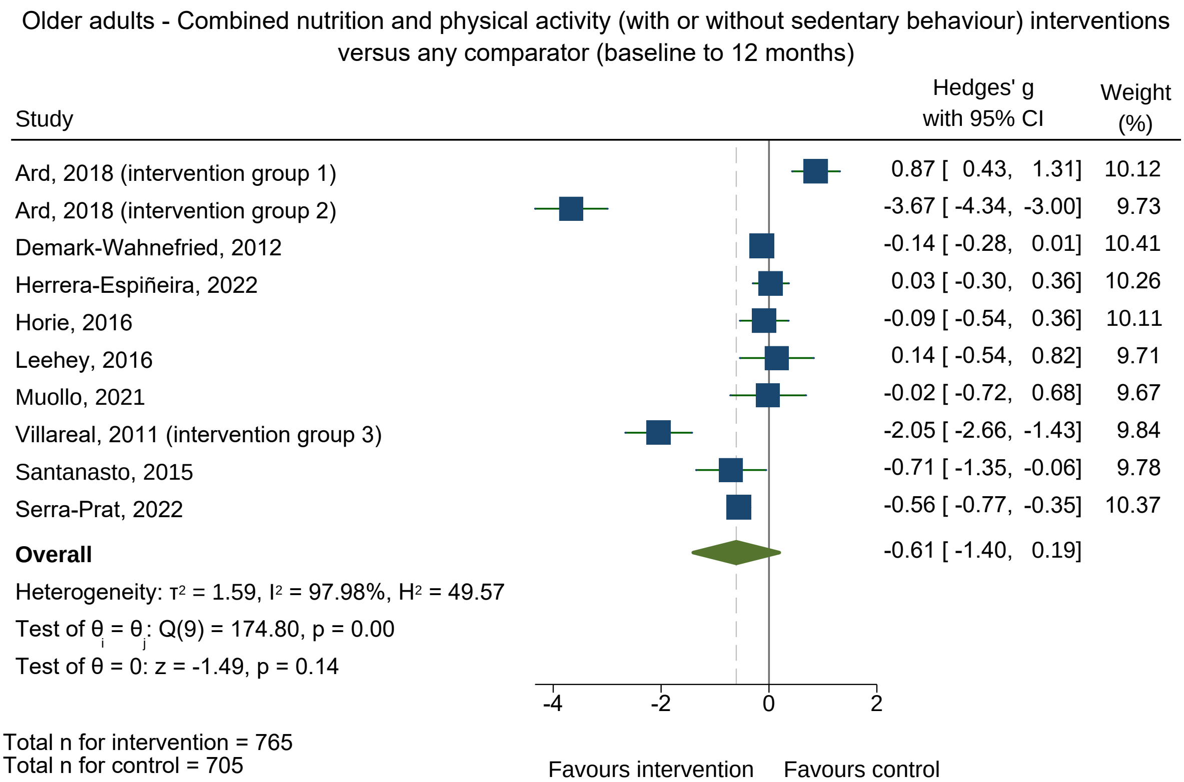
Older adults - Strengthening physical activity intervention versus any comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Gallè, 2017 -1.35 [-1.74, -0.97] 52.27
Winters-Stone, 2015 -0.16 [-0.79, 0.48] 47.73
Overall -0.78 [-1.95, 0.39]
Heterogeneity: τ^2 = 0.65, I^2 = 90.12%, H^2 = 10.12
Test of $\theta_i = \theta_j$: Q(1) = 10.12, p = 0.00
Test of θ = 0: z = -1.31, p = 0.19
-2
-1
0
1
Total n for intervention = 87
Total n for control = 77
Favours intervention
Favours control

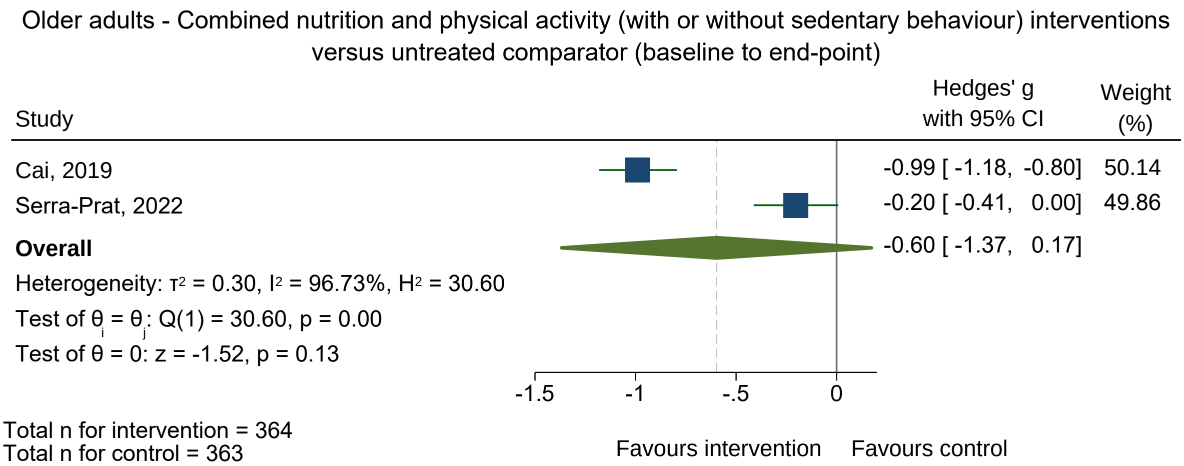


Older adults - Aerobic physical activity intervention versus untreated comparator (baseline to end-point)
Study
Hedges' g with 95% CI
Weight (%)
Yates, 2011 (intervention group 1) -0.05 [-0.66, 0.56] 50.01
Yates, 2011 (intervention group 2) 0.09 [-0.52, 0.70] 49.99
Overall 0.02 [-0.41, 0.45]
Heterogeneity: τ^2 = 0.00, I^2 = 0.00%, H^2 = 1.00
Test of $\theta_i = \theta_j$: Q(1) = 0.10, p = 0.75
Test of θ = 0: z = 0.10, p = 0.92
-.5
0
.5
1
Total n for intervention = 44
Total n for control = 29
Favours intervention
Favours control

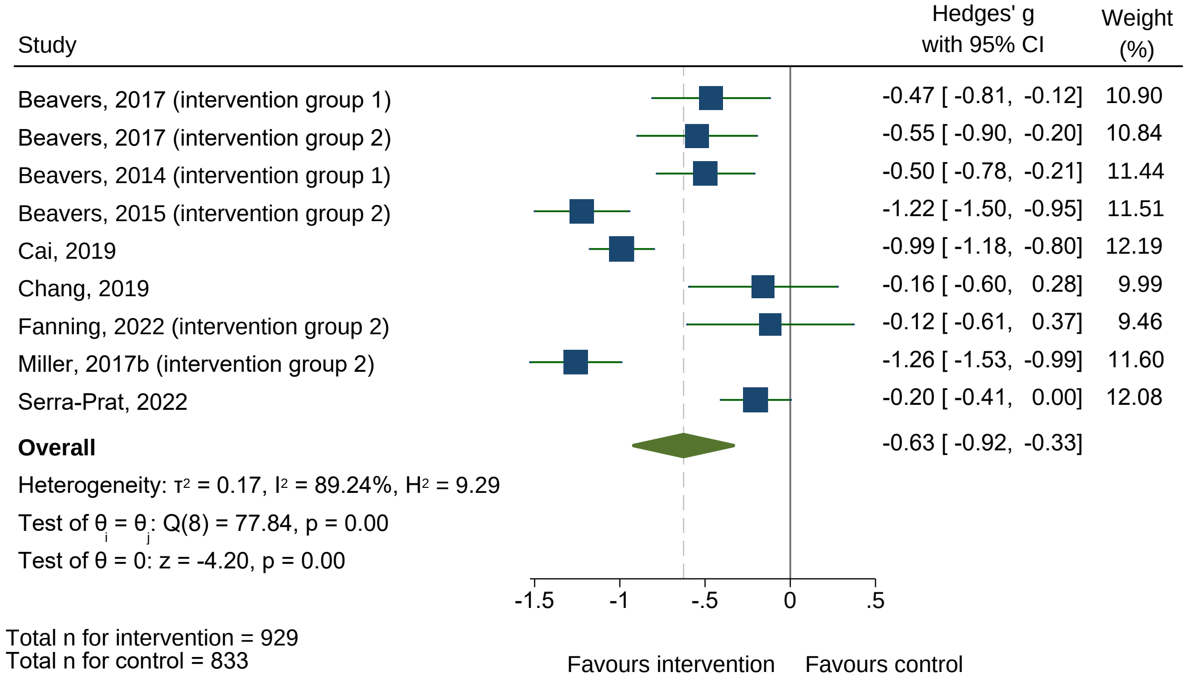


Older adults - Aerobic physical activity intervention versus any comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Beavers, 2014 (intervention group 2) -0.05 [-0.33, 0.24] 69.36
Yates, 2011 (intervention group 1) -0.05 [-0.66, 0.56] 15.33
Yates, 2011 (intervention group 2) 0.09 [-0.52, 0.70] 15.32
Overall -0.03 [-0.18, 0.12]
Heterogeneity: τ^2 = 0.00, I^2 = 0.00%, H^2 = 1.00
Test of $\theta_i = \theta_j$: Q(2) = 0.17, p = 0.92
Test of θ = 0: t(2) = -0.73, p = 0.54
-.5
0
.5
1
Total n for intervention = 127
Total n for control = 111
Favours intervention
Favours control

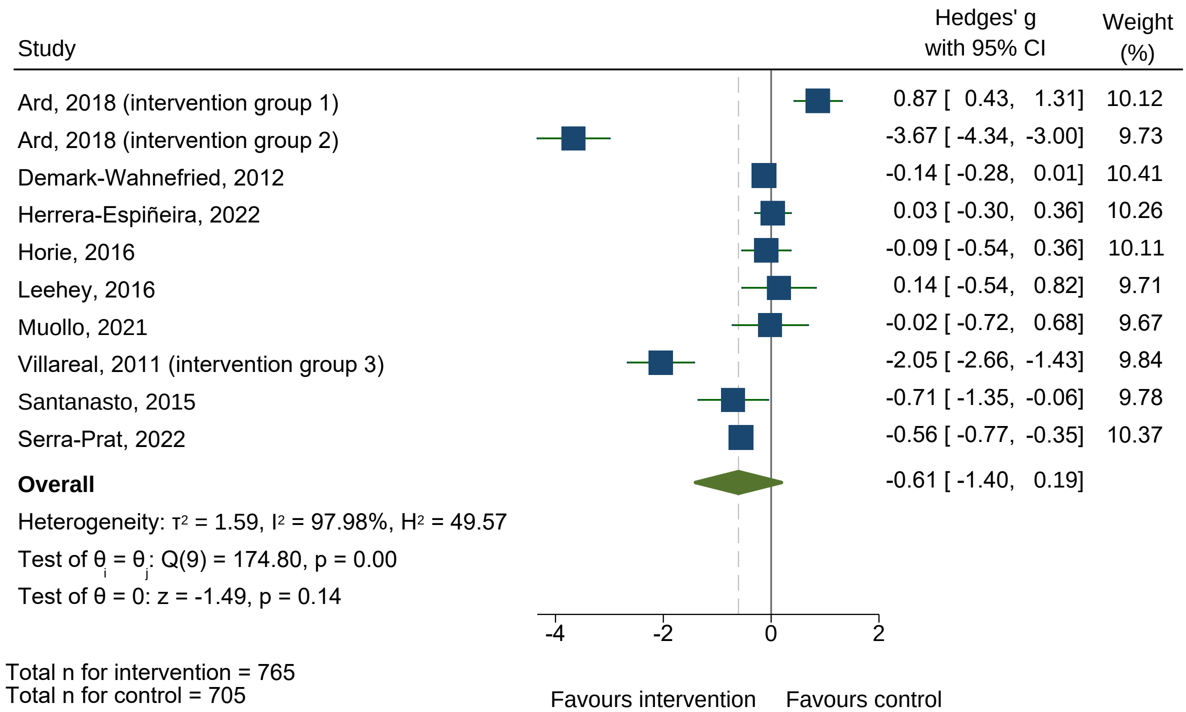

Older adults - Combined nutrition and physical activity (with or without sedentary behaviour) interventions versus any comparator (baseline to 12 months)
Study
Hedges' g with 95% CI
Weight (%)
Ard, 2018 (intervention group 1) 0.87 [0.43, 1.31] 10.12
Ard, 2018 (intervention group 2) -3.67 [-4.34, -3.00] 9.73
Demark-Wahnefried, 2012 -0.14 [-0.28, 0.01] 10.41
Herrera-Espiñeira, 2022 0.03 [-0.30, 0.36] 10.26
Horie, 2016 -0.09 [-0.54, 0.36] 10.11
Leehey, 2016 0.14 [-0.54, 0.82] 9.71
Muollo, 2021 -0.02 [-0.72, 0.68] 9.67
Villareal, 2011 (intervention group 3) -2.05 [-2.66, -1.43] 9.84
Santanasto, 2015 -0.71 [-1.35, -0.06] 9.78
Serra-Prat, 2022 -0.56 [-0.77, -0.35] 10.37
Overall -0.61 [-1.40, 0.19]
Heterogeneity: τ^2 = 1.59, I^2 = 97.98%, H^2 = 49.57
Test of $\theta_i = \theta_j$: Q(9) = 174.80, p = 0.00
Test of θ = 0: z = -1.49, p = 0.14
-4
-2
0
2
Total n for intervention = 765
Total n for control = 705
Favours intervention
Favours control


Older adults - Combined nutrition and physical activity (with or without sedentary behaviour) interventions versus untreated comparator (baseline to end-point)
Study
Hedges' g with 95% CI
Weight (%)
Cai, 2019 -0.99 [-1.18, -0.80] 50.14
Serra-Prat, 2022 -0.20 [-0.41, 0.00] 49.86
Overall -0.60 [-1.37, 0.17]
Heterogeneity: τ^2 = 0.30, I^2 = 96.73%, H^2 = 30.60
Test of $\theta_i = \theta_j$: Q(1) = 30.60, p = 0.00
Test of θ = 0: z = -1.52, p = 0.13
-1.5
-1
-.5
0
Total n for intervention = 364
Total n for control = 363
Favours intervention
Favours control

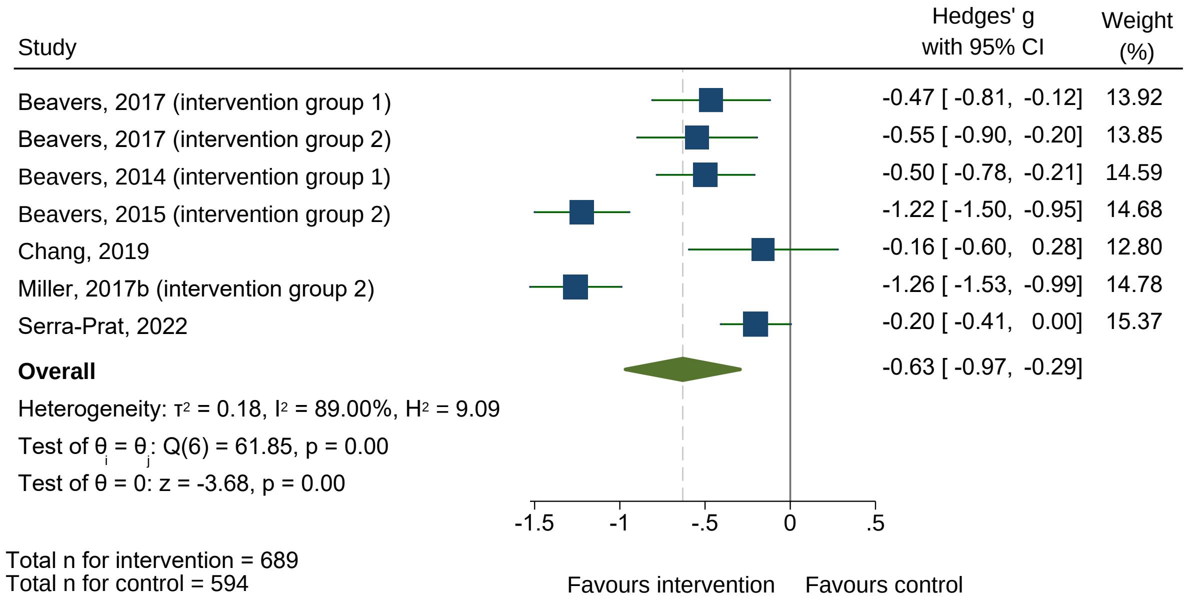
Older adults - Combined nutrition and physical activity (with or without sedentary behaviour) interventions versus any comparator (baseline to end-point)



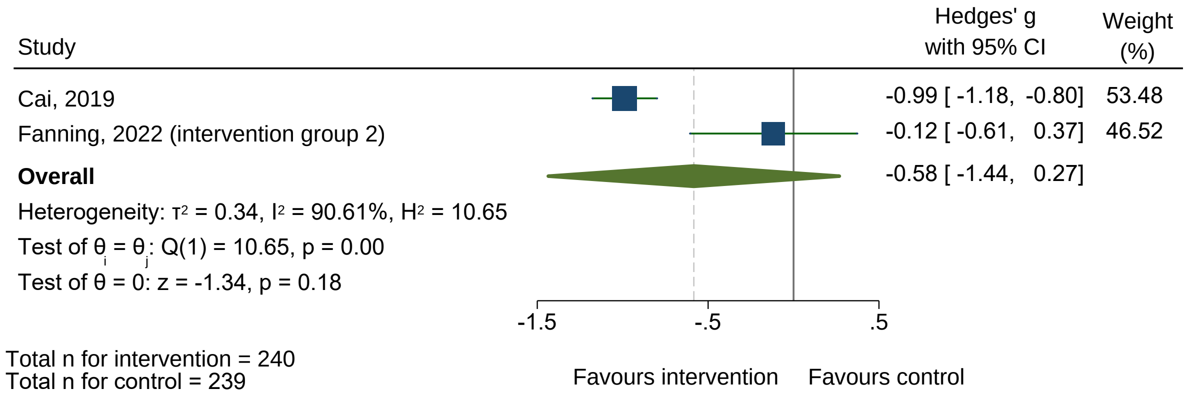
Older adults- Combined nutrition and physical activity intervention versus any comparator (baseline to 12 months)



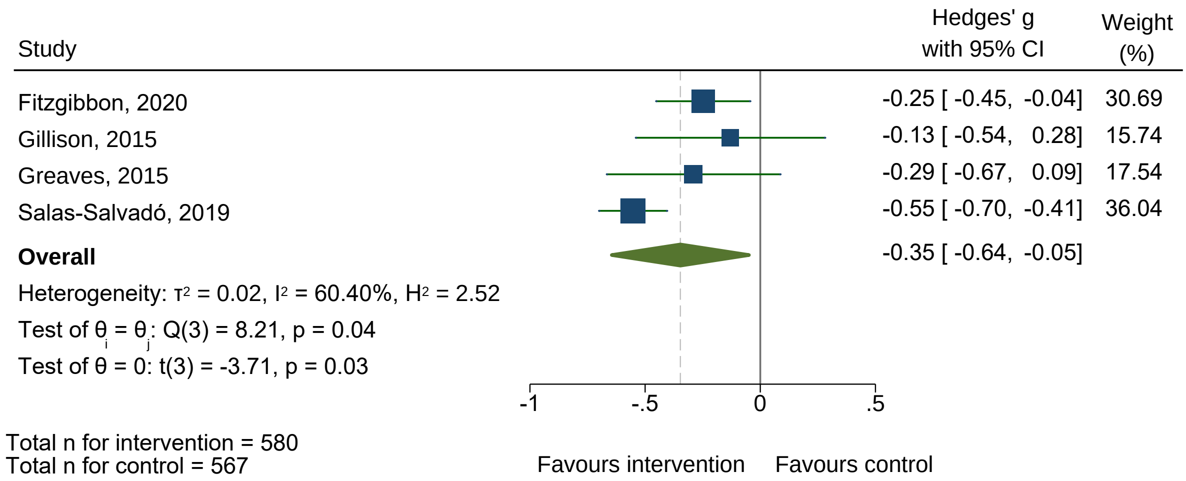
Older adults- Combined nutrition and physical activity intervention versus any comparator (baseline to end-point)



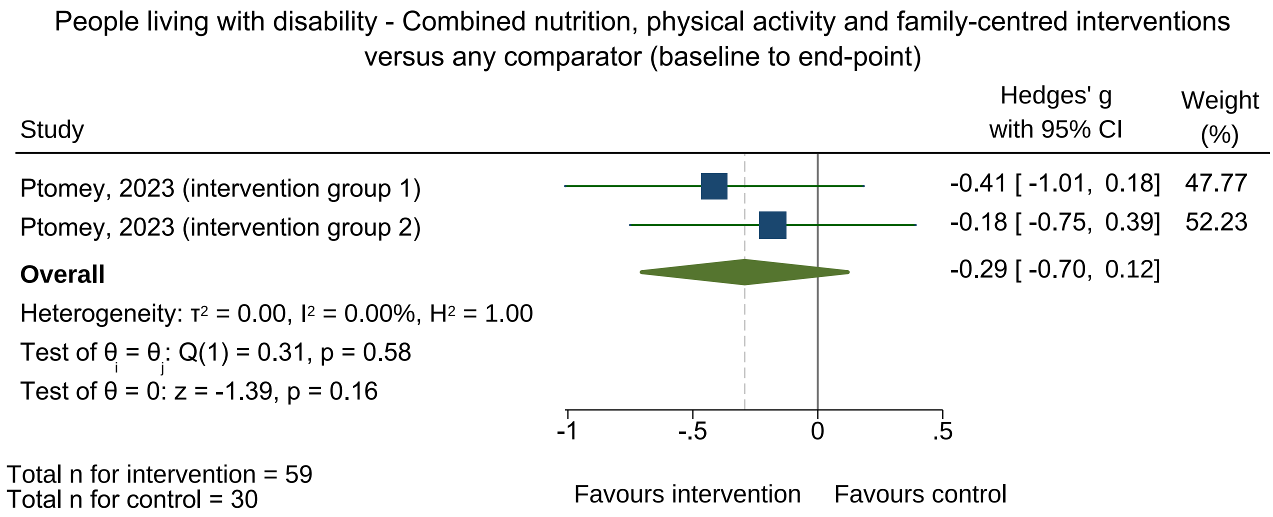
Older adults - Combined nutrition, physical activity and sedentary behaviour interventions versus any comparator (baseline to end-point)



Older adults - Combined nutrition, physical activity and psychological interventions versus any comparator (baseline to 12 months)

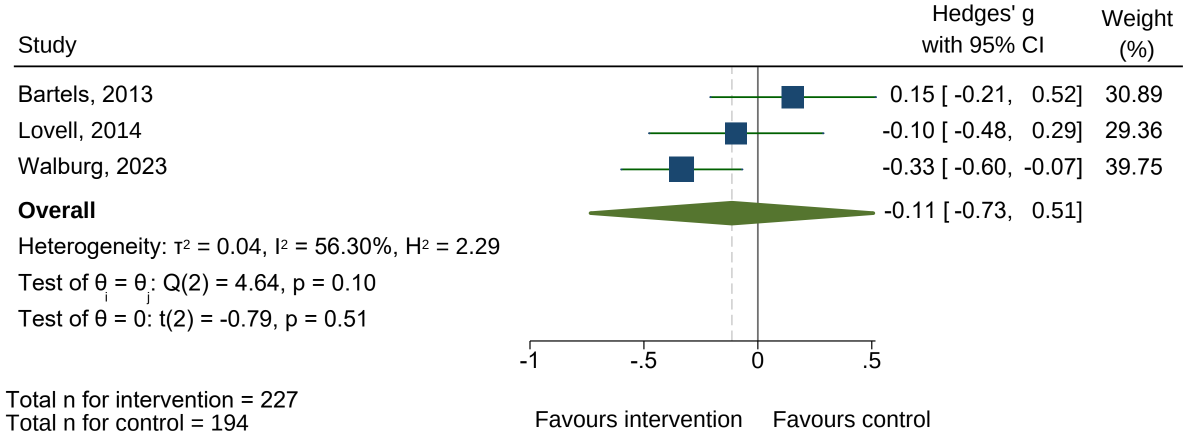


People with disability



People with a mental health condition

People living with a mental health condition - Combined nutrition, physical activity and psychological interventions versus any comparator (baseline to 12 months)



Appendix D: Reference list of excluded studies

Tables D1 to D13 below show the reference lists of ineligible studies by reason for exclusion.

Table D1: Ineligible comparator (n=204)

Publication details	
1.	Abdallah E, El Nakeeb A, Youssef T, Abdallah H, Ellatif MA, Lotfy A, et al. Impact of extent of antral resection on surgical outcomes of sleeve gastrectomy for morbid obesity (a prospective randomized study). Obesity Surgery. 2014;24(10):1587-94. doi: 10.1007/s11695-014-1242-x
2.	Albu JB, Heilbronn LK, Kelley DE, Smith SR, Azuma K, Berk ES, et al. Metabolic changes following a 1-year diet and exercise intervention in patients with type 2 diabetes. Diabetes. 2010;59(3):627-33. doi: 10.2337/db09-1239
3.	Alharbi M, Gallagher R, Kirkness A, Sibbritt D, Tofler G. Long-term outcomes from Healthy Eating and Exercise Lifestyle Program for overweight people with heart disease and diabetes. European Journal of Cardiovascular Nursing. 2016;15(1):91-9. doi: 10.1177/1474515114557222
4.	Anderson-Bill ES, Winett RA, Wojcik JR, Winett SG. Web-based guide to health: Relationship of theoretical variables to change in physical activity, nutrition and weight at 16-months. Journal of Medical Internet Research. 2011;13(1):e27. doi: 10.2196/jmir.1614
5.	Andersson DP, Thorell A, Löfgren P, Wirén M, Toft E, Qvisth V, et al. Omentectomy in addition to gastric bypass surgery and influence on insulin sensitivity: A randomized double blind controlled trial. Clinical Nutrition. 2014;33(6):991-6. doi: 10.1016/j.clnu.2014.01.004
6.	Angrisani L, Cutolo PP, Formisano G, Nosso G, Vitolo G. Laparoscopic adjustable gastric banding versus Roux-En-Y gastric bypass: 10-year results of a prospective, randomized trial. Surgery for Obesity and Related Diseases. 2013;9(3):405-13. doi: 10.1016/j.soard.2012.11.011
7.	Anton SD, LeBlanc E, Allen HR, Karabetian C, Sacks F, Bray G, et al. Use of a computerized tracking system to monitor and provide feedback on dietary goals for calorie-restricted diets: The POUNDS LOST study. Journal of Diabetes Science and Technology. 2012;6(5):1216-25. doi: 10.1177/193229681200600527
8.	Apolzan JW, Myers CA, Champagne CM, Beyl RA, Raynor HA, Anton SA, et al. Frequency of consuming foods predicts changes in cravings for those foods during weight loss: The POUNDS LOST study. Obesity. 2017;25(8):1343-8. doi: 10.1002/oby.21895
9.	Avsar FM, Sakcak I, Yildiz BD, Cosgun E, Hamamci EO. Is gastro-gastric fixation suture necessary in laparoscopic adjustable gastric banding? A prospective randomized study. Journal of Laparoendoscopic & Advanced Surgical Techniques. 2011;21(10):953-6. doi: 10.1089/lap.2011.0207
10.	Bajerska J, Chmurzynska A, Muzsik-Kazimierska A, Madry E, Pieta B, Sobkowski M, et al. Determinants favoring weight regain after weight-loss therapy among postmenopausal women. Scientific Reports. 2020;10(1):17713. doi: 10.1038/s41598-020-74302-7
11.	Bandini LG, Eliasziw M, Dittrich GA, Curtin C, Maslin M, Must A, et al. A family-based weight loss randomized controlled trial for youth with intellectual disabilities. Pediatric Obesity. 2021;16(11):1-9. doi: 10.1111/ijpo.12816
12.	Bartfield JK, Stevens VJ, Jerome GJ, Batch BC, Kennedy BM, Vollmer WM, et al. Behavioral transitions and weight change patterns within the PREMIER trial. Obesity. 2011;19(8):1609-15. doi: 10.1038/oby.2011.56
13.	Befort CA, VanWormer JJ, Desouza C, Ellerbeck EF, Gajewski B, Kimminau KS, et al. Effect of behavioral therapy with in-clinic or telephone group visits vs in-clinic individual visits on weight loss among patients with obesity in rural clinical practice: A randomized clinical trial. JAMA. 2021;325(4):363-72. doi: 10.1001/jama.2020.25855
14.	Best JR, Goldschmidt AB, Mockus-Valenzuela DS, Stein RI, Epstein LH, Wilfley DE. Shared weight and dietary changes in parent-child dyads following family-based obesity treatment. Health Psychology. 2016;35(1):92-5. doi: 10.1037/hea0000247

15.	Bian RR, Piatt GA, Sen A, Plegue MA, De Michele ML, Hafez D, et al. The effect of technology-mediated diabetes prevention interventions on weight: A meta-analysis. Journal of Medical Internet Research. 2017;19(3):e76. doi: 10.2196/jmir.4709
16.	Bijlholt M, Ameye L, van Uytsel H, Devlieger R, Bogaerts A. Evolution of postpartum weight and body composition after excessive gestational weight gain: The role of lifestyle behaviors-data from the INTER-ACT control group. International Journal of Environmental Research & Public Health. 2021;18(12):6344. doi: 10.3390/ijerph18126344
17.	Bishop-Gilyard CT, Berkowitz RI, Wadden TA, Gehrman CA, Cronquist JL, Moore RH. Weight reduction in obese adolescents with and without binge eating. Obesity. 2011;19(5):982-7. doi: 10.1038/oby.2010.249
18.	Biter LU, Leeman M, Friskes I, der Kinderen M, Apers JA, Dunkelgrun M, et al. The prognostic value of the Dutch Sweet Eating Questionnaire on weight loss after metabolic surgery: A randomized controlled trial. Obesity Surgery. 2020;30(7):2497-504. doi: 10.1007/s11695-020-04527-y
19.	Boerboom A, Cooiman M, Aarts E, Aufenacker T, Hazebroek E, Berends F. An extended pouch in a Roux-En-Y gastric bypass reduces weight regain: 3-year results of a randomized controlled trial. Obesity Surgery. 2020;30(1):3-10. doi: 10.1007/s11695-019-04156-0
20.	Bohlin A, Hagman E, Klaesson S, Danielsson P. Childhood obesity treatment: Telephone coaching is as good as usual care in maintaining weight loss - a randomized controlled trial. Clinical Obesity. 2017;7(4):199-205. doi: 10.1111/cob.12194
21.	Bouchard DR, Baillargeon J-P, Gagnon C, Brown C, Langlois M-F. Impact of health professionals' contact frequency on response to a lifestyle intervention with individuals at high risk for diabetes. Diabetes Research & Clinical Practice. 2012;96(2):129-34. doi: 10.1016/j.diabres.2011.12.019
22.	Brantley PJ, Stewart DW, Myers VH, Matthews-Ewald MR, Ard JD, Coughlin JW, et al. Psychosocial predictors of weight regain in the weight loss maintenance trial. Journal of Behavioral Medicine. 2014;37(6):1155-68. doi: 10.1007/s10865-014-9565-6
23.	Brunaldi VO, Farias GFA, de Rezende DT, Cairo-Nunes G, Riccioppo D, de Moura DTH, et al. Argon plasma coagulation alone versus argon plasma coagulation plus full-thickness endoscopic suturing to treat weight regain after Roux-en-Y gastric bypass: A prospective randomized trial (with videos). Gastrointestinal Endoscopy. 2020;92(1):97-107.e5. doi: 10.1016/j.gie.2020.03.3757
24.	Bunik M, Shek L, Valenzuela M, Munson A-L, Federspiel D, Helmkamp L, et al. Bikes for Life: Measuring the effects of a bicycle distribution program on 6 to 12-year-old children's BMI and health behaviors. Obesity Research & Clinical Practice. 2021;15(5):491-8. doi: 10.1016/j.orcp.2021.09.003
25.	Camacho-Barcia L, Munguia L, Lucas I, de la Torre R, Salas-Salvado J, Pinto X, et al. Metabolic, affective and neurocognitive characterization of metabolic syndrome patients with and without food addiction. Implications for weight progression. Nutrients. 2021;13(8). doi: 10.3390/nu13082779
26.	Cameron JD, Maras D, Sigal RJ, Kenny GP, Borghese MM, Chaput J-P, et al. The mediating role of energy intake on the relationship between screen time behaviour and body mass index in adolescents with obesity: The HEARTY study. Appetite. 2016;107:437-44. doi: 10.1016/j.appet.2016.08.101
27.	Casajoana A, Guerrero-Pérez F, García Ruiz de Gordejuela A, Admella V, Sorribas M, Vidal-Alabró A, et al. Role of gastrointestinal hormones as a predictive factor for long-term diabetes remission: Randomized trial comparing metabolic gastric bypass, sleeve gastrectomy, and greater curvature plication. Obesity Surgery. 2021;31(4):1733-44. doi: 10.1007/s11695-020-05192-x
28.	Casajoana A, Pujol J, Garcia A, Elvira J, Virgili N, de Oca FJ, et al. Predictive value of gut peptides in T2D remission: Randomized controlled trial comparing metabolic gastric bypass, sleeve gastrectomy and greater curvature plication. Obesity Surgery. 2017;27(9):2235-45. doi: 10.1007/s11695-017-2669-7
29.	Catenacci VA, Ostendorf DM, Pan Z, Bing K, Wayland LT, Seyoum E, et al. The impact of timing of exercise initiation on weight loss: An 18-month randomized clinical trial. Obesity. 2019;27(11):1828-38. doi: 10.1002/oby.22624
30.	Cazzo E, Jimenez LS, Valerini FG, de Freitas Diniz TB, Ramos AC, Chaim EA. Weight loss and vomiting 1 year after banded versus non-banded one anastomosis gastric bypass: A prospective randomized trial. Obesity Surgery. 2020;30(5):1719-25. doi: 10.1007/s11695-020-04393-8

31.	Chao AM, Wadden TA, Tronieri JS, Berkowitz RI. Alcohol intake and weight loss during intensive lifestyle intervention for adults with overweight or obesity and diabetes. Obesity. 2019;27(1):30-40. doi: 10.1002/oby.22316
32.	Chronaiou A, Tsoli M, Kehagias I, Leotsinidis M, Kalfarentzos F, Alexandrides TK. Lower ghrelin levels and exaggerated postprandial peptide-yy, glucagon-like peptide-1, and insulin responses, after gastric fundus resection, in patients undergoing Roux-en-Y gastric bypass: A randomized clinical trial. Obesity Surgery. 2012;22(11):1761-70. doi: 10.1007/s11695-012-0738-5
33.	Coffin B, Maunoury V, Pattou F, Hébuterne X, Schneider S, Coupaye M, et al. Impact of intragastric balloon before laparoscopic gastric bypass on patients with super obesity: A randomized multicenter study. Obesity Surgery. 2017;27(4):902-9. doi: 10.1007/s11695-016-2383-x
34.	Darabi S, Talebpour M, Zeinoddini A, Heidari R. Laparoscopic gastric plication versus mini-gastric bypass surgery in the treatment of morbid obesity: A randomized clinical trial. Surgery for Obesity and Related Diseases. 2013;9(6):914-9. doi: 10.1016/j.soard.2013.07.012
35.	Dargent J, Mion F, Costil V, Ecochard R, Pontette F, Mion V, et al. Multicenter randomized study of obesity treatment with minimally invasive injection of hyaluronic acid versus and combined with intragastric balloon. Obesity Surgery. 2015;25(10):1842-7. doi: 10.1007/s11695-015-1648-0
36.	DeLany JP, Kelley DE, Hames KC, Jakicic JM, Goodpaster BH. Effect of physical activity on weight loss, energy expenditure, and energy intake during diet induced weight loss. Obesity. 2014;22(2):363-70. doi: 10.1002/oby.20525
37.	Donnelly JE, Goetz J, Gibson C, Sullivan DK, Lee R, Smith BK, et al. Equivalent weight loss for weight management programs delivered by phone and clinic. Obesity. 2013;21(10):1951-9. doi: 10.1002/oby.20334
38.	Dreyer Gillette ML, Odar Stough C, Best CM, Beck AR, Hampl SE. Comparison of a condensed 12-week version and a 24-week version of a family-based pediatric weight management program. Childhood Obesity. 2014;10(5):375-82. doi: 10.1089/chi.2014.0037
39.	Eaglehouse YL, Venditti EM, Kramer MK, Arena VC, Vanderwood KK, Rockette-Wagner B, et al. Factors related to lifestyle goal achievement in a diabetes prevention program dissemination study. Translational Behavioral Medicine. 2017;7(4):873-80. doi: 10.1007/s13142-017-0494-0
40.	Eichen DM, Rhee KE, Strong DR, Boutelle KN. Impact of race and ethnicity on weight-loss outcomes in pediatric family-based obesity treatment. Journal of Racial and Ethnic Health Disparities. 2020;7(4):643-9. doi: 10.1007/s40615-019-00694-6
41.	Elgeidie A, Abdelgawad M, El Sorogy M, El Nakeeb A, Elrefai M. The effect of stoma size on the mid-term weight loss outcome of one anastomosis gastric bypass (OAGB): A single-blinded prospective randomized trial. Surgical Endoscopy. 2021;35(4):1691-5. doi: 10.1007/s00464-020-07553-0
42.	Eskandaros MS, Abbass A, Zaid MH, Darwish AA. Laparoscopic one anastomosis gastric bypass versus laparoscopic Roux-en-Y gastric bypass effects on pre-existing mild-to-moderate gastroesophageal reflux disease in patients with obesity: A randomized controlled study. Obesity Surgery. 2021;31(11):4673-81. doi: 10.1007/s11695-021-05667-5
43.	Eskandaros MS, Abbass A. Standard biliopancreatic limb (50 cm) Roux-en-Y gastric bypass versus long biliopancreatic limb (100 cm) Roux-en-Y gastric bypass in patients with body mass index 40-50 kg/m2: A randomized prospective study. Obesity Surgery. 2022;32(3):577-86. doi: 10.1007/s11695-021-05868-y
44.	Fisher A, Craigie AM, Macleod M, Steele RJC, Anderson AS. The impact of social deprivation on the response to a randomised controlled trial of a weight management intervention (BeWEL) for people at increased risk of colorectal cancer. Journal of Human Nutrition & Dietetics. 2018;31(3):306-13. doi: 10.1111/jhn.12524
45.	Fisher KL, Reeder BA, Harrison EL, Bruner BG, Ashworth NL, Pahwa P, et al. Comparing class-based and home-based exercise for older adults with chronic health conditions: 12-month follow-up of a randomized clinical trial. Journal of Aging & Physical Activity. 2018;26(3):471-85. doi: 10.1123/japa.2016-0285

46.	Fried M, Dolezalova K, Sramkova P. Adjustable gastric banding outcomes with and without gastrogastric imbrication sutures: A randomized controlled trial. Surgery for Obesity and Related Diseases. 2011;7(1):23-31. doi: 10.1016/j.soard.2010.09.018
47.	Gadiot RPM, Biter LU, Feskens PG, Dunkelgrun M, Apers JA, van 't Hof G, et al. Midterm results from the Dutch Common Channel Trial (DUCATI): Superior weight loss results of the long Roux limb gastric bypass in comparison to the standard bypass at 3-year follow-up. Obesity Surgery. 2021;31(12):5132-40. doi: 10.1007/s11695-021-05690-6
48.	Gadiot RPM, Leeman M, Biter LU, Dunkelgrun M, Apers JA, Hof GVt, et al. Does the length of the common channel as part of the total alimentary tract matter? One year results from the multicenter Dutch Common Channel Trial (DUCATI) comparing standard versus distal Roux-en-Y gastric bypass with similar biliopancreatic bowel limb. Obesity Surgery. 2020;30(12):4732-40. doi: 10.1007/s11695-020-04982-7
49.	Garner NJ, Pond M, Auckland S, Sampson M. Trained volunteers with type 2 diabetes experience significant health benefits when providing peer support. Health Education & Behavior. 2022;49(4):667-79. doi: 10.1177/10901981211048823
50.	Gepner Y, Shelef I, Schwarzfuchs D, Cohen N, Bril N, Rein M, et al. Intramyocellular triacylglycerol accumulation across weight loss strategies; sub-study of the central trial. PloS one. 2017;12(11):e0188431. doi: 10.1371/journal.pone.0188431
51.	Gidding SS, Bacha F, Bjornstad P, Levitt Katz LE, Levitsky LL, Lynch J, et al. Cardiac biomarkers in youth with type 2 diabetes mellitus: Results from the TODAY study. Journal of Pediatrics. 2018;192:86-92.e5. doi: 10.1016/j.jpeds.2017.09.012
52.	Goessl CL, VanWormer JJ, Pathak RD, Ellerbeck EF, Befort CA. Affective disorders, weight change, and patient engagement in a rural behavioral weight loss trial. Preventive Medicine. 2021;152:106698. doi: 10.1016/j.ypmed.2021.106698
53.	Goldschmidt AB, Best JR, Stein RI, Saelens BE, Epstein LH, Wilfley DE. Predictors of child weight loss and maintenance among family-based treatment completers. Journal of Consulting and Clinical Psychology. 2014;82(6):1140-50. doi: 10.1037/a0037169
54.	Gow ML, Baur LA, Ho M, Chisholm K, Noakes M, Cowell CT, et al. Can early weight loss, eating behaviors and socioeconomic factors predict successful weight loss at 12- and 24-months in adolescents with obesity and insulin resistance participating in a randomised controlled trial? International Journal of Behavioral Nutrition & Physical Activity. 2016;13:43. doi: 10.1186/s12966-016-0367-9
55.	Grammer AC, Best JR, Fowler LA, Stein RI, Kolko Conlon RP, Balantekin KN, et al. Change in parent and child psychopathology following obesity treatment and maintenance: A secondary data analysis. Pediatric Obesity. 2023;18(1):e12971. doi: 10.1111/ijpo.12971
56.	Gray CM, Hunt K, Mutrie N, Anderson AS, Treweek S, Wyke S. Weight management for overweight and obese men delivered through professional football clubs: A pilot randomized trial. The International Journal of Behavioral Nutrition and Physical Activity. 2013;10:121. doi: 10.1186/1479-5868-10-121
57.	Gray MS, Judd SE, Sloane R, Snyder DC, Miller PE, Demark-Wahnefried W. Rural-urban differences in health behaviors and outcomes among older, overweight, long-term cancer survivors in the RENEW randomized control trial. Cancer Causes & Control. 2019;30(4):301-9. doi: 10.1007/s10552-019-01141-x
58.	Grilo CM, White MA, Gueorguieva R, Wilson GT, Masheb RM. Predictive significance of the overvaluation of shape/weight in obese patients with binge eating disorder: Findings from a randomized controlled trial with 12-month follow-up. Psychological Medicine. 2013;43(6):1335-44. doi: 10.1017/S0033291712002097
59.	Grilo CM, White MA, Masheb RM, Gueorguieva R. Predicting meaningful outcomes to medication and self-help treatments for binge-eating disorder in primary care: The significance of early rapid response. Journal of Consulting and Clinical Psychology. 2015;83(2):387-94. doi: 10.1037/a0038635
60.	Grilo CM, White MA, Wilson GT, Gueorguieva R, Masheb RM. Rapid response predicts 12-month post-treatment outcomes in binge-eating disorder: Theoretical and clinical implications. Psychological Medicine. 2012;42(4):807-17. doi: 10.1017/S0033291711001875

61.	Grönroos S, Helmiö M, Juuti A, Tiusanen R, Hurme S, Löyttyniemi E, et al. Effect of laparoscopic sleeve gastrectomy vs Roux-en-Y gastric bypass on weight loss and quality of life at 7 years in patients with morbid obesity: The sleevepass randomized clinical trial. JAMA Surgery. 2021;156(2):137-46. doi: 10.1001/jamasurg.2020.5666
62.	Grubnik VV, Ospanov OB, Namaeva KA, Medvedev OV, Kresyun MS. Randomized controlled trial comparing laparoscopic greater curvature plication versus laparoscopic sleeve gastrectomy. Surgical Endoscopy. 2016;30(6):2186-91. doi: 10.1007/s00464-015-4373-9
63.	Grubnik VV, Parfentyev RS, Medvedev OV, Kresyun MS. [Randomized controlled comparative investigation of efficacy of laparoscopic plication of big gastric curvature and laparoscopic sleeve gastrectomy]. Klinichna Khirurhiia. 2015(8):9-12.
64.	Hadley TS, Cave TL, Derraik JGB, Hofman PL, Anderson YC. Associations between changes in caregiver's and child's weight status in a community-based obesity intervention programme. International Journal of Obesity. 2022;46(7):1406-9. doi: 10.1038/s41366-022-01121-3
65.	Hadziabdic MO, Mucalo I, Hrabac P, Matic T, Rahelic D, Bozikov V. Factors predictive of drop-out and weight loss success in weight management of obese patients. Journal of Human Nutrition & Dietetics. 2015;28 Suppl 2:24-32. doi: 10.1111/jhn.12270
66.	Handelsman Y, Fain R, Wang Z, Li X, Fujioka K, Shanahan W. Lorcaserin treatment allows for decreased number needed to treat for weight and glycemic parameters in week 12 responders with >=5% weight loss. Postgraduate Medicine. 2016;128(8):740-6. doi: 10.1080/00325481.2016.1240591
67.	Hedberg J, Sundbom M. Superior weight loss and lower Hba1c 3 years after duodenal switch compared with Roux-en-Y gastric bypass--a randomized controlled trial. Surgery for Obesity and Related Diseases. 2012;8(3):338-43. doi: 10.1016/j.soard.2012.01.014
68.	Homan J, Boerboom A, Aarts E, Dogan K, van Laarhoven C, Janssen I, et al. A longer biliopancreatic limb in Roux-en-Y gastric bypass improves weight loss in the first years after surgery: Results of a randomized controlled trial. Obesity Surgery. 2018;28(12):3744-55. doi: 10.1007/s11695-018-3421-7
69.	Ignat M, Vix M, Imad I, D'Urso A, Perretta S, Marescaux J, et al. Randomized trial of Roux-en-Y gastric bypass versus sleeve gastrectomy in achieving excess weight loss. British Journal of Surgery. 2017;104(3):248-56. doi: 10.1002/bjs.10400
70.	Jain M, Tantia O, Goyal G, Chaudhuri T, Khanna S, Poddar A, et al. LSG vs MGB-OAGB: 5-year follow-up data and comparative outcome of the two procedures over long term-results of a randomised control trial. Obesity Surgery. 2021;31(3):1223-32. doi: 10.1007/s11695-020-05119-6
71.	Janney CA, Masheb RM, Lutes LD, Holleman RG, Kim HM, Gillon LR, et al. Mental health and behavioral weight loss: 24-month outcomes in Veterans. Journal of Affective Disorders. 2017;215:197-204. doi: 10.1016/j.jad.2017.03.003
72.	Juodeikis Ž, Abalikšta T, Brimienė V, Brimas G. Laparoscopic adjustable gastric banding: A prospective randomized clinical trial comparing 5-year results of two different bands in 103 patients. Obesity surgery. 2017;27(4):1024-30. doi: 10.1007/s11695-016-2416-5
73.	Kalinowski P, Paluszkiewicz R, Wróblewski T, Remiszewski P, Grodzicki M, Bartoszewicz Z, et al. Ghrelin, leptin, and glycemic control after sleeve gastrectomy versus Roux-en-Y gastric bypass-results of a randomized clinical trial. Surgery for Obesity and Related Diseases. 2017;13(2):181-8. doi: 10.1016/j.soard.2016.08.025
74.	Kalinowski P, Paluszkiewicz R, Ziarkiewicz-Wróblewska B, Wróblewski T, Remiszewski P, Grodzicki M, et al. Liver function in patients with nonalcoholic fatty liver disease randomized to Roux-en-Y gastric bypass versus sleeve gastrectomy: A secondary analysis of a randomized clinical trial. Annals of Surgery. 2017;266(5):738-45. doi: 10.1097/SLA.0000000000002397
75.	Karl JP, Roberts SB, Schaefer EJ, Gleason JA, Fuss P, Rasmussen H, et al. Effects of carbohydrate quantity and glycemic index on resting metabolic rate and body composition during weight loss. Obesity. 2015;23(11):2190-8. doi: 10.1002/oby.21268
76.	Kehagias I, Karamanakos SN, Argentou M, Kalfarentzos F. Randomized clinical trial of laparoscopic Roux-en-Y gastric bypass versus laparoscopic sleeve gastrectomy for the management of patients with BMI < 50 kg/m2. Obesity surgery. 2011;21(11):1650-6. doi: 10.1007/s11695-011-0479-x

77.	Keidar A, Hershkop KJ, Marko L, Schweiger C, Hecht L, Bartov N, et al. Roux-en-Y gastric bypass vs sleeve gastrectomy for obese patients with type 2 diabetes: A randomised trial. Diabetologia. 2013;56(9):1914-8. doi: 10.1007/s00125-013-2965-2
78.	Khoo J, Hsiang JC, Taneja R, Koo S-H, Soon G-H, Kam CJ, et al. Randomized trial comparing effects of weight loss by liraglutide with lifestyle modification in non-alcoholic fatty liver disease. Liver International. 2019;39(5):941-9. doi: 10.1111/liv.14065
79.	Konieczna J, Morey M, Abete I, Bes-Rastrollo M, Ruiz-Canela M, Vioque J, et al. Contribution of ultra-processed foods in visceral fat deposition and other adiposity indicators: Prospective analysis nested in the PREDIMED-Plus trial. Clinical Nutrition. 2021;40(6):4290-300. doi: 10.1016/j.clnu.2021.01.019
80.	Laitner MH, Minski SA, Perri MG. The role of self-monitoring in the maintenance of weight loss success. Eating Behaviors. 2016;21:193-7. doi: 10.1016/j.eatbeh.2016.03.005
81.	Lazzati A, Polliand C, Porta M, Torcivia A, Paolino LA, Champault G, et al. Is fixation during gastric banding necessary? A randomised clinical study. Obesity Surgery. 2011;21(12):1859-63. doi: 10.1007/s11695-011-0523-x
82.	Lee W-J, Chong K, Lin Y-H, Wei J-H, Chen S-C. Laparoscopic sleeve gastrectomy versus single anastomosis (mini-) gastric bypass for the treatment of type 2 diabetes mellitus: 5-year results of a randomized trial and study of incretin effect. Obesity Surgery. 2014;24(9):1552-62. doi: 10.1007/s11695-014-1344-5
83.	Lee W-J, Chong K, Ser K-H, Lee Y-C, Chen S-C, Chen J-C, et al. Gastric bypass vs sleeve gastrectomy for type 2 diabetes mellitus: A randomized controlled trial. Archives of Surgery. 2011;146(2):143-8. doi: 10.1001/archsurg.2010.326
84.	Level L, Rojas A, Piñango S, Avariano Y. One anastomosis gastric bypass vs. Roux-en-Y gastric bypass: A 5-year follow-up prospective randomized trial. Langenbeck's Archives of Surgery. 2021;406(1):171-9. doi: 10.1007/s00423-020-01949-1
85.	Lima MMO, Pareja JC, Alegre SM, Geloneze SR, Kahn SE, Astiarraga BD, et al. Visceral fat resection in humans: Effect on insulin sensitivity, beta-cell function, adipokines, and inflammatory markers. Obesity. 2013;21(3):E182-E9. doi: 10.1002/oby.20030
86.	Lin P-H, Yancy WS, Jr., Pollak KI, Dolor RJ, Marcello J, Samsa GP, et al. The influence of a physician and patient intervention program on dietary intake. Journal of the Academy of Nutrition and Dietetics. 2013;113(11):1465-75. doi: 10.1016/j.jand.2013.06.343
87.	Lin S, Li C, Shen J, Guan W, Liang H. Loop versus Roux-en-Y duodenojejunal bypass with sleeve gastrectomy for type 2 diabetes: Short-term outcomes of a single-center randomized controlled trial. Surgery for Obesity and Related Diseases. 2022;18(11):1277-85. doi: 10.1016/j.soard.2022.07.003
88.	Maggio ABR, Aggoun Y, Martin XE, Marchand LM, Beghetti M, Farpour-Lambert NJ. Long-term follow-up of cardiovascular risk factors after exercise training in obese children. International Journal of Pediatric Obesity. 2011;6(sup3)(2):e603-10. doi: 10.3109/17477166.2010.530665
89.	Marquardt MK, Oettingen G, Gollwitzer PM, Sheeran P, Liepert J. Mental contrasting with implementation intentions (MCII) improves physical activity and weight loss among stroke survivors over one year. Rehabilitation Psychology. 2017;62(4):580-90. doi: 10.1037/rep0000104
90.	Marti A, Martinez I, Ojeda-Rodriguez A, Azcona-Sanjulian MC. Higher lipopolysaccharide binding protein and chemerin concentrations were associated with metabolic syndrome features in pediatric subjects with abdominal obesity during a lifestyle intervention. Nutrients. 2021;13(2). doi: 10.3390/nu13020289
91.	Martinelli MK, Godfrey KM, Martinez M, Forman EM, Butryn ML. Physical discomfort intolerance as a predictor of weight loss and physical activity in a lifestyle modification program. Journal of Behavioral Medicine. 2020;43(6):1041-6. doi: 10.1007/s10865-020-00150-5
92.	Martinez-Gonzalez MA, Fernandez-Lazaro CI, Toledo E, Diaz-Lopez A, Corella D, Goday A, et al. Carbohydrate quality changes and concurrent changes in cardiovascular risk factors: A longitudinal analysis in the PREDIMED-Plus randomized trial. The American Journal of Clinical Nutrition. 2020;111(2):291-306. doi: 10.1093/ajcn/nqz298

93.	Mason C, Foster-Schubert KE, Imayama I, Xiao L, Kong A, Campbell KL, et al. History of weight cycling does not impede future weight loss or metabolic improvements in postmenopausal women. Metabolism. 2013;62(1):127-36. doi: 10.1016/j.metabol.2012.06.012
94.	Messier SP, Resnik AE, Beavers DP, Mihalko SL, Miller GD, Nicklas BJ, et al. Intentional weight loss in overweight and obese patients with knee osteoarthritis: Is more better? Arthritis Care & Research. 2018;70(11):1569-75. doi: 10.1002/acr.23608
95.	Murphy PJ, Williams RL. Weight-loss study in African-American women: Lessons learned from project take HEED and future, technologically enhanced directions. The Permanente Journal. 2013;17(2):55-9. doi: 10.7812/TPP/12-094
96.	Murphy R, Clarke MG, Evennett NJ, John Robinson S, Lee Humphreys M, Hammodat H, et al. Laparoscopic sleeve gastrectomy versus banded Roux-en-Y gastric bypass for diabetes and obesity: A prospective randomised double-blind trial. Obesity Surgery. 2018;28(2):293-302. doi: 10.1007/s11695-017-2872-6
97.	Murphy R, Plank LD, Clarke MG, Evennett NJ, Tan J, Kim DDW, et al. Effect of banded Roux-en-Y gastric bypass versus sleeve gastrectomy on diabetes remission at 5 years among patients with obesity and type 2 diabetes: A blinded randomized clinical trial. Diabetes Care. 2022;45(7):1503-11. doi: 10.2337/dc21-2498
98.	Musella M, Vitiello A, Berardi G, Velotti N, Pesce M, Sarnelli G. Evaluation of reflux following sleeve gastrectomy and one anastomosis gastric bypass: 1-year results from a randomized open-label controlled trial. Surgical Endoscopy. 2021;35(12):6777-85. doi: 10.1007/s00464-020-08182-3
99.	Nabil TM, Khalil AH, Mikhail S, Soliman SS, Aziz M, Antoine H. Conventional versus distal laparoscopic one-anastomosis gastric bypass: A randomized controlled trial with 1-year follow-up. Obesity Surgery. 2019;29(10):3103-10. doi: 10.1007/s11695-019-03991-5
100.	Nemati R, Lu J, Dokpuang D, Booth M, Plank LD, Murphy R. Increased bile acids and FGF19 after sleeve gastrectomy and Roux-en-Y gastric bypass correlate with improvement in type 2 diabetes in a randomized trial. Obesity Surgery. 2018;28(9):2672-86. doi: 10.1007/s11695-018-3216-x
101.	Nergaard BJ, Leifsson BG, Hedenbro J, Gislason H. Gastric bypass with long alimentary limb or long pancreato-biliary limb--long-term results on weight loss, resolution of co-morbidities and metabolic parameters. Obesity Surgery. 2014;24(10):1595-602. doi: 10.1007/s11695-014-1245-7
102.	Nevanpera NJ, Hopsu L, Kuosma E, Ukkola O, Uitti J, Laitinen JH. Occupational burnout, eating behavior, and weight among working women. American Journal of Clinical Nutrition. 2012;95(4):934-43. doi: 10.3945/ajcn.111.014191
103.	Nguyen NT, Kim E, Vu S, Phelan M. Ten-year outcomes of a prospective randomized trial of laparoscopic gastric bypass versus laparoscopic gastric banding. Annals of Surgery. 2018;268(1):106-13. doi: 10.1097/SLA.0000000000002348
104.	Nielsen MS, Soberg S, Schmidt JB, Chenchar A, Sjodin A, Gillum MP. Transient postprandial increase in intact circulating fibroblast growth factor-21 levels after Roux-en-Y gastric bypass: A randomized controlled clinical trial. PeerJ. 2021;9:e11174. doi: 10.7717/peerj.11174
105.	Nilsen V, Bakke PS, Rohde G, Gallefoss F. Predictors of health-related quality of life changes after lifestyle intervention in persons at risk of type 2 diabetes mellitus. Quality of Life Research. 2014;23(9):2585-93. doi: 10.1007/s11136-014-0702-z
106.	O'Brien PE, Brennan L, Laurie C, Brown W. Intensive medical weight loss or laparoscopic adjustable gastric banding in the treatment of mild to moderate obesity: Long-term follow-up of a prospective randomised trial. Obesity Surgery. 2013;23(9):1345-53. doi: 10.1007/s11695-013-0990-3
107.	Ofori SN, Kotseva K. Comparison of treatment outcomes in patients with and without diabetes mellitus attending a multidisciplinary cardiovascular prevention programme (a retrospective analysis of the EUROACTION trial). BMC Cardiovascular Disorders. 2015;15:11. doi: 10.1186/s12872-015-0006-4
108.	Omorou AY, Manneville F, Achit H, Langlois J, Legrand K, Lecomte E, et al. Economic evaluation of a school-based strategy to prevent overweight and obesity in French adolescents: Insights from the PRALIMAP randomised trial. Public Health. 2023;215:75-82. doi: 10.1016/j.puhe.2022.11.025

109.	Ospanov O, Buchwald JN, Yeleuov G, Bekmurzinova F. Laparoscopic one-anastomosis gastric bypass with band-separated gastric pouch (OAGB-BSGP): A randomized controlled trial. Obesity Surgery. 2019;29(12):4131-7. doi: 10.1007/s11695-019-04236-1
110.	Pajecki D, Dantas ACB, Tustumi F, Kanaji AL, de Cleva R, Santo MA. Sleeve gastrectomy versus Roux-en-Y gastric bypass in the elderly: 1-year preliminary outcomes in a randomized trial (BASE Trial). Obesity Surgery. 2021;31(6):2359-63. doi: 10.1007/s11695-021-05316-x
111.	Perrino T, Brincks AM, Estrada Y, Messiah SE, Prado G. Reducing screen-based sedentary behavior among overweight and obese Hispanic adolescents through a family-based intervention. Journal of Physical Activity & Health. 2022;19(7):509-17. doi: 10.1123/jpah.2022-0050
112.	Peterli R, Borbély Y, Kern B, Gass M, Peters T, Thurnheer M, et al. Early results of the Swiss Multicentre Bypass or Sleeve Study (SM-BOSS): A prospective randomized trial comparing laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass. Annals of Surgery. 2013;258(5):690-5. doi: 10.1097/SLA.0b013e3182a67426
113.	Peterli R, Steinert RE, Woelnerhanssen B, Peters T, Christoffel-Courtin C, Gass M, et al. Metabolic and hormonal changes after laparoscopic Roux-en-Y gastric bypass and sleeve gastrectomy: A randomized, prospective trial. Obesity Surgery. 2012;22(5):740-8. doi: 10.1007/s11695-012-0622-3
114.	Peterli R, Wölnerhanssen BK, Peters T, Vetter D, Kröll D, Borbély Y, et al. Effect of laparoscopic sleeve gastrectomy vs laparoscopic Roux-en-Y gastric bypass on weight loss in patients with morbid obesity: The SM-BOSS randomized clinical trial. JAMA. 2018;319(3):255-65. doi: 10.1001/jama.2017.20897
115.	Peterli R, Wölnerhanssen BK, Vetter D, Nett P, Gass M, Borbély Y, et al. Laparoscopic sleeve gastrectomy versus Roux-Y-Gastric bypass for morbid obesity-3-year outcomes of the prospective randomized Swiss Multicenter Bypass or Sleeve Study (SM-BOSS). Annals of Surgery. 2017;265(3):466-73. doi: 10.1097/SLA.0000000000001929
116.	Petry TZ, Fabbrini E, Otoch JP, Carmona MA, Caravatto PP, Salles JE, et al. Effect of duodenal-jejunal bypass surgery on glycemic control in type 2 diabetes: A randomized controlled trial. Obesity. 2015;23(10):1973-9. doi: 10.1002/oby.21190
117.	Pilone V, Vitiello A, Monda A, Giglio F, Forestieri P. Laparoscopic adjustable gastric banding (LAGB) plus anterior fundoplication versus LAGB alone: A prospective comparative study. Surgical Laparoscopy, Endoscopy & Percutaneous Techniques. 2016;26(3):216-20. doi: 10.1097/SLE.0000000000000275
118.	Praveen Raj P, Kumaravel R, Chandramaliteeswaran C, Rajpandian S, Palanivelu C. Is laparoscopic duodenojejunal bypass with sleeve an effective alternative to Roux en Y gastric bypass in morbidly obese patients: Preliminary results of a randomized trial. Obesity Surgery. 2012;22(3):422-6. doi: 10.1007/s11695-011-0507-x
119.	Ptomey LT, Willis EA, Sherman JR, White DA, Donnelly JE. Exploring the effectiveness of an 18-month weight management intervention in adults with down syndrome using propensity score matching. Journal of Intellectual Disability Research. 2020;64(3):221-33. doi: 10.1111/jir.12713
120.	Rakita V, Homko CJ, Kashem A, Memon N, Bove AA. Factors influencing physician counseling on cardiovascular risk. Journal of Primary Care & Community Health. 2016;7(2):65-70. doi: 10.1177/2150131915614963
121.	Ramón JM, Salvans S, Crous X, Puig S, Goday A, Benaiges D, et al. Effect of Roux-en-Y gastric bypass vs sleeve gastrectomy on glucose and gut hormones: A prospective randomised trial. Journal of Gastrointestinal Surgery. 2012;16(6):1116-22. doi: 10.1007/s11605-012-1855-0
122.	Rasera I, Jr., Coelho TH, Ravelli MN, Oliveira MRM, Leite CVS, Naresse LE, et al. A comparative, prospective and randomized evaluation of Roux-en-Y gastric bypass with and without the silastic ring: A 2-year follow up preliminary report on weight loss and quality of life. Obesity Surgery. 2016;26(4):762-8. doi: 10.1007/s11695-015-1851-z
123.	Ren Y, Yang W, Yang J, Wang C. Effect of Roux-en-Y gastric bypass with different pouch size in Chinese T2DM patients with BMI 30-35 kg/m2. Obesity Surgery. 2015;25(3):457-63. doi: 10.1007/s11695-014-1411-y
124.	Risstad H, Søvik TT, Engström M, Aasheim ET, Fagerland MW, Olsén MF, et al. Five-year outcomes after laparoscopic gastric bypass and laparoscopic duodenal switch in patients with body mass index of 50

	to 60: A randomized clinical trial. JAMA Surgery. 2015;150(4):352-61. doi: 10.1001/jamasurg.2014.3579
125.	Risstad H, Svanevik M, Kristinsson JA, Hjelmesæth J, Aasheim ET, Hofsø D, et al. Standard vs distal Roux-en-Y gastric bypass in patients with body mass index 50 to 60: A double-blind, randomized clinical trial. JAMA Surgery. 2016;151(12):1146-55. doi: 10.1001/jamasurg.2016.2798
126.	Robert M, Espalieu P, Pelascini E, Caiazzo R, Sterkers A, Khamphommala L, et al. Efficacy and safety of one anastomosis gastric bypass versus Roux-en-Y gastric bypass for obesity (YOMEGA): A multicentre, randomised, open-label, non-inferiority trial. The Lancet. 2019;393(10178):1299-309. doi: 10.1016/S0140-6736(19)30475-1
127.	Rosas U, Ahmed S, Leva N, Garg T, Rivas H, Lau J, et al. Mesenteric defect closure in laparoscopic Roux-en-Y gastric bypass: A randomized controlled trial. Surgical Endoscopy. 2015;29(9):2486-90. doi: 10.1007/s00464-014-3970-3
128.	Roushdy A, Abdel-Razik MA, Emile SH, Farid M, Elbanna HG, Khafagy W, et al. Fasting ghrelin and postprandial GLP-1 levels in patients with morbid obesity and medical comorbidities after sleeve gastrectomy and one-anastomosis gastric bypass: A randomized clinical trial. Surgical Laparoscopy, Endoscopy & Percutaneous Techniques. 2020;31(1):28-35. doi: 10.1097/SLE.0000000000000844
129.	Ruiz-Tovar J, Vorwald P, Gonzalez-Ramirez G, Posada M, Salcedo G, Llavero C, et al. Impact of biliopancreatic limb length (70 cm vs 120 cm), with constant 150 cm alimentary limb, on long-term weight loss, remission of comorbidities and supplementation needs after Roux-en-Y gastric bypass: A prospective randomized clinical trial. Obesity Surgery. 2019;29(8):2367-72. doi: 10.1007/s11695-019-03717-7
130.	Rush E, McLennan S, Obolonkin V, Vandal AC, Hamlin M, Simmons D, et al. Project Energize: Whole-region primary school nutrition and physical activity programme; evaluation of body size and fitness 5 years after the randomised controlled trial. British Journal of Nutrition. 2014;111(2):363-71. doi: 10.1017/S0007114513002316
131.	Salminen P, Grönroos S, Helmiö M, Hurme S, Juuti A, Juusela R, et al. Effect of laparoscopic sleeve gastrectomy vs Roux-en-Y gastric bypass on weight loss, comorbidities, and reflux at 10 years in adult patients with obesity: The SLEEVEPASS randomized clinical trial. JAMA Surgery. 2022;157(8):656-66. doi: 10.1001/jamasurg.2022.2229
132.	Salminen P, Helmiö, Mika, Ovaska J, Juuti A, Leivonen M, Peromaa-Haavisto P, et al. Effect of laparoscopic sleeve gastrectomy vs laparoscopic Roux-en-Y gastric bypass on weight loss at 5 years among patients with morbid obesity: The SLEEVEPASS randomized clinical trial. JAMA. 2018;319(3):241-54. doi: 10.1001/jama.2017.20313
133.	Salte OBK, Svanevik M, Risstad H, Hofsø D, Blom-Høgestøl IK, Johnson LK, et al. Standard versus distal Roux-en-Y gastric bypass in patients with BMI 50-60 kg/m2: 5-year outcomes of a double-blind, randomized clinical trial. BJS Open. 2021;5(6):zrab105. doi: 10.1093/bjsopen/zrab105
134.	Schaefer A, Winkel K, Finne E, Kolip P, Reinehr T. An effective lifestyle intervention in overweight children: One-year follow-up after the randomized controlled trial on “Obeldicks light”. Clinical Nutrition. 2011;30(5):629-33. doi: 10.1016/j.clnu.2011.03.012
135.	Schneider J, Peterli R, Gass M, Slawik M, Peters T, Wölnerhanssen BK. Laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass lead to equal changes in body composition and energy metabolism 17 months postoperatively: A prospective randomized trial. Surgery for Obesity and Related Diseases. 2016;12(3):563-70. doi: 10.1016/j.soard.2015.07.002
136.	Seetharamaiah S, Tantia O, Goyal G, Chaudhuri T, Khanna S, Singh JP, et al. LSG vs OAGB-1 year follow-up data-a randomized control trial. Obesity Surgery. 2017;27(4):948-54. doi: 10.1007/s11695-016-2403-x
137.	Sharma S, Narwaria M, Cottam DR, Cottam S. Randomized double-blinded trial of laparoscopic gastric imbrication v laparoscopic sleeve gastrectomy at a single Indian institution. Obesity Surgery. 2015;25(5):800-4. doi: 10.1007/s11695-014-1497-2
138.	Sheng JY, Santa-Maria CA, Blackford AL, Lim D, Carpenter A, Smith KL, et al. The impact of weight loss on physical function and symptoms in overweight or obese breast cancer survivors: Results from

	POWER-remote. Journal of Cancer Survivorship: Research and Practice. 2022;16(3):542-51. doi: 10.1007/s11764-021-01049-z
139.	Shivakumar S, Tantia O, Goyal G, Chaudhuri T, Khanna S, Ahuja A, et al. LSG vs MGB-OAGB-3 year follow-up data: A randomised control trial. Obesity Surgery. 2018;28(9):2820-8. doi: 10.1007/s11695-018-3255-3
140.	Simon GE, Rohde P, Ludman EJ, Jeffery RW, Linde JA, Operskalski BH, et al. Association between change in depression and change in weight among women enrolled in weight loss treatment. General Hospital Psychiatry. 2010;32(6):583-9. doi: 10.1016/j.genhosppsych.2010.09.010
141.	Sjöblom S, Sirola J, Rikkonen T, Erkkilä AT, Kröger H, Qazi SL, et al. Interaction of recommended levels of physical activity and protein intake is associated with greater physical function and lower fat mass in older women: Kuopio Osteoporosis Risk Factor- (OSTPRE) and Fracture-Prevention Study. British Journal of Nutrition. 2020;123(7):826-39. doi: 10.1017/S0007114520000045
142.	Soldevila-Domenech N, Forcano L, Vintró-Alcaraz C, Cuenca-Royo A, Pintó X, Jiménez-Murcia S, et al. Interplay between cognition and weight reduction in individuals following a Mediterranean diet: Three-year follow-up of the PREDIMED-Plus trial. Clinical Nutrition. 2021;40(9):5221-37. doi: 10.1016/j.clnu.2021.07.020
143.	Søvik TT, Aasheim ET, Taha O, Engström M, Fagerland MW, Björkman S, et al. Weight loss, cardiovascular risk factors, and quality of life after gastric bypass and duodenal switch: A randomized trial. Annals of Internal Medicine. 2011;155(5):281-91. doi: 10.7326/0003-4819-155-5-201109060-00005
144.	Søvik TT, Taha O, Aasheim ET, Engström M, Kristinsson J, Björkman S, et al. Randomized clinical trial of laparoscopic gastric bypass versus laparoscopic duodenal switch for superobesity. British Journal of Surgery. 2010;97(2):160-6. doi: 10.1002/bjs.6802
145.	Stapleton P, Lilley-Hale E, Mackintosh G, Sparenburg E. Online delivery of emotional freedom techniques for food cravings and weight management: 2-year follow-up. Journal of Alternative & Complementary Medicine. 2020;26(2):98-106. doi: 10.1089/acm.2019.0309
146.	Steinberg DM, Levine EL, Lane I, Askew S, Foley PB, Puleo E, et al. Adherence to self-monitoring via interactive voice response technology in an ehealth intervention targeting weight gain prevention among black women: Randomized controlled trial. Journal of Medical Internet Research. 2014;16(4):e114. doi: 10.2196/jmir.2996
147.	Svanevik M, Risstad H, Karlsen T-I, Småstuen MC, Kolotkin RL, Søvik TT, et al. Patient-reported outcome measures 2 years after standard and distal gastric bypass-a double-blind randomized controlled trial. Obesity Surgery. 2018;28(3):606-14. doi: 10.1007/s11695-017-2891-3
148.	Svendsen M, Tonstad S. Orlistat after initial dietary/behavioural treatment: Changes in body weight and dietary maintenance in subjects with sleep related breathing disorders. Nutrition Journal. 2011;10:21-6. doi: 10.1186/1475-2891-10-21
149.	Swencionis C, Wylie-Rosett J, Lent MR, Ginsberg M, Cimino C, Wassertheil-Smoller S, et al. Weight change, psychological well-being, and vitality in adults participating in a cognitive-behavioral weight loss program. Health Psychology. 2013;32(4):439-46. doi: 10.1037/a0029186
150.	Thompson CC, Abu Dayyeh BK, Kushnir V, Kushner RF, Jirapinyo P, Schorr AB, et al. Aspiration therapy for the treatment of obesity: 4-year results of a multicenter randomized controlled trial. Surgery for Obesity and Related Diseases. 2019;15(8):1348-54. doi: 10.1016/j.soard.2019.04.026
151.	Thomson CA, Morrow KL, Flatt SW, Wertheim BC, Perfect MM, Ravia JJ, et al. Relationship between sleep quality and quantity and weight loss in women participating in a weight-loss intervention trial. Obesity. 2012;20(7):1419-25. doi: 10.1038/oby.2012.62
152.	Unick JL, Beavers D, Jakicic JM, Kitabchi AE, Knowler WC, Wadden TA, et al. Effectiveness of lifestyle interventions for individuals with severe obesity and type 2 diabetes: results from the Look AHEAD trial. Diabetes Care. 2011;34(10):2152-7. doi: 10.2337/dc11-0874
153.	Unick JL, Hogan PE, Neiberg RH, Cheskin LJ, Dutton GR, Evans-Hudnall G, et al. Evaluation of early weight loss thresholds for identifying nonresponders to an intensive lifestyle intervention. Obesity. 2014;22(7):1608-16. doi: 10.1002/oby.20777

154.	Unick JL, Neiberg RH, Hogan PE, Cheskin LJ, Dutton GR, Jeffery R, et al. Weight change in the first 2 months of a lifestyle intervention predicts weight changes 8 years later. Obesity. 2015;23(7):1353-6. doi: 10.1002/oby.21112
155.	Vix M, Diana M, Liu K-H, D'Urso A, Mutter D, Wu H-S, et al. Evolution of glycolipid profile after sleeve gastrectomy vs. Roux-en-Y gastric bypass: Results of a prospective randomized clinical trial. Obesity Surgery. 2013;23(5):613-21. doi: 10.1007/s11695-012-0827-5
156.	Vix M, Liu K-H, Diana M, D'Urso A, Mutter D, Marescaux J. Impact of Roux-en-Y gastric bypass versus sleeve gastrectomy on vitamin d metabolism: Short-term results from a prospective randomized clinical trial. Surgical Endoscopy. 2014;28(3):821-6. doi: 10.1007/s00464-013-3276-x
157.	von Loeffelholz C, Gissey LC, Schumann T, Henke C, Kurzbach A, Struck J, et al. The anorexigenic peptide neurotensin relates to insulin sensitivity in obese patients after BPD or RYGB metabolic surgery. International Journal of Obesity. 2018;42(12):2057-61. doi: 10.1038/s41366-018-0084-3
158.	Wallenius V, Alaraj A, Björnfot N, Orrenius B, Kylebäck A, Björklund P, et al. Sleeve gastrectomy and Roux-en-Y gastric bypass in the treatment of type 2 diabetes. Two-year results from a Swedish multicenter randomized controlled trial. Surgery for Obesity and Related Diseases. 2020;16(8):1035-44. doi: 10.1016/j.soard.2020.04.033
159.	Wallenius V, Dirinck E, Fändriks L, Maleckas A, le Roux CW, Thorell A. Glycemic control after sleeve gastrectomy and Roux-en-Y gastric bypass in obese subjects with type 2 diabetes mellitus. Obesity Surgery. 2018;28(6):1461-72. doi: 10.1007/s11695-017-3061-3
160.	Werling M, Fändriks L, Björklund P, Maleckas A, Brandberg J, Lönroth H, et al. Long-term results of a randomized clinical trial comparing Roux-en-Y gastric bypass with vertical banded gastroplasty. British Journal of Surgery. 2013;100(2):222-30. doi: 10.1002/bjs.8975
161.	Whitley A, Yahia N. Efficacy of clinic-based telehealth vs. Face-to-face interventions for obesity treatment in children and adolescents in the United States and Canada: A systematic review. Childhood Obesity. 2021;17(5):299-310. doi: 10.1089/chi.2020.0347
162.	Williamson DA, Anton SD, Han H, Champagne CM, Allen R, LeBlanc E, et al. Early behavioral adherence predicts short and long-term weight loss in the POUNDS LOST study. Journal of Behavioral Medicine. 2010;33(4):305-14. doi: 10.1007/s10865-010-9253-0
163.	Winger JG, Mosher CE, Rand KL, Morey MC, Snyder DC, Demark-Wahnefried W. Diet and exercise intervention adherence and health-related outcomes among older long-term breast, prostate, and colorectal cancer survivors. Annals of Behavioral Medicine. 2014;48(2):235-45. doi: 10.1007/s12160-014-9598-7
164.	Woelnerhanssen B, Peterli R, Steinert RE, Peters T, Borbély Y, Beglinger C. Effects of postbariatric surgery weight loss on adipokines and metabolic parameters: Comparison of laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy--a prospective randomized trial. Surgery for Obesity and Related Diseases. 2011;7(5):561-8. doi: 10.1016/j.soard.2011.01.044
165.	Wood AD, Secombes KR, Thies F, Aucott LS, Black AJ, Reid DM, et al. A parallel group double-blind RCT of vitamin D3 assessing physical function: Is the biochemical response to treatment affected by overweight and obesity? Osteoporosis International. 2014;25(1):305-15. doi: 10.1007/s00198-013-2473-8
166.	Xanthopoulos MS, Moore RH, Wadden TA, Bishop-Gilyard CT, Gehrman CA, Berkowitz RI. The association between weight loss in caregivers and adolescents in a treatment trial of adolescents with obesity. Journal of Pediatric Psychology. 2013;38(7):766-74. doi: 10.1093/jpepsy/jst024
167.	Yang J, Wang C, Cao G, Yang W, Yu S, Zhai H, et al. Long-term effects of laparoscopic sleeve gastrectomy versus Roux-en-Y gastric bypass for the treatment of Chinese type 2 diabetes mellitus patients with body mass index 28-35 kg/m(2). BMC Surgery. 2015;15:88. doi: 10.1186/s12893-015-0074-5
168.	Yi B, Jiang J, Zhu L, Li P, Im I, Zhu S. Comparison of the effects of Roux-en-Y gastrojejunostomy and LRYGB with small stomach pouch on type 2 diabetes mellitus in patients with BMI<35 kg/m(2). Surgery for Obesity and Related Diseases. 2015;11(5):1061-8. doi: 10.1016/j.soard.2014.12.029
169.	Zarate X, Arceo-Olaiz R, Montalvo Hernandez J, García-García E, Pablo Pantoja J, Herrera MF. Long-term results of a randomized trial comparing banded versus standard laparoscopic Roux-en-Y gastric bypass. Surgery for Obesity and Related Diseases. 2013;9(3):395-7. doi: 10.1016/j.soard.2012.09.009

170.	Zerrweck C, Herrera A, Sepúlveda EM, Rodríguez FM, Guilbert L. Long versus short biliopancreatic limb in Roux-en-Y gastric bypass: Short-term results of a randomized clinical trial. Surgery for Obesity and Related Diseases. 2021;17(8):1425-30. doi: 10.1016/j.soard.2021.03.030
171.	Zhang Y, Zhao H, Cao Z, Sun X, Zhang C, Cai W, et al. A randomized clinical trial of laparoscopic Roux-en-Y gastric bypass and sleeve gastrectomy for the treatment of morbid obesity in China: A 5-year outcome. Obesity Surgery. 2014;24(10):1617-24. doi: 10.1007/s11695-014-1258-2
172.	Zhao M, Chiriboga D, Olendzki B, Xie B, Li Y, McGonigal LJ, et al. Substantial increase in compliance with saturated fatty acid intake recommendations after one year following the American Heart Association diet. Nutrients. 2018;10(10). doi: 10.3390/nu10101486
173.	Zhu R, Larsen TM, Fogelholm M, Poppitt SD, Vestentoft PS, Silvestre MP, et al. Dose-dependent associations of dietary glycemic index, glycemic load, and fiber with 3-year weight loss maintenance and glycemic status in a high-risk population: A secondary analysis of the diabetes prevention study PREVIEW. Diabetes Care. 2021;44(7):1672-81. doi: 10.2337/dc20-3092
174.	Zhu R, Larsen TM, Poppitt SD, Silvestre MP, Fogelholm M, Jalo E, et al. Associations of quantity and quality of carbohydrate sources with subjective appetite sensations during 3-year weight-loss maintenance: Results from the PREVIEW intervention study. Clinical Nutrition. 2022;41(1):219-30. doi: 10.1016/j.clnu.2021.11.038
175.	Zwickert K, Rieger E, Swinbourne J, Manns C, McAulay C, Gibson AA, et al. High or low intensity text-messaging combined with group treatment equally promote weight loss maintenance in obese adults. Obesity Research & Clinical Practice. 2016;10(6):680-91. doi: 10.1016/j.orcp.2016.01.001
176.	Annesi JJ. Effects of increased physical activity/exercise on long-term losses in weight and waist circumference: serial mediation from changes in exercise-related to eating-related self-regulation. International Journal of Behavioral Medicine. 2023;30(3):334-44. doi: 10.1007/s12529-022-10106-5
177.	The RISE Consortium. Impact of insulin and metformin versus metformin alone on β-cell function in youth with impaired glucose tolerance or recently diagnosed type 2 diabetes. Diabetes Care. 2018;41(8):1717-25. doi: 10.2337/dc18-0787
178.	Arigo D, Roberts SR, Butryn ML. Social comparisons between group members during behavioural weight loss treatment: comparison direction, scale, and associations with weight loss maintenance. Psychology & Health. 2023;38(4):429-44. doi: 10.1080/08870446.2021.1967953
179.	Bode BW, Testa MA, Magwire M, Hale PM, Hammer M, Blonde L, et al. Patient-reported outcomes following treatment with the human GLP-1 analogue liraglutide or glimepiride in monotherapy: results from a randomized controlled trial in patients with type 2 diabetes. Diabetes, Obesity and Metabolism. 2010;12(7):604-12. doi: 10.1111/j.1463-1326.2010.01196.x
180.	Dabelea D, Ma Y, Knowler WC, Marcovina S, Saudek CD, Arakaki R, et al. Diabetes autoantibodies do not predict progression to diabetes in adults: the Diabetes Prevention Program. Diabetic Medicine. 2014;31(9):1064-8. doi: 10.1111/dme.12437
181.	Derosa G, Maffioli P, Salvadeo SAT, Ferrari I, Ragonesi PD, Querci F, et al. Exenatide versus glibenclamide in patients with diabetes. Diabetes Technology & Therapeutics. 2010;12(3):233-40. doi: 10.1089/dia.2009.0141
182.	Derosa G, Putignano P, Bossi AC, Bonaventura A, Querci F, Franzetti IG, et al. Exenatide or glimepiride added to metformin on metabolic control and on insulin resistance in type 2 diabetic patients. European Journal of Pharmacology. 2011;666(1):251-6. doi: 10.1016/j.ejphar.2011.05.051
183.	Fuechtenbusch M, Aberle J, Heitmann E, Nicolay C, Jung H. Weight loss in patients with type 2 diabetes receiving once-weekly dulaglutide plus insulin lispro or insulin glargine plus insulin lispro: a post-hoc analysis of the AWARD-4 study across baseline body mass index subgroups. Diabetes, Obesity and Metabolism. 2019;21(6):1340-8. doi: 10.1111/dom.13658
184.	Glintborg D, Altinok ML, Mumm H, Hermann AP, Ravn P, Andersen M. Body composition is improved during 12 months' treatment with metformin alone or combined with oral contraceptives compared with treatment with oral contraceptives in polycystic ovary syndrome. The Journal of Clinical Endocrinology & Metabolism. 2014;99(7):2584-91. doi: 10.1210/jc.2014-1135
185.	Glintborg D, Mumm H, Altinok ML, Richelsen B, Bruun JM, Andersen M. Adiponectin, interleukin-6, monocyte chemoattractant protein-1, and regional fat mass during 12-month randomized treatment

	with metformin and/or oral contraceptives in polycystic ovary syndrome. Journal of Endocrinological Investigation. 2014;37(8):757-64. doi: 10.1007/s40618-014-0103-8
186.	Gray CM, Wyke S, Zhang R, Anderson AS, Barry S, Boyer N, et al. Long-term weight loss trajectories following participation in a randomised controlled trial of a weight management programme for men delivered through professional football clubs: a longitudinal cohort study and economic evaluation. International Journal of Behavioral Nutrition and Physical Activity. 2018;15:60. doi: 10.1186/s12966-018-0683-3
187.	Henry JA, Astbury NM, Hartmann-Boyce J, Koshiaris C, Jebb SA. Use of cognitive and behavioral strategies during a weight loss program: a secondary analysis of the Doctor Referral of Overweight People to Low-Energy Total Diet Replacement Treatment (DROPLET) Trial. Journal of the Academy of Nutrition and Dietetics. 2023;123(10):1417-28.e17. doi: 10.1016/j.jand.2023.03.016
188.	Ho M, Gow M, Baur LA, Benitez-Aguirre PZ, Tam CS, Donaghue KC, et al. Effect of fat loss on arterial elasticity in obese adolescents with clinical insulin resistance: RESIST Study. The Journal of Clinical Endocrinology & Metabolism. 2014;99(10):E1846-E53. doi: 10.1210/jc.2014-1944
189.	Inagaki N, Goda M, Yokota S, Maruyama N, Iijima H. Safety and efficacy of canagliflozin in Japanese patients with type 2 diabetes mellitus: post hoc subgroup analyses according to body mass index in a 52-week open-label study. Expert Opinion on Pharmacotherapy. 2015;16(11):1577-91. doi: 10.1517/14656566.2015.1055250
190.	Kim C, Barrett-Connor E, Randolph JF, Kong S, Nan B, Mather KJ, et al. Sex steroid levels and response to weight loss interventions among postmenopausal women in the diabetes prevention program. Obesity. 2014;22(3):882-7. doi: 10.1002/oby.20527
191.	Kim C, Dabelea D, Kalyani RR, Christophi CA, Bray GA, Pi-Sunyer X, et al. Changes in visceral adiposity, subcutaneous adiposity, and sex hormones in the Diabetes Prevention Program. The Journal of Clinical Endocrinology & Metabolism. 2017;102(9):3381-9. doi: 10.1210/jc.2017-00967
192.	Lundkvist P, Pereira MJ, Katsogiannos P, Sjöström CD, Johnsson E, Eriksson JW. Dapagliflozin once daily plus exenatide once weekly in obese adults without diabetes: sustained reductions in body weight, glycaemia and blood pressure over 1 year. Diabetes, Obesity and Metabolism. 2017;19(9):1276-88. doi: 10.1111/dom.12954
193.	McCrimmon RJ, Catarig A-M, Frias JP, Lausvig NL, le Roux CW, Thielke D, et al. Effects of once-weekly semaglutide vs once-daily canagliflozin on body composition in type 2 diabetes: a substudy of the SUSTAIN 8 randomised controlled clinical trial. Diabetologia. 2020;63(3):473-85. doi: 10.1007/s00125-019-05065-8
194.	Mueller J, Richards R, Jones RA, Whittle F, Woolston J, Stubbings M, et al. Supporting Weight Management during COVID-19 (SWiM-C): twelve-month follow-up of a randomised controlled trial of a web-based, ACT-based, guided self-help intervention. International Journal of Obesity. 2023;47(1):51-9. doi: 10.1038/s41366-022-01232-x
195.	Murton LM, Plank LD, Cutfield R, Kim D, Booth MWC, Murphy R, et al. Bariatric surgery and psychological health: a randomised clinical trial in patients with obesity and type 2 diabetes. Obesity Surgery. 2023;33(5):1536-44. doi: 10.1007/s11695-023-06537-y
196.	Oliveira JD, Schiavon CA, Oliveira JS, Santos RN, Damiani LP, Ikeoka D, et al. Shorter history of hypertension as a predictor of hypertension remission after 3-years of bariatric surgery: data from the GATEWAY trial. Obesity Surgery. 2023;33(8):2485-92. doi: 10.1007/s11695-023-06711-2
197.	Pratley R, Nauck M, Bailey T, Montanya E, Cuddihy R, Filetti S, et al. One year of liraglutide treatment offers sustained and more effective glycaemic control and weight reduction compared with sitagliptin, both in combination with metformin, in patients with type 2 diabetes: a randomised, parallel-group, open-label trial. International Journal of Clinical Practice. 2011;65(4):397-407. doi: 10.1111/j.1742-1241.2011.02656.x
198.	Price DW, Ma Y, Rubin RR, Perreault L, Bray GA, Marrero D, et al. Depression as a predictor of weight regain among successful weight losers in the Diabetes Prevention Program. Diabetes Care. 2013;36(2):216-21. doi: 10.2337/dc12-0293

199.	Røstad-Tollefsen HK, Kolset SO, Retterstøl K, Hesselberg H, Nordstrøm M. Weight reduction and dietary improvements in a cluster-randomised controlled trial for adults with intellectual disabilities. Food Nutr Res. 2023;67:9505. doi: 10.29219/fnr.v67.9505
200.	Rosenstock J, Rodbard HW, Bain SC, D'Alessio D, Seufert J, Thomsen AB, et al. One-year sustained glycemic control and weight reduction in type 2 diabetes after addition of liraglutide to metformin followed by insulin detemir according to HbA1c target. Journal of Diabetes and its Complications. 2013;27(5):492-500. doi: 10.1016/j.jdiacomp.2013.04.008
201.	Shankar RR, Zeitler P, Deeb A, Jalaludin MY, Garcia R, Newfield RS, et al. A randomized clinical trial of the efficacy and safety of sitagliptin as initial oral therapy in youth with type 2 diabetes. Pediatric Diabetes. 2022;23(2):173-82. doi: 10.1111/pedi.13279
202.	Terada T, Boulé NG. Does metformin therapy influence the effects of intensive lifestyle intervention? Exploring the interaction between first line therapies in the Look AHEAD trial. Metabolism. 2019;94:39-46. doi: 10.1016/j.metabol.2019.01.004
203.	Zhang J, Xian T-Z, Teng Y, Wang X, Wu M-X, Li C, et al. Efficacy of exenatide administered twice daily in body mass index reduction in patients with type 2 diabetes mellitus. International Journal of Clinical Practice. 2022;2022:7128859. doi: 10.1155/2022/7128859
204.	Rise Consortium Investigators. Effects of treatment of impaired glucose tolerance or recently diagnosed type 2 diabetes with metformin alone or in combination with insulin glargine on β-cell function: comparison of responses In youth and adults. Diabetes. 2019;68(8):1670-80. doi: 10.2337/db19-0299

Table D2: Ineligible outcomes (n=158)

Publication details	
1.	Adam TC, Drummen M, Macdonald I, Jalo E, Siig-Vestentoft P, Martinez JA, et al. Association of psychobehavioral variables with HOMA-IR and BMI differs for men and women with prediabetes in the PREVIEW Lifestyle intervention. Diabetes Care. 2021;44(7):1491-8. doi: 10.2337/dc21-0059
2.	Alonso A, Bahnson JL, Gaussoin SA, Bertoni AG, Johnson KC, Lewis CE, et al. Effect of an intensive lifestyle intervention on atrial fibrillation risk in individuals with type 2 diabetes: The Look AHEAD randomized trial. American Heart Journal. 2015;170(4):770-7.e5. doi: 10.1016/j.ahj.2015.07.026
3.	Altazan AD, Redman LM, Burton JH, Beyl RA, Cain LE, Sutton EF, et al. Mood and quality of life changes in pregnancy and postpartum and the effect of a behavioral intervention targeting excess gestational weight gain in women with overweight and obesity: A parallel-arm randomized controlled pilot trial. BMC Pregnancy & Childbirth. 2019;19:50. doi: 10.1186/s12884-019-2196-8
4.	Ambeba EJ, Ye L, Sereika SM, Styn MA, Acharya SD, Sevick MA, et al. The use of mHealth to deliver tailored messages reduces reported energy and fat intake. The Journal of Cardiovascular Nursing. 2015;30(1):35-43. doi: 10.1097/JCN.0000000000000120
5.	Andrade AM, Coutinho SR, Silva MN, Mata J, Vieira PN, Minderico CS, et al. The effect of physical activity on weight loss is mediated by eating self-regulation. Patient Education and Counseling. 2010;79(3):320-6. doi: 10.1016/j.pec.2010.01.006
6.	Andrade S, Lachat C, Cardon G, Ochoa-Avilés A, Verstraeten R, Van Camp J, et al. Two years of school-based intervention program could improve the physical fitness among Ecuadorian adolescents at health risk: Subgroups analysis from a cluster-randomized trial. BMC Pediatrics. 2016;16(51). doi: 10.1186/s12887-016-0588-8
7.	Aparicio-Ting FE, Farris M, Courneya KS, Schiller A, Friedenreich CM. Predictors of physical activity at 12 month follow-up after a supervised exercise intervention in postmenopausal women. International Journal of Behavioral Nutrition & Physical Activity. 2015;12:55. doi: 10.1186/s12966-015-0219-z
8.	Arguello D, Cloutier G, Thorndike AN, Castaneda Sceppa C, Griffith J, John D. Impact of sit-to-stand and treadmill desks on patterns of daily waking physical behaviors among overweight and obese seated office workers: cluster randomized controlled trial. Journal of Medical Internet Research. 2023;25:e43018. doi: 10.2196/43018

9.	Arguello D, Thorndike AN, Cloutier G, Morton A, Castaneda-Sceppa C, John D. Effects of an "active-workstation" cluster RCT on daily waking physical behaviors. Medicine & Science in Sports & Exercise. 2021;53(7):1434-45. doi: 10.1249/MSS.0000000000002594
10.	Aro A, Kauppinen A, Kivinen N, Selander T, Kinnunen K, Tuomilehto J, et al. Life style intervention improves retinopathy status-the Finnish Diabetes Prevention study. Nutrients. 2019;11(7):1691. doi: 10.3390/nu11071691
11.	Bäcklund C, Sundelin G, Larsson C. Effect of a 1-year lifestyle intervention on physical activity in overweight and obese children. Advances in Physiotherapy. 2011;13(3):87-96. doi: 10.3109/14038196.2011.566353
12.	Bancks MP, Chen H, Balasubramanyam A, Bertoni AG, Espeland MA, Kahn SE, et al. Type 2 diabetes subgroups, risk for complications, and differential effects due to an intensive lifestyle intervention. Diabetes Care. 2021;44(5):1203-10. doi: 10.2337/dc20-2372
13.	Barrera Jr M, Toobert D, Strycker L, Osuna D. Effects of acculturation on a culturally adapted diabetes intervention for Latinas. Health Psychology. 2012;31(1):51-4. doi: 10.1037/a0025205
14.	Barrington WE, Beresford SAA, Koepsell TD, Duncan GE, Moudon AV. Worksite neighborhood and obesogenic behaviors: Findings among employees in the Promoting Activity and Changes in Eating (PACE) trial. American Journal of Preventive Medicine. 2015;48(1):31-41. doi: 10.1016/j.amepre.2014.08.025
15.	Barstad LH, Johnson LK, Borgeraas H, Hofso D, Svanevik M, Smastuen MC, et al. Changes in dietary intake, food tolerance, hedonic hunger, binge eating problems, and gastrointestinal symptoms after sleeve gastrectomy compared with after gastric bypass; 1-year results from the Oseberg study-a randomized controlled trial. American Journal of Clinical Nutrition. 2023;117(3):586-98. doi: 10.1016/j.ajcnut.2022.11.016
16.	Batrakoulis A, Jamurtas AZ, Tsimeas P, Poulios A, Perivoliotis K, Syrou N, et al. Hybrid-type, multicomponent interval training upregulates musculoskeletal fitness of adults with overweight and obesity in a volume-dependent manner: A 1-year dose-response randomised controlled trial. European Journal of Sport Science. 2023;23(3):432-43. doi: 10.1080/17461391.2021.2025434
17.	Beavers KM, Ambrosius WT, Nicklas BJ, Rejeski WJ. Independent and combined effects of physical activity and weight loss on inflammatory biomarkers in overweight and obese older adults. Journal of the American Geriatrics Society. 2013;61(7):1089-94. doi: 10.1111/jgs.12321
18.	Beavers KM, Fang-Chi H, Isom S, Kritchevsky SB, Church T, Goodpaster B, et al. Long-term physical activity and inflammatory biomarkers in older adults. Medicine & Science in Sports & Exercise. 2010;42(12):2189-96. doi: 10.1249/MSS.0b013e3181e3ac80
19.	Bendinelli B, Masala G, Bella CD, Assedi M, Benagiano M, Pratesi S, et al. Adipocytokine plasma level changes in a 24-month dietary and physical activity randomised intervention trial in postmenopausal women. European Journal of Nutrition. 2023;62(3):1185-94. doi: 10.1007/s00394-022-03055-y
20.	Bergh IH, Bjelland M, Grydeland M, Lien N, Andersen LF, Klepp K-I, et al. Mid-way and post-intervention effects on potential determinants of physical activity and sedentary behavior, results of the HEIA study - a multi-component school-based randomized trial. International Journal of Behavioral Nutrition & Physical Activity. 2012;9:63-75. doi: 10.1186/1479-5868-9-63
21.	Bergh IH, van Stralen MM, Grydeland M, Bjelland M, Lien N, Andersen LF, et al. Exploring mediators of accelerometer assessed physical activity in young adolescents in the HEalth In Adolescents study - a group randomized controlled trial. BMC Public Health. 2012;12:814. doi: 10.1186/1471-2458-12-814
22.	Bertz F, Winkvist A, Brekke HK. Sustainable weight loss among overweight and obese lactating women is achieved with an energy-reduced diet in line with dietary recommendations: Results from the LEVA randomized controlled trial. Journal of the Academy of Nutrition & Dietetics. 2015;115(1):78-86. doi: 10.1016/j.jand.2014.05.017
23.	Bot M, Brouwer IA, Roca M, Kohls E, Penninx BWJH, Watkins E, et al. Effect of multinutrient supplementation and food-related behavioral activation therapy on prevention of major depressive disorder among overweight or obese adults with subsyndromal depressive symptoms: The MooDFOOD randomized clinical trial. JAMA. 2019;321(9):858-68. doi: 10.1001/jama.2019.0556
24.	Bragg AE, Crowe-White KM, Ellis AC, Studer M, Phillips F, Samsel S, et al. Changes in cardiometabolic risk among older adults with obesity: An ancillary analysis of a randomized controlled trial investigating

	exercise plus weight maintenance and exercise plus intentional weight loss by caloric restriction. Journal of the Academy of Nutrition and Dietetics. 2022;122(2):354-62. doi: 10.1016/j.jand.2021.07.009
25.	Brown JC, Sturgeon K, Sarwer DB, Troxel AB, DeMichele AM, Denlinger CS, et al. The effects of exercise and diet on oxidative stress and telomere length in breast cancer survivors. Breast Cancer Research and Treatment. 2023;199(1):109-17. doi: 10.1007/s10549-023-06868-5
26.	Buman MP, Hekler EB, King AC, Bliwise DL. Moderators and mediators of exercise-induced objective sleep improvements in midlife and older adults with sleep complaints. Health Psychology. 2011;30(5):579-87. doi: 10.1037/a0024293
27.	Burrows T, Janet WM, Collins CE. Long-term changes in food consumption trends in overweight children in the HIKCUPS intervention. Journal of Pediatric Gastroenterology and Nutrition. 2011;53(5):543-7. doi: 10.1097/MPG.0b013e3182274829
28.	Busch AM, Whited MC, Appelhans BM, Schneider KL, Waring ME, Debiasse MA, et al. Reliable change in depression during behavioral weight loss treatment among women with major depression. Obesity. 2013;21(3):E211-E218. doi: 10.1002/oby.20113
29.	Canaway A, Frew E, Lancashire E, Pallan M, Hemming K, Adab P, et al. Economic evaluation of a childhood obesity prevention programme for children: Results from the WAVES cluster randomised controlled trial conducted in schools. PloS one. 2019;14(7):e0219500. doi: 10.1371/journal.pone.0219500
30.	Carlson JA, Sallis JF, Ramirez ER, Patrick K, Norman GJ. Physical activity and dietary behavior change in internet-based weight loss interventions: Comparing two multiple-behavior change indices. Preventive Medicine. 2012;54(1):50-4. doi: 10.1016/j.ypmed.2011.10.018
31.	Carraca EV, Silva MN, Markland D, Vieira PN, Minderico CS, Sardinha LB, et al. Body image change and improved eating self-regulation in a weight management intervention in women. The International Journal of Behavioral Nutrition and Physical Activity. 2011;8:75. doi: 10.1186/1479-5868-8-75
32.	Climent E, Benaiges D, Pedro-Botet J, Goday A, Sola I, Ramon JM, et al. Laparoscopic Roux-en-Y gastric bypass vs. laparoscopic sleeve gastrectomy for morbid obesity: A systematic review and meta-analysis of lipid effects at one year postsurgery. Minerva Endocrinologica. 2018;43(1):87-100. doi: 10.23736/S0391-1977.17.02627-X
33.	Coelho C, Dobbie LJ, Crane J, Douiri A, Learoyd AE, Okolo O, et al. Laparoscopic adjustable gastric banding with liraglutide in adults with obesity and type 2 diabetes (GLIDE): a pilot randomised placebo controlled trial. International Journal of Obesity. 2023;47(11):1132-42. doi: 10.1038/s41366-023-01368-4
34.	Collins CE, Morgan PJ, Jones P, Fletcher K, Martin J, Aguiar EJ, et al. Evaluation of a commercial web-based weight loss and weight loss maintenance program in overweight and obese adults: A randomized controlled trial. BMC Public Health. 2010;10:669. doi: 10.1186/1471-2458-10-669
35.	Colom A, Mavoa S, Ruiz M, Wärnberg J, Muncunill J, Konieczna J, et al. Neighbourhood walkability and physical activity: Moderating role of a physical activity intervention in overweight and obese older adults with metabolic syndrome. Age & Ageing. 2021;50(3):963-8. doi: 10.1093/ageing/afaa246
36.	Crane MM, Jeffery RW, Sherwood NE. Exploring gender differences in a randomized trial of weight loss maintenance. American Journal of Men's Health. 2017;11(2):369-75. doi: 10.1177/1557988316681221
37.	Davis NJ, Ma Y, Delahanty LM, Hoffman HJ, Mayer-Davis E, Franks PW, et al. Predictors of sustained reduction in energy and fat intake in the Diabetes Prevention Program Outcomes Study intensive lifestyle intervention. Journal of the Academy of Nutrition and Dietetics. 2013;113(11):1455-64. doi: 10.1016/j.jand.2013.07.003
38.	Del Corral P, Bryan DR, Garvey WT, Gower BA, Hunter GR. Dietary adherence during weight loss predicts weight regain. Obesity. 2011;19(6):1177-81. doi: 10.1038/oby.2010.298
39.	Demark-Wahnefried W, Colditz GA, Rock CL, Sedjo RL, Liu J, Wolin KY, et al. Quality of life outcomes from the Exercise and Nutrition Enhance Recovery and Good Health for You (ENERGY)-randomized weight loss trial among breast cancer survivors. Breast Cancer Research and Treatment. 2015;154(2):329-37. doi: 10.1007/s10549-015-3627-5
40.	Dewar DL, Morgan PJ, Plotnikoff RC, Okely AD, Batterham M, Lubans DR. Exploring changes in physical activity, sedentary behaviors and hypothesized mediators in the NEAT girls group randomized controlled trial. Journal of Science & Medicine in Sport. 2014;17(1):39-46. doi: 10.1016/j.jsams.2013.02.003

41.	Diao H, Wang H, Yang L, Li T. The impacts of multiple obesity-related interventions on quality of life in children and adolescents: A randomized controlled trial. Health & Quality of Life Outcomes. 2020;18:213. doi: 10.1186/s12955-020-01459-0
42.	Dineen TE, Locke SR, Cranston KD, Beauchamp MR, Jung ME. Self-regulatory efficacy and long-term physical activity engagement: Examining mediators from a randomized trial. Psychology of Sport & Exercise. 2021;56:102001. doi: 10.1016/j.psychsport.2021.102001
43.	Duggan C, Tapsoba JdD, Wang C-Y, McTiernan A. Dietary weight loss and exercise effects on serum biomarkers of angiogenesis in overweight postmenopausal women: A randomized controlled trial. Cancer Research. 2016;76(14):4226-35. doi: 10.1158/0008-5472.CAN-16-0399
44.	Duggan C, Xiao L, Wang C-Y, McTiernan A. Effect of a 12-month exercise intervention on serum biomarkers of angiogenesis in postmenopausal women: A randomized controlled trial. Cancer Epidemiology, Biomarkers & Prevention. 2014;23(4):648-57. doi: 10.1158/1055-9965.EPI-13-1155
45.	Eiffener E, Eli K, Ek A, Sandvik P, Somaraki M, Kremers S, et al. The influence of preschoolers' emotional and behavioural problems on obesity treatment outcomes: Secondary findings from a randomized controlled trial. Pediatric Obesity. 2019;14(11):e12556. doi: 10.1111/ijpo.12556
46.	Epstein LH, Paluch RA, Wrotniak BH, Daniel TO, Kilanowski C, Wilfley D, et al. Cost-effectiveness of family-based group treatment for child and parental obesity. Childhood Obesity. 2014;10(2):114-21. doi: 10.1089/chi.2013.0123
47.	Escalante Y, Saavedra JM, Garcia-Hermoso A, Dominguez AM. Improvement of the lipid profile with exercise in obese children: A systematic review. Preventive Medicine. 2012;54(5):293-301. doi: 10.1016/j.ypmed.2012.02.006
48.	Espeland MA, Dutton GR, Neiberg RH, Carmichael O, Hayden KM, Johnson KC, et al. Impact of a multidomain intensive lifestyle intervention on complaints about memory, problem-solving, and decision-making abilities: The Action for Health in Diabetes randomized controlled clinical trial. Journals of Gerontology: Series A. 2018;73(11):1560-7. doi: 10.1093/gerona/gly124
49.	Espeland MA, Gaussoin SA, Bahnson J, Vaughan EM, Knowler WC, Simpson FR, et al. Impact of an 8-year intensive lifestyle intervention on an index of multimorbidity. Journal of the American Geriatrics Society. 2020;68(10):2249-56. doi: 10.1111/jgs.16672
50.	Fanning J, Nicklas B, Furlipa J, Rejeski WJ. The impact of dietary weight loss, aerobic exercise, and daylong movement on social cognitive mediators of long-term weight loss. Journal of Behavioral Medicine. 2023;46(3):499-508. doi: 10.1007/s10865-022-00359-6
51.	Fanning J, Walkup MP, Ambrosius WT, Brawley LR, Ip EH, Marsh AP, et al. Change in health-related quality of life and social cognitive outcomes in obese, older adults in a randomized controlled weight loss trial: Does physical activity behavior matter? Journal of Behavioral Medicine. 2018;41(3):299-308. doi: 10.1007/s10865-017-9903-6
52.	Fazzino TL, Fabian C, Befort CA. Change in physical activity during a weight management intervention for breast cancer survivors: Association with weight outcomes. Obesity. 2017;25(S2):S109-S115. doi: 10.1002/oby.22007
53.	Fenton S, Burrows TL, Collins CE, Rayward AT, Murawski B, Duncan MJ. Efficacy of a multi-component m-health diet, physical activity, and sleep intervention on dietary intake in adults with overweight and obesity: A randomised controlled trial. Nutrients. 2021;13(7):2468. doi: 10.3390/nu13072468
54.	Ferrara A, Hedderson MM, Albright CL, Ehrlich SF, Quesenberry CP, Jr., Peng T, et al. A pregnancy and postpartum lifestyle intervention in women with gestational diabetes mellitus reduces diabetes risk factors: A feasibility randomized control trial. Diabetes Care. 2011;34(7):1519-25. doi: 10.2337/dc10-2221
55.	Fontvieille A, Dionne IJ, Riesco E. Long-term exercise training and soy isoflavones to improve quality of life and climacteric symptoms. Climacteric. 2017;20(3):233-9. doi: 10.1080/13697137.2017.1294153
56.	Foy CG, Lewis CE, Hairston KG, Miller GD, Lang W, Jakicic JM, et al. Intensive lifestyle intervention improves physical function among obese adults with knee pain: Findings from the Look AHEAD trial. Obesity. 2011;19(1):83-93. doi: 10.1038/oby.2010.120
57.	Gago C, Aftosmes-Tobio A, Beckerman-Hsu JP, Oddleifson C, Garcia EA, Lansburg K, et al. Evaluation of a cluster-randomized controlled trial: Communities for healthy living, family-centered obesity prevention

	program for head start parents and children. International Journal of Behavioral Nutrition & Physical Activity. 2023;20:4. doi: 10.1186/s12966-022-01400-2
58.	Gepner Y, Shelef I, Komy O, Cohen N, Schwarzfuchs D, Bril N, et al. The beneficial effects of mediterranean diet over low-fat diet may be mediated by decreasing hepatic fat content. Journal of Hepatology. 2019;71(2):379-88. doi: 10.1016/j.jhep.2019.04.013
59.	Golley RK, Magarey AM, Daniels LA. Children's food and activity patterns following a six-month child weight management program. International Journal of Pediatric Obesity. 2011;6(5-6):409-14. doi: 10.3109/17477166.2011.605894
60.	Gómez-Sánchez L, Gómez-Sánchez M, Lugones-Sánchez C, Rodríguez-Sánchez E, Tamayo-Morales O, Gonzalez-Sánchez S, et al. Long-term effectiveness of a smartphone app and a smart band on arterial stiffness and central hemodynamic parameters in a population with overweight and obesity (Evident 3 Study): Randomised controlled trial. Nutrients. 2022;14(22):4758. doi: 10.3390/nu14224758
61.	González-Ruiz K, Ramírez-Vélez R, Correa-Bautista JE, Peterson MD, García-Hermoso A. The effects of exercise on abdominal fat and liver enzymes in pediatric obesity: A systematic review and meta-analysis. Childhood Obesity. 2017;13(4):272-82. doi: 10.1089/chi.2017.0027
62.	Greaney ML, Askew S, Wallington SF, Foley PB, Quintiliani LM, Bennett GG. The effect of a weight gain prevention intervention on moderate-vigorous physical activity among black women: The Shape Program. International Journal of Behavioral Nutrition & Physical Activity. 2017;14:139. doi: 10.1186/s12966-017-0596-6
63.	Groeneveld IF, Proper KI, van der Beek AJ, Hildebrandt VH, van Mechelen W. Short and long term effects of a lifestyle intervention for construction workers at risk for cardiovascular disease: A randomized controlled trial. BMC Public Health. 2011;11(1):836-. doi: 10.1186/1471-2458-11-836
64.	Gulley LD, Shomaker LB, Kelly NR, Chen KY, Olsen CH, Tanofsky-Kraff M, et al. Examining cognitive-behavioral therapy change mechanisms for decreasing depression, weight, and insulin resistance in adolescent girls at risk for type 2 diabetes. Journal of Psychosomatic Research. 2022;157:110781. doi: 10.1016/j.jpsychores.2022.110781
65.	Habermann N, Makar KW, Abbenhardt C, Xiao L, Wang C-Y, Utsugi HK, et al. No effect of caloric restriction or exercise on radiation repair capacity. Medicine & Science in Sports & Exercise. 2015;47(5):896-904. doi: 10.1249/MSS.0000000000000480
66.	Haire-Joshu DL, Schwarz CD, Peskoe SB, Budd EL, Brownson RC, Joshu CE. A group randomized controlled trial integrating obesity prevention and control for postpartum adolescents in a home visiting program. The International Journal of Behavioral Nutrition and Physical Activity. 2015;12:88. doi: 10.1186/s12966-015-0247-8
67.	Halliday TM, Savla J, Marinik EL, Hedrick VE, Winett RA, Davy BM. Resistance training is associated with spontaneous changes in aerobic physical activity but not overall diet quality in adults with prediabetes. Physiology & Behavior. 2017;177:49-56. doi: 10.1016/j.physbeh.2017.04.013
68.	Harris A, Hinman RS, Lawford BJ, Egerton T, Keating C, Brown C, et al. Cost-effectiveness of telehealth-delivered exercise and dietary weight loss programs for knee osteoarthritis within a twelve-month randomized trial. Arthritis Care & Research. 2023;75(6):1311-9. doi: 10.1002/acr.25022
69.	Hartman S, Dunsiger S, Bock B, Larsen B, Linke S, Pekmezi D, et al. Physical activity maintenance among spanish-speaking Latinas in a randomized controlled trial of an internet-based intervention. Journal of Behavioral Medicine. 2017;40(3):392-402. doi: 10.1007/s10865-016-9800-4
70.	Heianza Y, Wenjie M, Tao H, Tiange W, Yan Z, Smith SR, et al. Macronutrient intake-associated FGF21 genotype modifies effects of weight-loss diets on 2-year changes of central adiposity and body composition: The POUNDS Lost Trial. Diabetes Care. 2016;39(11):1909-14. doi: 10.2337/dc16-1111
71.	Herget S, Markert J, Petroff D, Gausche R, Grimm A, Hilbert A, et al. Psychosocial well-being of adolescents before and after a 1-year telephone-based adiposity prevention study for families. The Journal of Adolescent Health. 2015;57(3):351-4. doi: 10.1016/j.jadohealth.2015.05.014
72.	Hilbert A, Hildebrandt T, Agras WS, Wilfley DE, Wilson GT. Rapid response in psychological treatments for binge eating disorder. Journal of Consulting and Clinical Psychology. 2015;83(3):649-54. doi: 10.1037/ccp0000018

73.	Horne JR, Gilliland JA, Vohl M-C, Madill J. Exploring attitudes, subjective norms and perceived behavioural control in a genetic-based and a population-based weight management intervention: A one-year randomized controlled trial. Nutrients. 2020;12(12):3768. doi: 10.3390/nu12123768
74.	Huang T, Larsen KT, Jepsen JRM, Møller NC, Thorsen AK, Mortensen EL, et al. Effects of an obesity intervention program on cognitive function in children: A randomized controlled trial. Obesity. 2015;23(10):2101-8. doi: 10.1002/oby.21209
75.	Ilanne-Parikka P, Laaksonen DE, Eriksson JG, Lakka TA, Lindstr J, Peltonen M, et al. Leisure-time physical activity and the metabolic syndrome in the Finnish diabetes prevention study. Diabetes Care. 2010;33(7):1610-7. doi: 10.2337/dc09-2155
76.	Ishigami S, Natsugoe S, Hokita S, Aoki T, Kashiwagi H, Hirakawa K, et al. Postoperative long-term evaluation of interposition reconstruction compared with Roux-en-Y after total gastrectomy in gastric cancer: Prospective randomized controlled trial. American Journal of Surgery. 2011;202(3):247-53. doi: 10.1016/j.amjsurg.2011.04.004
77.	Jensen SBK, Juhl CR, Janus C, Lundgren JR, Martinussen C, Wiingaard C, et al. Weight loss maintenance with exercise and liraglutide improves glucose tolerance, glucagon response, and beta cell function. Obesity. 2023;31(4):977-89. doi: 10.1002/oby.23715
78.	Jerome GJ, Fink T, Brady T, Young DR, Dickerson FB, Goldsholl S, et al. Physical activity levels and screen time among youth with overweight/obesity using mental health services. International Journal of Environmental Research & Public Health. 2022;19(4). doi: 10.3390/ijerph19042261
79.	Kahn SE, Haffner SM, Viberti G, Herman WH, Lachin JM, Kravitz BG, et al. Rosiglitazone decreases C-reactive protein to a greater extent relative to glyburide and metformin over 4 years despite greater weight gain: observations from A Diabetes Outcome Progression Trial (ADOPT). Diabetes Care. 2009;33(1):177-83. doi: 10.2337/dc09-1661
80.	Kempf K, Rohling M, Banzer W, Braumann KM, Halle M, Schaller N, et al. High-protein, low-glycaemic meal replacement improves physical health-related quality of life in high-risk persons for metabolic syndrome-a subanalysis of the randomised-controlled ACOORH trial. Nutrients. 2022;14(15). doi: 10.3390/nu14153161
81.	Keränen A-M, Strengell K, Savolainen MJ, Laitinen JH. Effect of weight loss intervention on the association between eating behaviour measured by TFEQ-18 and dietary intake in adults. Appetite. 2011;56(1):156-62. doi: 10.1016/j.appet.2010.10.004
82.	Kim C, Christophi CA, Goldberg RB, Perreault L, Dabelea D, Marcovina SM, et al. Adiponectin, C-reactive protein, fibrinogen and tissue plasminogen activator antigen levels among glucose-intolerant women with and without histories of gestational diabetes. Diabetic Medicine. 2016;33(1):32-8. doi: 10.1111/dme.12799
83.	Kirk JK, Craven T, Lipkin EW, Katula J, Pedley C, O'Connor PJ, et al. Longitudinal changes in dietary fat intake and associated changes in cardiovascular risk factors in adults with type 2 diabetes: The ACCORD trial. Diabetes Research & Clinical Practice. 2013;100(1):61-8. doi: 10.1016/j.diabres.2013.02.001
84.	Kolotkin RL, Fujioka K, Wolden ML, Brett JH, Bjorner JB. Improvements in health-related quality of life with liraglutide 3.0 mg compared with placebo in weight management. Clinical Obesity. 2016;6(4):233-42. doi: 10.1111/cob.12146
85.	Kornman KP, Shrewsbury VA, Chou AC, Nguyen B, Lee A, O'Connor J, et al. Electronic therapeutic contact for adolescent weight management: The Loozit study. Telemedicine Journal and e-Health. 2010;16(6):678-85. doi: 10.1089/tmj.2009.0180
86.	Kritchevsky SB, Lovato L, Handing EP, Blair S, Botoseneanu A, Guralnik JM, et al. Exercise's effect on mobility disability in older adults with and without obesity: The LIFE study randomized clinical trial. Obesity. 2017;25(7):1199-205. doi: 10.1002/oby.21860
87.	Kwarteng JL, Matthews L, Banerjee A, Sharp LK, Gerber BS, Stolley MR. The association of stressful life events on weight loss efforts among African American breast cancer survivors. Journal of Cancer Survivorship: Research and Practice. 2022;16(3):604-13. doi: 10.1007/s11764-021-01054-2
88.	Landry A, Madson M, Thomson J, Zoellner J, Connell C, Yadrick K. A randomized trial using motivational interviewing for maintenance of blood pressure improvements in a community-engaged lifestyle intervention: HUB city steps. Health Education Research. 2015;30(6):910-22. doi: 10.1093/her/cyv058

89.	Lane A, Wilcox S, Wingard E, McLean MK, Liu J. Association of a lifestyle intervention with blood pressure trajectories during pregnancy and postpartum in women with pre-pregnancy overweight and obesity. Maternal and Child Health Journal. 2023;27(8):1407-15. doi: 10.1007/s10995-023-03709-1
90.	Lawford BJ, Hinman RS, McManus F, Lamb KE, Egerton T, Keating C, et al. How does exercise, with and without diet, improve pain and function in knee osteoarthritis? A secondary analysis of a randomized controlled trial exploring potential mediators of effects. Arthritis Care & Research. 2023;75(11):2316-27. doi: 10.1002/acr.25140
91.	Lincoff AM, Brown-Frandsen K, Colhoun Helen M, Deanfield J, Emerson Scott S, Esbjerg S, et al. Semaglutide and cardiovascular outcomes in obesity without diabetes. New England Journal of Medicine. 2023;389(24):2221-32. doi: 10.1056/NEJMoa2307563
92.	Liu X, Hanseman DJ, Champagne CM, Bray GA, Qi L, Williamson DA, et al. Predicting weight loss using psychological and behavioral factors: The POUNDS Lost trial. Journal of Clinical Endocrinology & Metabolism. 2019;105(4):1274–83. doi: 10.1210/clinem/dgz236
93.	Lugones-Sanchez C, Recio-Rodriguez JI, Menendez-Suarez M, Saz-Lara A, Ramirez-Manent JI, Sanchez-Calavera MA, et al. Effect of a multicomponent mhealth intervention on the composition of diet in a population with overweight and obesity-randomized clinical trial EVIDENT 3. Nutrients. 2022;14(2):270. doi: 10.3390/nu14020270
94.	Madrid DA, Beavers KM, Walkup MP, Ambrosius WT, Rejeski WJ, Marsh AP, et al. Effect of exercise modality and weight loss on changes in muscle and bone quality in older adults with obesity. Experimental Gerontology. 2023;174:112126. doi: 10.1016/j.exger.2023.112126
95.	Maindal HT, Toft U, Lauritzen T, Sandbaek A. Three-year effects on dietary quality of health education: A randomized controlled trial of people with screen-detected dysglycaemia (The ADDITION study, Denmark). European Journal of Public Health. 2013;23(3):393-8. doi: 10.1093/eurpub/cks076
96.	Malin SK, Samat A, Wolski K, Abood B, Pothier CE, Bhatt DL, et al. Improved acylated ghrelin suppression at 2 years in obese patients with type 2 diabetes: Effects of bariatric surgery vs standard medical therapy. International Journal of Obesity. 2014;38(3):364-70. doi: 10.1038/ijo.2013.196
97.	Martin JC, Moran LJ, Teede HJ, Ranasinha S, Lombard CB, Harrison CL. Diet quality in a weight gain prevention trial of reproductive aged women: A secondary analysis of a cluster randomized controlled trial. Nutrients. 2018;11(1):49. doi: 10.3390/nu11010049
98.	Mason AE, Epel ES, Kristeller J, Moran PJ, Dallman M, Lustig RH, et al. Effects of a mindfulness-based intervention on mindful eating, sweets consumption, and fasting glucose levels in obese adults: Data from the SHINE randomized controlled trial. Journal of Behavioral Medicine. 2016;39(2):201-13. doi: 10.1007/s10865-015-9692-8
99.	Mason C, Liren X, Ikuyo I, Duggan CR, Foster-Schubert KE, Kong A, et al. Influence of diet, exercise, and serum vitamin d on sarcopenia in postmenopausal women. Medicine & Science in Sports & Exercise. 2013;45(4):607-14. doi: 10.1249/MSS.0b013e31827aa3fa
100.	Mason C, Risques R-A, Xiao L, Duggan CR, Imayama I, Campbell KL, et al. Independent and combined effects of dietary weight loss and exercise on leukocyte telomere length in postmenopausal women. Obesity. 2013;21(12):E549-E554. doi: 10.1002/oby.20509
101.	Mazzoni A-S, Brooke HL, Berntsen S, Nordin K, Demmelmaier I. Effect of self-regulatory behaviour change techniques and predictors of physical activity maintenance in cancer survivors: A 12-month follow-up of the Phys-Can RCT. BMC Cancer. 2021;21:1272. doi: 10.1186/s12885-021-08996-x
102.	McCormick DP, Niebuhr B, Reyna L, Reifsnider E. Influences of parenting education on development of obesity among young children. Academic Pediatrics. 2023;23(5):963-70. doi: 10.1016/j.acap.2023.03.010
103.	McCurley JL, Buckholtz JW, Roberto CA, Levy DE, Anderson EM, Chang Y, et al. The association of impulsivity with effects of the ChooseWell 365 workplace nudge intervention on diet and weight. Translational Behavioral Medicine. 2023;13(5):281-8. doi: 10.1093/tbm/ibac103
104.	Morey MC, Blair CK, Sloane R, Cohen HJ, Snyder DC, Demark-Wahnefried W. Group trajectory analysis helps to identify older cancer survivors who benefit from distance-based lifestyle interventions. Cancer. 2015;121(24):4433-40. doi: 10.1002/cncr.29684

105.	Morseth MS, Hanvold SE, Ro O, Risstad H, Mala T, Benth JS, et al. Self-reported eating disorder symptoms before and after gastric bypass and duodenal switch for super obesity--a 5-year follow-up study. Obesity Surgery. 2016;26:588-94. doi: 10.1007/s11695-015-1790-8
106.	Napoli N, Shah K, Waters DL, Sinacore DR, Qualls C, Villareal DT. Effect of weight loss, exercise, or both on cognition and quality of life in obese older adults. American Journal of Clinical Nutrition. 2014;100(1):189-98. doi: 10.3945/ajcn.113.082883
107.	Neubeck L, Freedman SB, Briffa T, Bauman A, Redfern J. Four-year follow-up of the Choice of Health Options in prevention of Cardiovascular Events randomized controlled trial. European Journal of Cardiovascular Prevention and Rehabilitation. 2011;18(2):278-86. doi: 10.1097/HJR.0b013e32833cca66
108.	Ohman EA, Kirchner L, Winkvist A, Bertz F, Holven KB, Ulven SM, et al. Effects of dietary and exercise treatments on HDL subclasses in lactating women with overweight and obesity: A secondary analysis of a randomised controlled trial. The British Journal of Nutrition. 2022;128(11):2105-14. doi: 10.1017/S0007114522000241
109.	Pal S, Ho S, Gahler RJ, Wood S. Effect on insulin, glucose and lipids in overweight/obese Australian adults of 12 months consumption of two different fibre supplements in a randomised trial. Nutrients. 2017;9(2):91. doi: 10.3390/nu9020091
110.	Pearl RL, Wadden TA, Tronieri JS, Berkowitz RI, Chao AM, Alamuddin N, et al. Short- and long-term changes in health-related quality of life with weight loss: Results from a randomized controlled trial. Obesity. 2018;26(6):985-91. doi: 10.1002/oby.22187
111.	Perry RA, Daniels L, Baur LA, Magarey A. Impact of a 6-month family-based weight management programme on child food and activity behaviours: Short-term and long-term outcomes of the PEACH TM intervention. Pediatric Obesity. 2018;13(11):744-51. doi: 10.1111/ijpo.12460
112.	Polidori D, Sanghvi A, Seeley RJ, Hall KD. How strongly does appetite counter weight loss? Quantification of the feedback control of human energy intake. Obesity. 2016;24(11):2289-95. doi: 10.1002/oby.21653
113.	Possmark S, Sellberg F, Ghaderi A, Tynelius P, Willmer M, Rasmussen F, et al. Physical activity in women attending a dissonance-based intervention after Roux-en-Y gastric bypass: A 2-year follow-up of a randomized controlled trial. PloS one. 2021;16(11):e0255556. doi: 10.1371/journal.pone.0255556
114.	Ptomey LT, Willis EA, Goetz JR, Lee J, Szabo-Reed AN, Sullivan DK, et al. Portion-controlled meals provide increases in diet quality during weight loss and maintenance. Journal of Human Nutrition & Dietetics. 2016;29(2):209-16. doi: 10.1111/jhn.12296
115.	Puklin LS, Harrigan M, Cartmel B, Sanft T, Gottlieb L, Zhou B, et al. Randomized trial evaluating a self-guided lifestyle intervention delivered via evidence-based materials versus a waitlist group on changes in body weight, diet quality, physical activity, and quality of life among breast cancer survivors. Cancers. 2023;15(19). doi: 10.3390/cancers15194719
116.	Radcliff TA, Côté MJ, Whittington MD, Daniels MJ, Bobroff LB, Janicke DM, et al. Cost-effectiveness of three doses of a behavioral intervention to prevent or delay type 2 diabetes in rural areas. Journal of the Academy of Nutrition & Dietetics. 2020;120(7):1163-71. doi: 10.1016/j.jand.2019.10.025
117.	Retnakaran R, Ye C, Hanley AJ, Harris SB, Zinman B. Discordant effects on central obesity, hepatic insulin resistance, and alanine aminotransferase of low-dose metformin and thiazolidinedione combination therapy in patients with impaired glucose tolerance. Diabetes, Obesity and Metabolism. 2012;14(1):91-3. doi: 10.1111/j.1463-1326.2011.01481.x
118.	Rosas LG, Azar KMJ, Lv N, Xiao L, Goldhaber-Fiebert JD, Snowden MB, et al. Effect of an intervention for obesity and depression on patient-centered outcomes: An RCT. American Journal of Preventive Medicine. 2020;58(4):496-505. doi: 10.1016/j.amepre.2019.11.005
119.	Rosas LG, Xiao L, Lv N, Lavori PW, Venditti EM, Snowden MB, et al. Understanding mechanisms of integrated behavioral therapy for co-occurring obesity and depression in primary care: A mediation analysis in the RAINBOW trial. Translational Behavioral Medicine. 2021;11(2):382-92. doi: 10.1093/tbm/ibaa024
120.	Rubin RR, Peyrot M, Wang NY, Coughlin JW, Jerome GJ, Fitzpatrick SL, et al. Patient-reported outcomes in the practice-based opportunities for weight reduction (POWER) trial. Quality of Life Research. 2013;22(9):2389-98. doi: 10.1007/s11136-013-0363-3

121.	Sacheck JM, Wright CM, Amin SA, Anzman-Frasca S, Chomitz VM, Chui KK, et al. The Fueling Learning through Exercise study cluster RCT: Impact on children's moderate-to-vigorous physical activity. American Journal of Preventive Medicine. 2021;60(6):e239-e49. doi: 10.1016/j.amepre.2021.01.002
122.	Saint Onge JM, Fagan M, Befort CA. The association between the obesogenic environment and 6-month and 24-month weight change in a rural weight loss intervention trial in the United States. Preventive Medicine. 2022;158:107040. doi: 10.1016/j.ypmed.2022.107040
123.	Samdal GB, Eide GE, Barth T, Williams G, Meland E. Effective behaviour change techniques for physical activity and healthy eating in overweight and obese adults; systematic review and meta-regression analyses. The International Journal of Behavioral Nutrition and Physical Activity. 2017;14(1):42. doi: 10.1186/s12966-017-0494-y
124.	Scirica BM, Bohula EA, Dwyer JP, Qamar A, Inzucchi SE, McGuire DK, et al. Lorcaserin and renal outcomes in obese and overweight patients in the CAMELLIA-TIMI 61 Trial. Circulation. 2019;139(3):366-75. doi: 10.1161/CIRCULATIONAHA.118.038341
125.	Senkus KE, Crowe-White KM, Locher JL, Ard JD. Relative fat mass assessment estimates changes in adiposity among female older adults with obesity after a 12-month exercise and diet intervention. Annals of Medicine. 2022;54(1):1160-6. doi: 10.1080/07853890.2022.2067352
126.	Shechter A, St-Onge M-P, Kuna ST, Zammit G, RoyChoudhury A, Newman AB, et al. Sleep architecture following a weight loss intervention in overweight and obese patients with obstructive sleep apnea and type 2 diabetes: Relationship to apnea-hypopnea index. Journal of Clinical Sleep Medicine. 2014;10(11):1205-11. doi: 10.5664/jcsm.4202
127.	Simpson FR, Pajewski NM, Nicklas B, Kritchevsky S, Bertoni A, Ingram F, et al. Impact of multidomain lifestyle intervention on frailty through the lens of deficit accumulation in adults with type 2 diabetes mellitus. The Journals of Gerontology: Series A. 2020;75(10):1921-7. doi: 10.1093/gerona/glz197
128.	Small L, Thacker L, Aldrich H, Bonds-McClain D, Melnyk B. A pilot intervention designed to address behavioral factors that place overweight/obese young children at risk for later-life obesity. Western Journal of Nursing Research. 2017;39(8):1192-212. doi: 10.1177/0193945917708316
129.	Snel M, Sleddering MA, Vd Peijl ID, Romijn JA, Pijl H, Meinders AE, et al. Quality of life in type 2 diabetes mellitus after a very low calorie diet and exercise. European Journal of Internal Medicine. 2012;23(2):143-9. doi: 10.1016/j.ejim.2011.07.004
130.	Søvik TT, Karlsson J, Aasheim ET, Fagerland MW, Bjorkman S, Engstrom M, et al. Gastrointestinal function and eating behavior after gastric bypass and duodenal switch. Surgery for Obesity and Related Diseases. 2013;9(5):641-7. doi: 10.1016/j.soard.2012.06.006
131.	Steinberg D, Kay M, Burroughs J, Svetkey LP, Bennett GG. The effect of a digital behavioral weight loss intervention on adherence to the Dietary Approaches to Stop Hypertension (DASH) dietary pattern in medically vulnerable primary care patients: Results from a randomized controlled trial. Journal of the Academy of Nutrition and Dietetics. 2019;119(4):574-84. doi: 10.1016/j.jand.2018.12.011
132.	Steinberg DM, Christy J, Batch BC, Askew S, Moore RH, Parker P, et al. Preventing weight gain improves sleep quality among black women: Results from a RCT. Annals of Behavioral Medicine. 2017;51(4):555-66. doi: 10.1007/s12160-017-9879-z
133.	Sun J, Wang Y, Zhang X, He H. The effects of metformin on insulin resistance in overweight or obese children and adolescents: a PRISMA-compliant systematic review and meta-analysis of randomized controlled trials. Medicine. 2019;98(4):e14249. doi: 10.1097/MD.0000000000014249
134.	Tene L, Shelef I, Schwarzfuchs D, Gepner Y, Yaskolka Meir A, Tsaban G, et al. The effect of long-term weight-loss intervention strategies on the dynamics of pancreatic-fat and morphology: An MRI RCT study. Clinical Nutrition ESPEN. 2018;24:82-9. doi: 10.1016/j.clnesp.2018.01.008
135.	Terranova CO, Winkler EAH, Healy GN, Demark-Wahnefried W, Eakin EG, Reeves MM. Dietary and physical activity changes and adherence to WCRF/AICR cancer prevention recommendations following a remotely delivered weight loss intervention for female breast cancer survivors: The Living Well after Breast Cancer randomized controlled trial. Journal of the Academy of Nutrition & Dietetics. 2022;122(9):1644-64.e7. doi: 10.1016/j.jand.2022.02.009

136.	Thomson JL, Tussing-Humphreys LM, Goodman MH, Landry AS. Enhanced curriculum intervention did not result in increased postnatal physical activity in rural, southern, primarily African American women. American Journal of Health Promotion. 2018;32(2):464-72. doi: 10.1177/0890117117736090
137.	TODAY Study Group. Safety and tolerability of the treatment of youth-onset type 2 diabetes: the TODAY experience. Diabetes Care. 2013;36(6):1765-71. doi: 10.2337/dc12-2390
138.	Toriola AT, Liu J, Ganz PA, Colditz GA, Yang L, Izadi S, et al. Effect of weight loss on bone health in overweight/obese postmenopausal breast cancer survivors. Breast Cancer Research and Treatment. 2015;152(3):637-43. doi: 10.1007/s10549-015-3496-y
139.	Tsaban G, Bilitzky-Kopit A, Yaskolka Meir A, Zelicha H, Gepner Y, Shelef I, et al. The effect of weight-loss interventions on cervical and chin subcutaneous fat depots; the CENTRAL randomized controlled trial. Nutrients. 2021;13(11):3827. doi: 10.3390/nu13113827
140.	Tuominen M, Suorsa K, Pentti J, Koski P, Stenholm S, Leskinen T. The impact of a 12-month activity tracker intervention on activity behavior across body mass index subgroups among recent retirees: Post hoc analysis of a randomized controlled trial. Journal of Physical Activity & Health. 2021;18(12):1563-9. doi: 10.1123/jpah.2021-0352
141.	Underdal MO, Stridsklev S, Oppen IH, Høgetveit K, Andersen MS, Vanky E. Does metformin treatment during pregnancy modify the future metabolic profile in women with PCOS? The Journal of Clinical Endocrinology & Metabolism. 2018;103(6):2408-13. doi: 10.1210/jc.2018-00485
142.	van Grieken A, Renders CM, Veldhuis L, Looman CW, Hirasing RA, Raat H. Promotion of a healthy lifestyle among 5-year-old overweight children: Health behavior outcomes of the 'Be active, eat right' study. BMC Public Health. 2014;14:59. doi: 10.1186/1471-2458-14-59
143.	van Grieken A, Vlasblom E, Wang L, Beltman M, Boere-Boonekamp MM, L'Hoir MP, et al. Personalized web-based advice in combination with well-child visits to prevent overweight in young children: Cluster randomized controlled trial. Journal of Medical Internet Research. 2017;19(7):e268. doi: 10.2196/jmir.7115
144.	Vellanki P, Smiley DD, Stefanovski D, Anzola I, Duan W, Hudson M, et al. Randomized controlled study of metformin and sitagliptin on long-term normoglycemia remission in African American patients With hyperglycemic crises. Diabetes Care. 2016;39(11):1948-55. doi: 10.2337/dc16-0406
145.	Venditti EM, Wylie-Rosett J, Delahanty LM, Mele L, Hoskin MA, Edelstein SL, et al. Short and long-term lifestyle coaching approaches used to address diverse participant barriers to weight loss and physical activity adherence. International Journal of Behavioral Nutrition & Physical Activity. 2014;11:16. doi: 10.1186/1479-5868-11-16
146.	Verbestel V, De Coen V, Van Winckel M, Huybrechts I, Maes L, De Bourdeaudhuij I. Prevention of overweight in children younger than 2 years old: A pilot cluster-randomized controlled trial. Public Health Nutrition. 2014;17(6):1384-92. doi: 10.1017/S1368980013001353
147.	Vidoni ML, Lee M, Mitchell-Bennett L, Reininger BM. Home visit intervention promotes lifestyle changes: Results of an RCT in Mexican Americans. American Journal of Preventive Medicine. 2019;57(5):611-20. doi: 10.1016/j.amepre.2019.06.020
148.	Wang M, Xue Q, Li X, Krohn K, Ziesche S, Ceglarek U, et al. Circulating levels of microRNA-122 and hepatic fat change in response to weight-loss interventions: CENTRAL Trial. The Journal of Clinical Endocrinology and Metabolism. 2022;107(5):e1899-e906. doi: 10.1210/clinem/dgac023
149.	Wasserkampf A, Silva MN, Santos IC, Carraça EV, Meis JJM, Kremers SPJ, et al. Short- and long-term theory-based predictors of physical activity in women who participated in a weight-management program. Health Education Research. 2014;29(6):941-52. doi: 10.1093/her/cyu060
150.	Weisman CS, Hillemeier MM, Downs DS, Feinberg ME, Chuang CH, Botti JJ, et al. Improving women's preconceptional health: Long-term effects of the Strong Healthy Women behavior change intervention in the central Pennsylvania Women's Health Study. Women’s Health Issues. 2011;21(4):265-71. doi: 10.1016/j.whi.2011.03.007
151.	Whetstone LM, Kolasa KM, Dunn C, Jayaratne KSU, Vodicka S, Schneider L, et al. Effects of a behavior-based weight management program delivered through a state cooperative extension and local public health department network, North Carolina, 2008-2009. Preventing Chronic Disease. 2011;8(4):A81.

152.	Xin Y, Davies A, McCombie L, Briggs A, Messow CM, Grieve E, et al. Type 2 diabetes remission: Economic evaluation of the DIRECT/Counterweight-Plus weight management programme within a primary care randomized controlled trial. Diabetic Medicine. 2019;36(8):1003-12. doi: 10.1111/dme.13981
153.	Xue Q, Li X, Ma H, Tao Z, Heianza Y, Rood JC, et al. Changes in pedometer-measured physical activity are associated with weight loss and changes in body composition and fat distribution in response to reduced-energy diet interventions: The POUNDS Lost trial. Diabetes, Obesity & Metabolism. 2022;24(6):1000-9. doi: 10.1111/dom.14662
154.	Yaskolka Meir A, Shelef I, Schwarzfuchs D, Gepner Y, Tene L, Zelicha H, et al. Intermuscular adipose tissue and thigh muscle area dynamics during an 18-month randomized weight loss trial. Journal of Applied Physiology. 2016;121(2):518-27. doi: 10.1152/japplphysiol.00309.2016
155.	Young DR, Coughlin J, Jerome GJ, Myers V, Chae SE, Brantley PJ. Effects of the PREMIER interventions on health-related quality of life. Annals of Behavioral Medicine. 2010;40(3):302-12. doi: 10.1007/s12160-010-9220-6
156.	Young MD, Plotnikoff RC, Collins CE, Callister R, Morgan PJ. Impact of a male-only weight loss maintenance programme on social-cognitive determinants of physical activity and healthy eating: A randomized controlled trial. British Journal of Health Psychology. 2015;20(4):724-44. doi: 10.1111/bjhp.12137
157.	Zaremba SMM, Stead M, McKell J, O'Carroll RE, Mutrie N, Treweek S, et al. Response to a novel, weight self-awareness plan used in a multi-component lifestyle intervention programme to reduce breast cancer risk factors in older women-secondary analysis from the ActWELL trial. Journal of Human Nutrition & Dietetics. 2023;36(1):266-76. doi: 10.1111/jhn.13062
158.	Zelicha H, Schwarzfuchs D, Shelef I, Gepner Y, Tsaban G, Tene L, et al. Changes of renal sinus fat and renal parenchymal fat during an 18-month randomized weight loss trial. Clinical Nutrition. 2018;37(4):1145-53. doi: 10.1016/j.clnu.2017.04.007

Table D3: Ineligible Intervention (n=128)

Publication details	
1.	Abdul-Ghani MA, Puckett C, Triplitt C, Maggs D, Adams J, Cersosimo E, et al. Initial combination therapy with metformin, pioglitazone and exenatide is more effective than sequential add-on therapy in subjects with new-onset diabetes. Results from the Efficacy and Durability of Initial Combination Therapy for Type 2 Diabetes (EDICT): a randomized trial. Diabetes, Obesity and Metabolism. 2015;17(3):268-75. doi: 10.1111/dom.12417
2.	Andersen E, Juhl CR, Kjøller ET, Lundgren JR, Janus C, Dehestani Y, et al. Sperm count is increased by diet-induced weight loss and maintained by exercise or glp-1 analogue treatment: A randomized controlled trial. Human Reproduction. 2022;37(7):1414-22. doi: 10.1093/humrep/deac096
3.	Appel LJ, Clark JM, Yeh H-C, Wang N-Y, Coughlin JW, Daumit G, et al. Comparative effectiveness of weight-loss interventions in clinical practice. N Engl J Med. 2011;365(21):1959-68. doi: 10.1056/NEJMoa1108660
4.	Arlinghaus KR, Moreno JP, Reesor L, Hernandez DC, Johnston CA. Compañeros: High school students mentor middle school students to address obesity among Hispanic adolescents. Prev Chronic Dis. 2017;14(E92):1-9. doi: 10.5888/pcd14.170130
5.	Aronson R, Frias J, Goldman A, Darekar A, Lauring B, Terra SG. Long-term efficacy and safety of ertugliflozin monotherapy in patients with inadequately controlled T2DM despite diet and exercise: VERTIS MONO extension study. Diabetes, Obesity and Metabolism. 2018;20(6):1453-60. doi: 10.1111/dom.13251
6.	Bailey CJ, Morales Villegas EC, Woo V, Tang W, Ptaszynska A, List JF. Efficacy and safety of dapagliflozin monotherapy in people with type 2 diabetes: a randomized double-blind placebo-controlled 102-week trial. Diabetic Medicine. 2015;32(4):531-41. doi: 10.1111/dme.12624
7.	Bailey RA, Damaraju CV, Martin SC, Meininger GE, Rupnow MF, Blonde L. Attainment of diabetes-related quality measures with canagliflozin versus sitagliptin. Am J Manag Care. 2014;20(1 Suppl):s16-24.

8.	Banks J, Sharp DJ, Hunt LP, Shield JPH. Evaluating the transferability of a hospital-based childhood obesity clinic to primary care: A randomised controlled trial. British Journal of General Practice. 2012;62(594):e6-e12. doi: 10.3399/bjgp12X616319
9.	Basavareddy A, Sarala N, Nanjappa VP, Eshwarappa SM. A study of lifestyle modifications with and without metformin in prediabetic subjects. Journal of Diabetology. 2022;13(3):277-84. doi: 10.4103/jod.jod_40_22
10.	Bassols J, Martínez-Calcerrada J-M, Osiniri I, Díaz-Roldán F, Xargay-Torrent S, Mas-Parés B, et al. Effects of metformin administration on endocrine-metabolic parameters, visceral adiposity and cardiovascular risk factors in children with obesity and risk markers for metabolic syndrome: a pilot study. PLOS ONE. 2019;14(12):e0226303. doi: 10.1371/journal.pone.0226303
11.	Beals JW, Kayser BD, Smith GI, Schweitzer GG, Kirbach K, Kearney ML, et al. Dietary weight loss-induced improvements in metabolic function are enhanced by exercise in people with obesity and prediabetes. Nature Metabolism. 2023;5(7):1221-35. doi: 10.1038/s42255-023-00829-4
12.	Bogh AF, Jensen SBK, Juhl CR, Janus C, Sandsdal RM, Lundgren JR, et al. Insufficient sleep predicts poor weight loss maintenance after 1 year. Sleep. 2023;46(5):zsac295. doi: 10.1093/sleep/zsac295
13.	Bohula EA, Scirica BM, Inzucchi SE, McGuire DK, Keech AC, Smith SR, et al. Effect of lorcaserin on prevention and remission of type 2 diabetes in overweight and obese patients (CAMELLIA-TIMI 61): a randomised, placebo-controlled trial. The Lancet. 2018;392(10161):2269-79. doi: 10.1016/S0140-6736(18)32328-6
14.	Bohula Erin A, Wiviott Stephen D, McGuire Darren K, Inzucchi Silvio E, Kuder J, Im K, et al. Cardiovascular safety of lorcaserin in overweight or obese patients. New England Journal of Medicine. 2018;379(12):1107-17. doi: 10.1056/NEJMoa1808721
15.	Bolli GB, Munteanu M, Dotsenko S, Niemoeller E, Boka G, Wu Y, et al. Efficacy and safety of lixisenatide once daily vs. placebo in people with Type 2 diabetes insufficiently controlled on metformin (GetGoal-F1). Diabetic Medicine. 2014;31(2):176-84. doi: 10.1111/dme.12328
16.	Burke LE, Styn MA, Sereika SM, Conroy MB, Ye L, Glanz K, et al. Using mhealth technology to enhance self-monitoring for weight loss: A randomized trial. Am J Prev Med. 2012;43(1):20-6. doi: 10.1016/j.amepre.2012.03.016
17.	Carreras-Badosa G, Gómez-Vilarrubla A, Mas-Parés B, Martínez-Calcerrada J-M, Xargay-Torrent S, Prats-Puig A, et al. A 24-month metformin treatment study of children with obesity: changes in circulating GDF-15 and associations with changes in body weight and visceral fat. Pediatric Obesity. 2022;17(2):e12845. doi: 10.1111/ijpo.12845
18.	Chao AM, Wadden TA, Walsh OA, Gruber KA, Alamuddin N, Berkowitz RI, et al. Effects of liraglutide and behavioral weight loss on food cravings, eating behaviors, and eating disorder psychopathology. Obesity. 2019;27(12):2005-10. doi: 10.1002/oby.22653
19.	Chao AM, Wadden TA, Walsh OA, Gruber KA, Alamuddin N, Berkowitz RI, et al. Changes in health-related quality of life with intensive behavioural therapy combined with liraglutide 3.0 mg per day. Clin Obes. 2019;9(6):e12340. doi: 10.1111/cob.12340
20.	Chertow GM, Vart P, Jongs N, Langkilde AM, McMurray JJV, Correa-Rotter R, et al. Quételet (body mass) index and effects of dapagliflozin in chronic kidney disease. Diabetes, Obesity and Metabolism. 2022;24(5):827-37. doi: 10.1111/dom.14641
21.	Daumit GL, Evins AE, Cather C, Dalcin AT, Dickerson FB, Miller ER, III, et al. Effect of a tobacco cessation intervention incorporating weight management for adults with serious mental illness: a randomized clinical trial. JAMA Psychiatry. 2023;80(9):895-904. doi: 10.1001/jamapsychiatry.2023.1691
22.	Davis SR, Robinson PJ, Jane F, White S, Brown KA, Piessens S, et al. The benefits of adding metformin to tamoxifen to protect the endometrium—A randomized placebo-controlled trial. Clinical Endocrinology. 2018;89(5):605-12. doi: 10.1111/cen.13830
23.	Derosa G, Cicero AFG, Franzetti IG, Querci F, Carbone A, Ciccarelli L, et al. Effects of exenatide and metformin in combination on some adipocytokine levels: a comparison with metformin monotherapy. Canadian Journal of Physiology and Pharmacology. 2013;91(9):724-32. doi: 10.1139/cjpp-2012-0300
24.	Derosa G, Franzetti IG, Querci F, Carbone A, Ciccarelli L, Piccinni MN, et al. Variation in inflammatory markers and glycemic parameters after 12 months of exenatide plus metformin treatment compared

	with metformin alone: A randomized placebo-controlled trial. Pharmacotherapy. 2013;33(8):817-26. doi: 10.1002/phar.1301
25.	Derosa G, Franzetti IG, Querci F, Carbone A, Ciccarelli L, Piccinni MN, et al. Exenatide plus metformin compared with metformin alone on β-cell function in patients with type 2 diabetes. Diabetic Medicine. 2012;29(12):1515-23. doi: 10.1111/j.1464-5491.2012.03699.x
26.	Derosa G, Maffioli P, Salvadeo SAT, Ferrari I, Gravina A, Mereu R, et al. Comparison of orlistat treatment and placebo in obese type 2 diabetic patients. Expert Opinion on Pharmacotherapy. 2010;11(12):1971-82. doi: 10.1517/14656566.2010.493557
27.	Derosa G, Ragonesi PD, Carbone A, Fogari E, Bianchi L, Bonaventura A, et al. Vildagliptin added to metformin on β-cell function after a euglycemic hyperinsulinemic and hyperglycemic clamp in type 2 diabetes patients. Diabetes Technology & Therapeutics. 2012;14(6):475-84. doi: 10.1089/dia.2011.0278
28.	Diamant M, Van Gaal L, Guerci B, Stranks S, Han J, Malloy J, et al. Exenatide once weekly versus insulin glargine for type 2 diabetes (DURATION-3): 3-year results of an open-label randomised trial. The Lancet Diabetes & Endocrinology. 2014;2(6):464-73. doi: 10.1016/S2213-8587(14)70029-4
29.	Du Q, Wu B, Wang Y-J, Yang S, Zhao Y-Y, Liang Y-y. Comparative effects of sitagliptin and metformin in patients with type 2 diabetes mellitus: a meta-analysis. Current Medical Research and Opinion. 2013;29(11):1487-94. doi: 10.1185/03007995.2013.833090
30.	Elkind-Hirsch KE, Shaler D, Harris R. Postpartum treatment with liraglutide in combination with metformin versus metformin monotherapy to improve metabolic status and reduce body weight in overweight/obese women with recent gestational diabetes: a double-blind, randomized, placebo-controlled study. Journal of Diabetes and its Complications. 2020;34(4):107548. doi: 10.1016/j.jdiacomp.2020.107548
31.	Farage G, Simmons C, Kocak M, Klesges RC, Talcott GW, Richey P, et al. Assessing the contribution of self-monitoring through a commercial weight loss app: Mediation and predictive modeling study. JMIR mHealth uHealth. 2021;9(7):e18741. doi: 10.2196/18741
32.	Fernández-García JC, Barrios-Rodríguez R, Asenjo-Plaza M, Ramos-Molina B, Molina-Vega M, Guzmán-Guzmán A, et al. Metformin, testosterone, or both in men with obesity and low testosterone: a double-blind, parallel-group, randomized controlled trial. Metabolism. 2022;136:155290. doi: 10.1016/j.metabol.2022.155290
33.	Ferrannini E, Berk A, Hantel S, Pinnetti S, Hach T, Woerle HJ, et al. Long-term safety and efficacy of empagliflozin, sitagliptin, and metformin: an active-controlled, parallel-group, randomized, 78-week open-label extension study in patients with type 2 diabetes. Diabetes Care. 2013;36(12):4015-21. doi: 10.2337/dc13-0663
34.	Ferrulli A, Macrì C, Terruzzi I, Massarini S, Ambrogi F, Adamo M, et al. Weight loss induced by deep transcranial magnetic stimulation in obesity: A randomized, double-blind, sham-controlled study. Diabetes Obes Metab. 2019;21(8):1849-60. doi: 10.1111/dom.13741
35.	Finkelstein EA, Tham K-W, Haaland BA, Sahasranaman A. Applying economic incentives to increase effectiveness of an outpatient weight loss program (trio) - a randomized controlled trial. Soc Sci Med. 2017;185:63-70. doi: 10.1016/j.socscimed.2017.05.030
36.	Foghsgaard S, Vedtofte L, Andersen ES, Bahne E, Andreasen C, Sørensen AL, et al. Liraglutide treatment for the prevention of glucose tolerance deterioration in women with prior gestational diabetes mellitus: a 52-week randomized controlled clinical trial. Diabetes, Obesity and Metabolism. 2024;26(1):201-14. doi: 10.1111/dom.15306
37.	Garnett SP, Gow M, Ho M, Baur LA, Noakes M, Woodhead HJ, et al. Improved insulin sensitivity and body composition, irrespective of macronutrient intake, after a 12 month intervention in adolescents with pre-diabetes; resist a randomised control trial. BMC Pediatr. 2014;14:289. doi: 10.1186/s12887-014-0289-0
38.	Garvey WT, Ryan DH, Bohannon NJV, Kushner RF, Rueger M, Dvorak RV, et al. Weight-loss therapy in type 2 diabetes: effects of phentermine and topiramate extended release. Diabetes Care. 2014;37(12):3309-16. doi: 10.2337/dc14-0930

39.	Garvey WT, Van Gaal L, Leiter LA, Vijapurkar U, List J, Cuddihy R, et al. Effects of canagliflozin versus glimepiride on adipokines and inflammatory biomarkers in type 2 diabetes. Metabolism. 2018;85:32-7. doi: 10.1016/j.metabol.2018.02.002
40.	Giorgino F, Benroubi M, Sun J-H, Zimmermann AG, Pechtner V. Efficacy and safety of once-weekly dulaglutide versus insulin glargine in patients with type 2 diabetes on metformin and glimepiride (AWARD-2). Diabetes Care. 2015;38(12):2241-9. doi: 10.2337/dc14-1625
41.	Glintborg D, Mumm H, Holst JJ, Andersen M. Effect of oral contraceptives and/or metformin on GLP-1 secretion and reactive hypoglycaemia in polycystic ovary syndrome. Endocrine Connections. 2017;6(4):267-77. doi: 10.1530/EC-17-0034
42.	Gough SCL, Bode BW, Woo VC, Rodbard HW, Linjawi S, Zacho M, et al. One-year efficacy and safety of a fixed combination of insulin degludec and liraglutide in patients with type 2 diabetes: results of a 26-week extension to a 26-week main trial. Diabetes, Obesity and Metabolism. 2015;17(10):965-73. doi: 10.1111/dom.12498
43.	Grandy S, Hashemi M, Langkilde AM, Parikh S, Sjöström CD. Changes in weight loss-related quality of life among type 2 diabetes mellitus patients treated with dapagliflozin. Diabetes, Obesity and Metabolism. 2014;16(7):645-50. doi: 10.1111/dom.12263
44.	Grilo CM, Crosby RD, Wilson GT, Masheb RM. 12-month follow-up of fluoxetine and cognitive behavioral therapy for binge eating disorder. J Consult Clin Psychol. 2012;80(6):1108-13. doi: 10.1037/a0030061
45.	Grilo CM, Masheb RM, White MA, Gueorguieva R, Barnes RD, Walsh BT, et al. Treatment of binge eating disorder in racially and ethnically diverse obese patients in primary care: Randomized placebo-controlled clinical trial of self-help and medication. Behav Res Ther. 2014;58:1-9. doi: 10.1016/j.brat.2014.04.002
46.	Grilo CM, Masheb RM, Wilson GT, Gueorguieva R, White MA. Cognitive-behavioral therapy, behavioral weight loss, and sequential treatment for obese patients with binge-eating disorder: A randomized controlled trial. J Consult Clin Psychol. 2011;79(5):675-85. doi: 10.1037/a0025049
47.	Grilo CM, White MA, Ivezaj V, Gueorguieva R. Randomized controlled trial of behavioral weight loss and stepped care for binge-eating disorder: 12-month follow-up. Obesity. 2020;28(11):2116-24. doi: 10.1002/oby.22975
48.	Gulley LD, Shomaker LB, Kelly NR, Chen KY, Stice E, Olsen CH, et al. Indirect effects of a cognitive-behavioral intervention on adolescent weight and insulin resistance through decreasing depression in a randomized controlled trial. J Pediatr Psychol. 2019;44(10):1163-73. doi: 10.1093/jpepsy/jsz064
49.	Gyawali B, Sharma R, Mishra SR, Neupane D, Vaidya A, Sandbaek A, et al. Effectiveness of a female community health volunteer-delivered intervention in reducing blood glucose among adults with type 2 diabetes: An open-label, cluster randomized clinical trial. JAMA Netw Open. 2021;4(2):e2035799. doi: 10.1001/jamanetworkopen.2020.35799
50.	Horbach T, Meyer G, Morales-Conde S, Alarcón I, Favretti F, Anselmino M, et al. Closed-loop gastric electrical stimulation versus laparoscopic adjustable gastric band for the treatment of obesity: A randomized 12-month multicenter study. Int J Obes. 2016;40(12):1891-8. doi: 10.1038/ijo.2016.159
51.	Hu J-R, Yeh H-C, Mueller NT, Appel LJ, Miller ER, III, Maruthur NM, et al. Effects of a behavioral weight loss intervention and metformin treatment on serum urate: Results from a randomized clinical trial. Nutrients. 2021;13(8):2673. doi: 10.3390/nu13082673
52.	Huang J-W, Lin Y-Y, Wu N-Y. The effectiveness of telemedicine on body mass index: A systematic review and meta-analysis. Journal of Telemedicine & Telecare. 2019;25(7):389-401. doi: 10.1177/1357633X18775564
53.	Iepsen EW, Lundgren J, Dirksen C, Jensen JE, Pedersen O, Hansen T, et al. Treatment with a GLP-1 receptor agonist diminishes the decrease in free plasma leptin during maintenance of weight loss. International Journal of Obesity. 2015;39(5):834-41. doi: 10.1038/ijo.2014.177
54.	Iepsen EW, Lundgren JR, Hartmann B, Pedersen O, Hansen T, Jørgensen NR, et al. GLP-1 receptor agonist treatment increases bone formation and prevents bone loss in weight-reduced obese women. The Journal of Clinical Endocrinology & Metabolism. 2015;100(8):2909-17. doi: 10.1210/jc.2015-1176

55.	Jackson JB, Pietrabissa G, Rossi A, Manzoni GM, Castelnuovo G. Brief strategic therapy and cognitive behavioral therapy for women with binge eating disorder and comorbid obesity: A randomized clinical trial one-year follow-up. J Consult Clin Psychol. 2018;86(8):688-701. doi: 10.1037/ccp0000313
56.	Jensen SBK, Janus C, Lundgren JR, Juhl CR, Sandsdal RM, Olsen LM, et al. Exploratory analysis of eating- and physical activity-related outcomes from a randomized controlled trial for weight loss maintenance with exercise and liraglutide single or combination treatment. Nat Commun. 2022;13(1):4770. doi: 10.1038/s41467-022-32307-y
57.	Kaku K, Yamada Y, Watada H, Abiko A, Nishida T, Zacho J, et al. Safety and efficacy of once-weekly semaglutide vs additional oral antidiabetic drugs in Japanese people with inadequately controlled type 2 diabetes: a randomized trial. Diabetes, Obesity and Metabolism. 2018;20(5):1202-12. doi: 10.1111/dom.13218
58.	Kelsey MM, Hilkin A, Pyle L, Severn C, Utzschneider K, Van Pelt RE, et al. Two-year treatment with metformin during puberty does not preserve β-cell function in youth with obesity. The Journal of Clinical Endocrinology & Metabolism. 2021;106(7):e2622-e32. doi: 10.1210/clinem/dgab170
59.	Kim C, Randolph JF, Golden SH, Labrie F, Kong S, Nan B, et al. Weight loss increases follicle stimulating hormone in overweight postmenopausal women [corrected]. Obesity. 2015;23(1):228-33. doi: 10.1002/oby.20917
60.	Kolotkin RL, Jeppesen OK, Baker-Knight J, Lee SY, Tokita A, Kadowaki T. Effect of once-weekly subcutaneous semaglutide 2.4 mg on weight- and health-related quality of life in an East Asian population: patient-reported outcomes from the STEP 6 trial. Clinical Obesity. 2023;13(4):e12589. doi: 10.1111/cob.12589
61.	Kolotkin RL, Smolarz BG, Meincke HH, Fujioka K. Improvements in health-related quality of life over 3 years with liraglutide 3.0 mg compared with placebo in participants with overweight or obesity. Clinical Obesity. 2018;8(1):1-10. doi: 10.1111/cob.12226
62.	Krukowski RA, Hare ME, Talcott GW, Gladney LA, Johnson KC, Richey PA, et al. Dissemination of the Look AHEAD intensive lifestyle intervention in the united states military: A randomized controlled trial. Obesity. 2018;26(10):1558-65. doi: 10.1002/oby.22293
63.	Kuo H-H, Wang K-T, Lee Y-H, Lin P-L, Liu M-E, Lin C-Y, et al. Effects of lorcaserin on cardiometabolic risk factors in overweight and obese patients: a systematic review and meta-analysis. Journal of Clinical Pharmacy and Therapeutics. 2020;45(1):35-44. doi: 10.1111/jcpt.13047
64.	Kwan AYM, Gerstein HC, Basile J, Xavier D, Maldonado JM, Raha S, et al. HbA1c reduction in dulaglutide-treated patients irrespective of duration of diabetes, microvascular disease, and BMI: a post hoc analysis from the REWIND trial. Diabetes Care. 2022;45(3):547-54. doi: 10.2337/dc21-1160
65.	le Roux CW, Astrup A, Fujioka K, Greenway F, Lau DCW, Van Gaal L, et al. 3 years of liraglutide versus placebo for type 2 diabetes risk reduction and weight management in individuals with prediabetes: A randomised, double-blind trial. Lancet. 2017;389(10077):1399-409. doi: 10.1016/S0140-6736(17)30069-7
66.	Lean MEJ, Carraro R, Finer N, Hartvig H, Lindegaard ML, Rössner S, et al. Tolerability of nausea and vomiting and associations with weight loss in a randomized trial of liraglutide in obese, non-diabetic adults. International Journal of Obesity. 2014;38(5):689-97. doi: 10.1038/ijo.2013.149
67.	Leiter LA, Cefalu WT, de Bruin TWA, Gause-Nilsson I, Sugg J, Parikh SJ. Dapagliflozin added to usual care in individuals with type 2 diabetes mellitus with preexisting cardiovascular disease: a 24-week, multicenter, randomized, double-blind, placebo-controlled study with a 28-week extension. Journal of the American Geriatrics Society. 2014;62(7):1252-62. doi: 10.1111/jgs.12881
68.	Leiter LA, Yoon K-H, Arias P, Langslet G, Xie J, Balis DA, et al. Canagliflozin provides durable glycemic improvements and body weight reduction over 104 weeks versus glimepiride in patients with type 2 diabetes on metformin: a randomized, double-blind, Phase 3 Study. Diabetes Care. 2014;38(3):355-64. doi: 10.2337/dc13-2762
69.	Li J, He K, Ge J, Li C, Jing Z. Efficacy and safety of the glucagon-like peptide-1 receptor agonist oral semaglutide in patients with type 2 diabetes mellitus: a systematic review and meta-analysis. Diabetes Research and Clinical Practice. 2021;172:108656. doi: 10.1016/j.diabres.2021.108656

70.	Linde JA, Simon GE, Ludman EJ, Ichikawa LE, Operskalski BH, Arterburn D, et al. A randomized controlled trial of behavioral weight loss treatment versus combined weight loss/depression treatment among women with comorbid obesity and depression. Ann Behav Med. 2011;41(1):119-30. doi: 10.1007/s12160-010-9232-2
71.	Lu Y-H, Lu J-M, Wang S-Y, Li C-L, Zheng R-P, Tian H, et al. Outcome of intensive integrated intervention in participants with impaired glucose regulation in China. Adv Therapy. 2011;28(6):511-9. doi: 10.1007/s12325-011-0022-4
72.	Luley C, Blaik A, Gotz A, Kicherer F, Kropf S, Isermann B, et al. Weight loss by telemonitoring of nutrition and physical activity in patients with metabolic syndrome for 1 year. Journal of the American College of Nutrition. 2014;33(5):363-74. doi: 10.1080/07315724.2013.875437
73.	Ma J, Rosas LG, Lv N, Xiao L, Snowden MB, Venditti EM, et al. Effect of integrated behavioral weight loss treatment and problem-solving therapy on body mass index and depressive symptoms among patients with obesity and depression: The rainbow randomized clinical trial. JAMA. 2019;321(9):869-79. doi: 10.1001/jama.2019.0557
74.	Masheb RM, Grilo CM, Rolls BJ. A randomized controlled trial for obesity and binge eating disorder: Low-energy-density dietary counseling and cognitive-behavioral therapy. Behav Res Ther. 2011;49(12):821-9. doi: 10.1016/j.brat.2011.09.006
75.	McIntyre RS, Paron E, Burrows M, Blavignac J, Gould E, Camacho F, et al. Psychiatric safety and weight loss efficacy of naltrexone/bupropion as add-on to antidepressant therapy in patients with obesity or overweight. Journal of Affective Disorders. 2021;289:167-76. doi: 10.1016/j.jad.2021.04.017
76.	Moin T, Duru OK, Turk N, Chon JS, Frosch DL, Martin JM, et al. Effectiveness of shared decision-making for diabetes prevention: 12-month results from the Prediabetes Informed Decision and Education (PRIDE) trial. Journal of General Internal Medicine. 2019;34(11):2652-9. doi: 10.1007/s11606-019-05238-6
77.	Monami M, Liistro F, Scatena A, Nreu B, Mannucci E. Short and medium-term efficacy of sodium glucose co-transporter-2 (SGLT-2) inhibitors: a meta-analysis of randomized clinical trials. Diabetes, Obesity and Metabolism. 2018;20(5):1213-22. doi: 10.1111/dom.13221
78.	Mueller NT, Differding MK, Zhang M, Maruthur NM, Juraschek SP, Miller ER, III, et al. Metformin affects gut microbiome composition and function and circulating short-chain fatty acids: a randomized trial. Diabetes Care. 2021;44(7):1462-71. doi: 10.2337/dc20-2257
79.	Munsch S, Meyer AH, Biedert E. Efficacy and predictors of long-term treatment success for cognitive-behavioral treatment and behavioral weight-loss-treatment in overweight individuals with binge eating disorder. Behav Res Ther. 2012;50(12):775-85. doi: 10.1016/j.brat.2012.08.009
80.	Nauck M, Frid A, Hermansen K, Thomsen AB, During M, Shah N, et al. Long-term efficacy and safety comparison of liraglutide, glimepiride and placebo, all in combination with metformin in type 2 diabetes: 2-year results from the LEAD-2 study. Diabetes, Obesity and Metabolism. 2013;15(3):204-12. doi: 10.1111/dom.12012
81.	Neal B, Perkovic V, de Zeeuw D, Mahaffey KW, Fulcher G, Ways K, et al. Efficacy and safety of canagliflozin, an inhibitor of sodium–glucose cotransporter 2, when used in conjunction with insulin therapy in patients with type 2 diabetes. Diabetes Care. 2014;38(3):403-11. doi: 10.2337/dc14-1237
82.	Neeland IJ, Eliasson B, Kasai T, Marx N, Zinman B, Inzucchi SE, et al. The impact of empagliflozin on obstructive sleep apnea and cardiovascular and renal outcomes: An exploratory analysis of the EMPA-REG OUTCOME trial. Diabetes Care. 2020;43(12):3007-15. doi: 10.2337/dc20-1096
83.	Nissen SE, Wolski KE, Prcela L, Wadden T, Buse JB, Bakris G, et al. Effect of naltrexone-bupropion on major adverse cardiovascular events in overweight and obese patients with cardiovascular risk factors: a randomized clinical trial. JAMA. 2016;315(10):990-1004. doi: 10.1001/jama.2016.1558
84.	Njardvik U, Gunnarsdottir T, Olafsdottir AS, Craighead LW, Boles RE, Bjarnason R. Incorporating appetite awareness training within family-based behavioral treatment of pediatric obesity: A randomized controlled pilot study. J Pediatr Psychol. 2018;43(9):1017-27. doi: 10.1093/jpepsy/jsy055
85.	Onuchin SG, Elsukova OS, Solovyev OV, Onuchina EL. [Capabilities of sugar-lowering therapy in women with decompensated type 2 diabetes mellitus]. TA. 2010;82(8):34-41.

86.	Out M, Miedema I, Jager-Wittenaar H, van der Schans C, Krijnen W, Lehert P, et al. Metformin-associated prevention of weight gain in insulin-treated type 2 diabetic patients cannot be explained by decreased energy intake: a post hoc analysis of a randomized placebo-controlled 4.3-year trial. Diabetes, Obesity and Metabolism. 2018;20(1):219-23. doi: 10.1111/dom.13054
87.	Oyama K, Raz I, Cahn A, Kuder J, Murphy SA, Bhatt DL, et al. Obesity and effects of dapagliflozin on cardiovascular and renal outcomes in patients with type 2 diabetes mellitus in the DECLARE–TIMI 58 trial European Heart Journal. 2022;43(31):2958-67. doi: 10.1093/eurheartj/ehab530
88.	Pagoto S, Schneider KL, Whited MC, Oleski JL, Merriam P, Appelhans B, et al. Randomized controlled trial of behavioral treatment for comorbid obesity and depression in women: The Be active trial. Int J Obes. 2013;37(11):1427-34. doi: 10.1038/ijo.2013.25
89.	Palavras MA, Hay P, Mannan H, da Luz FQ, Sainsbury A, Touyz S, et al. Integrated weight loss and cognitive behavioural therapy (CBT) for the treatment of recurrent binge eating and high body mass index: A randomized controlled trial. Eat Weight Disord. 2021;26(1):249-62. doi: 10.1007/s40519-020-00846-2
90.	Pratley RE, Eldor R, Raji A, Golm G, Huyck SB, Qiu Y, et al. Ertugliflozin plus sitagliptin versus either individual agent over 52 weeks in patients with type 2 diabetes mellitus inadequately controlled with metformin: the VERTIS FACTORIAL randomized trial. Diabetes, Obesity and Metabolism. 2018;20(5):1111-20. doi: 10.1111/dom.13194
91.	Ratner R, Wynne A, Nakhle S, Brusco O, Vlajnic A, Rendell M. Influence of preprandial vs. postprandial insulin glulisine on weight and glycaemic control in patients initiating basal-bolus regimen for type 2 diabetes: a multicenter, randomized, parallel, open-label study (NCT00135096). Diabetes, Obesity and Metabolism. 2011;13(12):1142-8. doi: 10.1111/j.1463-1326.2011.01478.x
92.	Ricca V, Castellini G, Mannucci E, Lo Sauro C, Ravaldi C, Rotella CM, et al. Comparison of individual and group cognitive behavioral therapy for binge eating disorder. A randomized, three-year follow-up study. Appetite. 2010;55(3):656-65. doi: 10.1016/j.appet.2010.09.019
93.	Rodbard HW, Rosenstock J, Canani LH, Deerochanawong C, Gumprecht J, Lindberg SØ, et al. Oral semaglutide versus empagliflozin in patients with type 2 diabetes uncontrolled on metformin: the PIONEER 2 trial. Diabetes Care. 2019;42(12):2272-81. doi: 10.2337/dc19-0883
94.	Roden M, Merker L, Christiansen AV, Roux F, Salsali A, Kim G, et al. Safety, tolerability and effects on cardiometabolic risk factors of empagliflozin monotherapy in drug-naïve patients with type 2 diabetes: a double-blind extension of a Phase III randomized controlled trial. Cardiovascular Diabetology. 2015;14(1):154. doi: 10.1186/s12933-015-0314-0
95.	Rosenstock J, Balas B, Charbonnel B, Bolli GB, Boldrin M, Ratner R, et al. The fate of taspoglutide, a weekly GLP-1 receptor agonist, versus twice-daily exenatide for type 2 diabetes: the T-emerge 2 trial. Diabetes Care. 2013;36(3):498-504. doi: 10.2337/dc12-0709
96.	Rosenstock J, Jelaska A, Frappin G, Salsali A, Kim G, Woerle HJ, et al. Improved glucose control with weight loss, lower insulin doses, and no increased hypoglycemia with empagliflozin added to titrated multiple daily injections of insulin in obese inadequately controlled type 2 diabetes. Diabetes Care. 2014;37(7):1815-23. doi: 10.2337/dc13-3055
97.	Rosenstock J, Jelaska A, Zeller C, Kim G, Broedl UC, Woerle HJ, et al. Impact of empagliflozin added on to basal insulin in type 2 diabetes inadequately controlled on basal insulin: a 78-week randomized, double-blind, placebo-controlled trial. Diabetes, Obesity and Metabolism. 2015;17(10):936-48. doi: 10.1111/dom.12503
98.	Sathyanarayana P, Jogi M, Muthupillai R, Krishnamurthy R, Samson SL, Bajaj M. Effects of combined exenatide and pioglitazone therapy on hepatic fat content in type 2 diabetes. Obesity. 2011;19(12):2310-5. doi: 10.1038/oby.2011.152
99.	Seck T, Nauck M, Sheng D, Sunga S, Davies MJ, Stein PP, et al. Safety and efficacy of treatment with sitagliptin or glipizide in patients with type 2 diabetes inadequately controlled on metformin: a 2-year study. International Journal of Clinical Practice. 2010;64(5):562-76. doi: 10.1111/j.1742-1241.2010.02353.x

100.	Snyder B, Wilson E, Wilson T, Mehta S, Bajwa K, Klein C. A randomized trial comparing reflux symptoms in sleeve gastrectomy patients with or without hiatal hernia repair. Surg Obes Relat Dis. 2016;12(9):1681-8. doi: 10.1016/j.soard.2016.09.004
101.	Stapleton P, Bannatyne AJ, Urzi K-C, Porter B, Sheldon T. Food for Thought: A randomised controlled trial of emotional freedom techniques and cognitive behavioural therapy in the treatment of food cravings. Appl Psychol Health Well-Being. 2016;8(2):232-57. doi: 10.1111/aphw.12070
102.	Takahashi H, Kessoku T, Kawanaka M, Nonaka M, Hyogo H, Fujii H, et al. Ipragliflozin improves the hepatic outcomes of patients with diabetes with NAFLD. Hepatol Commun. 2022;6(1):120-32. doi: 10.1002/hep4.1696
103.	Talenezhad N, Mohammadi M, Ramezani-Jolfaie N, Mozaffari-Khosravi H, Salehi-Abargouei A. Effects of l-carnitine supplementation on weight loss and body composition: a systematic review and meta-analysis of 37 randomized controlled clinical trials with dose-response analysis. Clinical Nutrition ESPEN. 2020;37:9-23. doi: 10.1016/j.clnesp.2020.03.008
104.	Tapia E, Villa-Guillen DE, Chalasani P, Centuori S, Roe DJ, Guillen-Rodriguez J, et al. A randomized controlled trial of metformin in women with components of metabolic syndrome: intervention feasibility and effects on adiposity and breast density. Breast Cancer Research and Treatment. 2021;190(1):69-78. doi: 10.1007/s10549-021-06355-9
105.	Tilves C, Yeh H-C, Maruthur N, Juraschek SP, Miller ER, Appel LJ, et al. A behavioral weight-loss intervention, but not metformin, decreases a marker of gut barrier permeability: results from the SPIRIT randomized trial. International Journal of Obesity. 2022;46(3):655-60. doi: 10.1038/s41366-021-01039-2
106.	TODAY Study Group. A clinical trial to maintain glycemic control in youth with type 2 diabetes. New England Journal of Medicine.366(24):2247-56. doi: 10.1056/NEJMoa1109333
107.	Tomayko EJ, Prince RJ, Cronin KA, Adams AK. The healthy children, strong families intervention promotes improvements in nutrition, activity and body weight in American Indian families with young children. Public Health Nutrition. 2016;19(14):2850-9. doi: 10.1017/S1368980016001014
108.	Towfighi A, Cheng EM, Ayala-Rivera M, Barry F, McCreath H, Ganz DA, et al. Effect of a coordinated community and chronic care model team intervention vs usual care on systolic blood pressure in patients with stroke or transient ischemic attack: The SUCCEED randomized clinical trial. JAMA Network Open. 2021;4(2):e2036227. doi: 10.1001/jamanetworkopen.2020.36227
109.	Triay J, Mundi M, Klein S, Toledo FG, Smith SR, Abu-Lebdeh H, et al. Does rimonabant independently affect free fatty acid and glucose metabolism? J Clin Endocrinol Metab. 2012;97(3):819-27. doi: 10.1210/jc.2011-2486
110.	Tronieri JS, Wadden TA, Walsh O, Berkowitz RI, Alamuddin N, Chao AM. Measures of adherence as predictors of early and total weight loss with intensive behavioral therapy for obesity combined with liraglutide 3.0mg. Behav Res Ther. 2020;131:103639. doi: 10.1016/j.brat.2020.103639
111.	Tronieri JS, Wadden TA, Walsh O, Berkowitz RI, Alamuddin N, Gruber K, et al. Effects of liraglutide on appetite, food preoccupation, and food liking: Results of a randomized controlled trial. Int J Obes. 2020;44(2):353-61. doi: 10.1038/s41366-019-0348-6
112.	van der Swaluw K, Lambooij MS, Mathijssen JJP, Schipper M, Zeelenberg M, Berkhout S, et al. Physical activity after commitment lotteries: Examining long-term results in a cluster randomized trial. Journal of Behavioral Medicine. 2018;41(4):483-93. doi: 10.1007/s10865-018-9915-x
113.	Vetter ML, Wadden TA, Chittams J, Diewald LK, Panigrahi E, Volger S, et al. Effect of lifestyle intervention on cardiometabolic risk factors: Results of the POWER-UP trial. Int J Obes. 2013;37:S19-S24. doi: 10.1038/ijo.2013.92
114.	Walford GA, Ma Y, Christophi CA, Goldberg RB, Jarolim P, Horton E, et al. Circulating natriuretic peptide concentrations reflect changes in insulin sensitivity over time in the Diabetes Prevention Program. Diabetologia. 2014;57(5):935-9. doi: 10.1007/s00125-014-3183-2
115.	Weinstock RS, Guerci B, Umpierrez G, Nauck MA, Skrivanek Z, Milicevic Z. Safety and efficacy of once-weekly dulaglutide versus sitagliptin after 2 years in metformin-treated patients with type 2 diabetes (AWARD-5): a randomized, phase III study. Diabetes, Obesity and Metabolism. 2015;17(9):849-58. doi: 10.1111/dom.12479

116.	Weinstock RS, Trief PM, Cibula D, Morin PC, Delahanty LM. Weight loss success in metabolic syndrome by telephone interventions: Results from the shine study. J Gen Intern Med. 2013;28(12):1620-8. doi: 10.1007/s11606-013-2529-7
117.	West DS, Krukowski RA, Monroe CM, Stansbury ML, Carpenter CA, Finkelstein EA, et al. Randomized controlled trial of financial incentives during weight-loss induction and maintenance in online group weight control. Obesity. 2022;30(1):106-16. doi: 10.1002/oby.23322
118.	Wilding JPH, Charpentier G, Hollander P, González-Gálvez G, Mathieu C, Vercruysse F, et al. Efficacy and safety of canagliflozin in patients with type 2 diabetes mellitus inadequately controlled with metformin and sulphonylurea: a randomised trial. International Journal of Clinical Practice. 2013;67(12):1267-82. doi: 10.1111/ijcp.12322
119.	Wilding JPH, Woo V, Rohwedder K, Sugg J, Parikh S, for the Dapagliflozin 006 Study G. Dapagliflozin in patients with type 2 diabetes receiving high doses of insulin: efficacy and safety over 2 years. Diabetes, Obesity and Metabolism. 2014;16(2):124-36. doi: 10.1111/dom.12187
120.	Williams-Herman D, Johnson J, Teng R, Golm G, Kaufman KD, Goldstein BJ, et al. Efficacy and safety of sitagliptin and metformin as initial combination therapy and as monotherapy over 2 years in patients with type 2 diabetes. Diabetes, Obesity and Metabolism. 2010;12(5):442-51. doi: 10.1111/j.1463-1326.2010.01204.x
121.	Wilson GT, Wilfley DE, Agras WS, Bryson SW. Psychological treatments of binge eating disorder. Arch Gen Psychiatry. 2010;67(1):94-101. doi: 10.1001/archgenpsychiatry.2009.170
122.	Yale J-F, Xie J, Sherman SE, Garceau C. Canagliflozin in conjunction with sulfonylurea maintains glycemic control and weight loss over 52 weeks: a randomized, controlled trial in patients with type 2 diabetes mellitus. Clinical Therapeutics. 2017;39(11):2230-42.e2. doi: 10.1016/j.clinthera.2017.10.003
123.	Yancy WS, Jr., Shaw PA, Wesby L, Hilbert V, Yang L, Zhu J, et al. Financial incentive strategies for maintenance of weight loss: Results from an internet-based randomized controlled trial. Nutrition & Diabetes. 2018;8(1):33. doi: 10.1038/s41387-018-0036-y
124.	Yang T, Lu M, Ma L, Zhou Y, Cui Y. Efficacy and tolerability of canagliflozin as add-on to metformin in the treatment of type 2 diabetes mellitus: a meta-analysis. European Journal of Clinical Pharmacology. 2015;71(11):1325-32. doi: 10.1007/s00228-015-1923-y
125.	Yates MS, Coletta AM, Zhang Q, Schmandt RE, Medepalli M, Nebgen D, et al. Prospective randomized biomarker study of metformin and lifestyle intervention for prevention in obese women at increased risk for endometrial cancer. Cancer Prevention Research. 2018;11(8):477-90. doi: 10.1158/1940-6207.CAPR-17-0398
126.	Yeh H-C, Maruthur NM, Wang N-Y, Jerome GJ, Dalcin AT, Tseng E, et al. Effects of behavioral weight loss and metformin on IGFs in cancer survivors: a randomized trial. The Journal of Clinical Endocrinology & Metabolism. 2021;106(10):e4179-e91. doi: 10.1210/clinem/dgab266
127.	Zhang J, Xian T-Z, Wu M-X, Li C, Wang W, Man F, et al. Comparing the effects of twice-daily exenatide and insulin on renal function in patients with type 2 diabetes mellitus: secondary analysis of a randomized controlled trial. Journal of Investigative Medicine. 2022;70(7):1529-35. doi: 10.1136/jim-2021-002237
128.	Zinman B, Aroda VR, Buse JB, Cariou B, Harris SB, Hoff ST, et al. Efficacy, safety, and tolerability of oral semaglutide versus placebo added to insulin with or without metformin in patients with type 2 diabetes: the PIONEER 8 trial. Diabetes Care. 2019;42(12):2262-71. doi: 10.2337/dc19-0898

Table D4: Ineligible study design (n=127)

Publication details	
1.	Acosta A, Camilleri M, Abu Dayyeh B, Calderon G, Gonzalez D, McRae A, et al. Selection of antiobesity medications based on phenotypes enhances weight loss: A pragmatic trial in an obesity clinic. Obesity. 2021;29(4):662-71. doi: 10.1002/oby.23120
2.	Acquafresca PA, Palermo M, Duza GE, Blanco LA, Serra EE. [Gastric bypass versus sleeve gastrectomy: comparison between type 2 diabetes weight loss and complications. Review of randomized control trails]. Acta Gastroenterol Latinoam. 2015;45(2):143-54.

3.	Ahn S, Lee J, Bartlett-Prescott J, Carson L, Post L, Ward KD. Evaluation of a behavioral intervention with multiple components among low-income and uninsured adults with obesity and diabetes. American Journal of Health Promotion. 2018;32(2):409-22. doi: 10.1177/0890117117696250
4.	Ahrén B, Atkin SL, Charpentier G, Warren ML, Wilding JPH, Birch S, et al. Semaglutide induces weight loss in subjects with type 2 diabetes regardless of baseline BMI or gastrointestinal adverse events in the SUSTAIN 1 to 5 trials. Diabetes, Obesity and Metabolism. 2018;20(9):2210-9. doi: 10.1111/dom.13353
5.	An B-c, Wang Y, Jiang X, Lu H-s, Fang Z-y, Wang Y, et al. Effects of baduanjin (八段锦) exercise on knee osteoarthritis: A one-year study. Chinese Journal of Integrative Medicine. 2013;19(2):143-8. doi: 10.1007/s11655-012-1211-y
6.	Apovian C, Palmer K, Fain R, Perdomo C, Rubino D. Effects of lorcaserin on fat and lean mass loss in obese and overweight patients without and with type 2 diabetes mellitus: The BLOSSOM and BLOOM-DM studies. Diabetes, Obesity & Metabolism. 2016;18(9):945-8. doi: 10.1111/dom.12690
7.	Apovian CM. Naltrexone/bupropion for the treatment of obesity and obesity with type 2 diabetes. Future Cardiology. 2016;12(2):129-38. doi: 10.2217/fca.15.79
8.	Ard J, Cannon A, Lewis CE, Lofton H, Vang Skjoth T, Stevenin B, et al. Efficacy and safety of liraglutide 3.0 mg for weight management are similar across races: Subgroup analysis across the SCALE and phase II randomized trials. Diabetes, Obesity & Metabolism. 2016;18(4):430-5. doi: 10.1111/dom.12632
9.	Babio N, Toledo E, Estruch R, Ros E, Martinez-Gonzalez MA, Castaner O, et al. Mediterranean diets and metabolic syndrome status in the PREDIMED randomized trial. Canadian Medical Association Journal. 2014;186(17):E649-E57. doi: 10.1503/cmaj.140764
10.	Barrington WE, Beresford SAA. Eating occasions, obesity and related behaviors in working adults: Does it matter when you snack? Nutrients. 2019;11(10):2320. doi: 10.3390/nu11102320
11.	Barros Fd, Negrao MG, Negrao GG. Weight loss comparison after sleeve and Roux-en-Y gastric bypass: Systematic review. Arq Bras Cir Dig. 2019;32(4):e1474. doi: 10.1590/0102-672020190001e1474
12.	Bays H, Perdomo C, Nikonova E, Knoth R, Malhotra M. Lorcaserin and metabolic disease: weight-loss dependent and independent effects. Obesity Science & Practice. 2018;4(6):499-505. doi: 10.1002/osp4.296
13.	Bays H, Pi-Sunyer X, Hemmingsson JU, Claudius B, Jensen CB, Van Gaal L. Liraglutide 3.0mg for weight management: weight-loss dependent and independent effects. Current Medical Research and Opinion. 2017;33(2):225-9. doi: 10.1080/03007995.2016.1251892
14.	Beran A, Matar R, Jaruvongvanich V, Rapaka BB, Alalwan A, Portela R, et al. Comparative effectiveness and safety between endoscopic sleeve gastroplasty and laparoscopic sleeve gastrectomy: A meta-analysis of 6775 individuals with obesity. Obesity Surgery. 2022;32(11):3504-12. doi: 10.1007/s11695-022-06254-y
15.	Boutelle KN, Eichen DM, Peterson CB, Strong DR, Rock CL, Marcus BH. Design of the PACIFIC study: A randomized controlled trial evaluating a novel treatment for adults with overweight and obesity. Contemporary Clinical Trials. 2019;84:105824. doi: 10.1016/j.cct.2019.105824
16.	Bouzas C, Bibiloni MdM, Garcia S, Mateos D, Martínez-González MÁ, Salas-Salvadó J, et al. Dietary quality changes according to the preceding maximum weight: A longitudinal analysis in the PREDIMED-Plus randomized trial. Nutrients. 2020;12(10):3023. doi: 10.3390/nu12103023
17.	Bradley CL, McMillin SM, Hwang AY, Sherrill CH. High-dose once-weekly semaglutide: a new option for obesity management. Annals of Pharmacotherapy. 2022;56(8):941-50. doi: 10.1177/10600280211053867
18.	Busch V, Steenkamer I, van Nassau F, van Opdorp P, van Houtum L, Verhoeff A, et al. The effects of the Jump-In Whole-School Intervention on the weight development of children in Amsterdam, the Netherlands. Journal of School Health. 2024;94(1):37-46. doi: 10.1111/josh.13363
19.	Buse JB, Drucker DJ, Taylor KL, Kim T, Walsh B, Hu H, et al. DURATION-1: exenatide once weekly produces sustained glycemic control and weight loss over 52 weeks. Diabetes Care. 2010;33(6):1255-61. doi: 10.2337/dc09-1914

20.	Campbell IW. Comparing the actions of older and newer therapies on body weight: to what extent should these effects guide the selection of antidiabetic therapy? International Journal of Clinical Practice. 2010;64(6):791-801. doi: 10.1111/j.1742-1241.2009.02292.x
21.	Capristo E, Panunzi S, De Gaetano A, Raffaelli M, Guidone C, Iaconelli A, et al. Intensive lifestyle modifications with or without liraglutide 3mg vs. sleeve gastrectomy: A three-arm non-randomised, controlled, pilot study. Diabetes & Metabolism. 2018;44(3):235-42. doi: 10.1016/j.diabet.2017.12.007
22.	Cena H, Chiovato L, Nappi RE. Obesity, polycystic ovary syndrome, and infertility: a new avenue for GLP-1 receptor agonists. The Journal of Clinical Endocrinology & Metabolism. 2020;105(8):e2695-e709. doi: 10.1210/clinem/dgaa285
23.	Champagne CM, Broyles ST, Moran LD, Cash KC, Levy EJ, Lin P-H, et al. Dietary intakes associated with successful weight loss and maintenance during the weight loss maintenance trial. Journal of the American Dietetic Association. 2011;111(12):1826-35. doi: 10.1016/j.jada.2011.09.014
24.	Chugh PK, Sharma S. Recent advances in the pathophysiology and pharmacological treatment of obesity. Journal of Clinical Pharmacy and Therapeutics. 2012;37(5):525-35. doi: 10.1111/j.1365-2710.2012.01347.x
25.	Crane MM, Gavin K, Wolfson J, Linde JA. How accurate are recalls of self-weighing frequency? Data from a 24-month randomized trial. Obesity. 2018;26(8):1296-302. doi: 10.1002/oby.22239
26.	Creasy SA, Lang W, Tate DF, Davis KK, Jakicic JM. Pattern of daily steps is associated with weight loss: Secondary analysis from the Step-Up randomized trial. Obesity. 2018;26(6):977-84. doi: 10.1002/oby.22171
27.	Creasy SA, Ostendorf DM, Blankenship JM, Grau L, Arbet J, Bessesen DH, et al. Effect of sleep on weight loss and adherence to diet and physical activity recommendations during an 18-month behavioral weight loss intervention. International Journal of Obesity. 2022;46(8):1510-7. doi: 10.1038/s41366-022-01141-z
28.	Danielsen KK, Svendsen M, Maehlum S, Sundgot-Borgen J. Changes in body composition, cardiovascular disease risk factors, and eating behavior after an intensive lifestyle intervention with high volume of physical activity in severely obese subjects: A prospective clinical controlled trial. Journal of Obesity. 2013;2013:325464. doi: 10.1155/2013/325464
29.	Daubenmier J, Epel E, Moran P, Kristeller J, Acree M, Bacchetti P, et al. A randomized controlled trial of a mindfulness-based intervention for metabolic health in obese adults. The Journal of Alternative and Complementary Medicine. 2014;20(5). doi: 10.1089/acm.2014.5035.abstract
30.	Davidson JA, Jones-Leone A, Wilson TH, Nino A, Forero-Schwanhaeuser S, Reinhardt RR. Albiglutide efficacy and safety in the Latino/Hispanic subpopulation for the integrated phase III program. Postgraduate Medicine. 2017;129(8):849-57. doi: 10.1080/00325481.2017.1387473
31.	de Boer SA, Lefrandt JD, Petersen JF, Boersma HH, Mulder DJ, Hoogenberg K. The effects of GLP-1 analogues in obese, insulin-using type 2 diabetes in relation to eating behaviour. International Journal of Clinical Pharmacy. 2016;38(1):144-51. doi: 10.1007/s11096-015-0219-8
32.	de Mello MT, de Piano A, Carnier J, Sanches PdL, Correa FA, Tock L, et al. Long-term effects of aerobic plus resistance training on the metabolic syndrome and adiponectinemia in obese adolescents. The Journal of Clinical Hypertension. 2011;13(5):343-50. doi: 10.1111/j.1751-7176.2010.00388.x
33.	DeBar LL, Schneider M, Drews KL, Ford EG, Stadler DD, Moe EL, et al. Student public commitment in a school-based diabetes prevention project: Impact on physical health and health behavior. BMC Public Health. 2011;11:711. doi: 10.1186/1471-2458-11-711
34.	Debellis LR, Wrobel MJ. Pharmacotherapeutic options for the treatment of patients with obesity. Journal of Pharmacy Technology. 2012;28(5):211-8. doi: 10.1177/875512251202800508
35.	Ek A, Delisle Nyström C, Chirita-Emandi A, Tur JA, Nordin K, Bouzas C, et al. A randomized controlled trial for overweight and obesity in preschoolers: the More and Less Europe study - an intervention within the STOP project. BMC Public Health. 2019;19:945. doi: 10.1186/s12889-019-7161-y
36.	Epstein LH, Raja S, Daniel TO, Paluch RA, Wilfley DE, Saelens BE, et al. The built environment moderates effects of family-based childhood obesity treatment over 2 years. Annals of Behavioral Medicine. 2012;44(2):248-58. doi: 10.1007/s12160-012-9383-4

37.	Espeland MA, Probstfield J, Hire D, Redmon JB, Evans GW, Coday M, et al. Systolic blood pressure control among individuals with type 2 diabetes: A comparative effectiveness analysis of three interventions. American Journal of Hypertension. 2015;28(8):995-1009. doi: 10.1093/ajh/hpu292
38.	Fernandez ID, Chin NP, Devine CM, Dozier AM, Martina CA, McIntosh S, et al. Images of a healthy worksite: A group-randomized trial for worksite weight gain prevention with employee participation in intervention design. American Journal of Public Health. 2015;105(10):2167-74. doi: 10.2105/AJPH.2014.302397
39.	Filippatos TD, Elisaf MS. Combination drug treatment in obese diabetic patients. World J Diabetes. 2010;1(1):8-11. doi: 10.4239/wjd.v1.i1.8
40.	Filippatos TD, Elisaf MS. Combination drug treatment in patients with non-alcoholic fatty liver disease. World J Hepatol. 2010;2(4):139-42. doi: 10.4254/wjh.v2.i4.139
41.	Fritsch P, Kleber M, Schlagenhauf A, Laschnik B, Fritsch M, Muntean W, et al. Normalization of haemostatic alterations in overweight children with weight loss due to lifestyle intervention. Atherosclerosis. 2011;216(1):170-3. doi: 10.1016/j.atherosclerosis.2011.01.042
42.	Fujioka K, O'Neil PM, Davies M, Greenway F, C W Lau D, Claudius B, et al. Early weight loss with liraglutide 3.0 mg predicts 1-year weight loss and is associated with improvements in clinical markers. Obesity. 2016;24(11):2278-88. doi: 10.1002/oby.21629
43.	Fujioka K, Perdomo C, Malhotra M. Effect of lorcaserin on weight reduction in persons with obstructive sleep apnea (OSA): A combined subgroup analysis from three randomized, controlled clinical trials. Obesity Science & Practice. 2019;5(3):238-45. doi: 10.1002/osp4.340
44.	Fujioka K, Plodkowski R, O'Neil PM, Gilder K, Walsh B, Greenway FL. The relationship between early weight loss and weight loss at 1 year with naltrexone ER/bupropion ER combination therapy. International Journal of Obesity. 2016;40(9):1369-75. doi: 10.1038/ijo.2016.67
45.	Gallwitz B, Dagogo-Jack S, Thieu V, Garcia-Perez L-E, Pavo I, Yu M, et al. Effect of once-weekly dulaglutide on glycated haemoglobin (HbA1c) and fasting blood glucose in patient subpopulations by gender, duration of diabetes and baseline HbA1c. Diabetes, Obesity and Metabolism. 2018;20(2):409-18. doi: 10.1111/dom.13086
46.	Gandler N, Simmance N, Keenan J, Choong PFM, Dowsey MM. A pilot study investigating dietetic weight loss interventions and 12 month functional outcomes of patients undergoing total joint replacement. Obesity Research & Clinical Practice. 2016;10(2):220-3. doi: 10.1016/j.orcp.2016.03.006
47.	Gerstel E, Pataky Z, Busnel C, Rutschmann O, Guessous I, Zumwald C, et al. Impact of lifestyle intervention on body weight and the metabolic syndrome in home-care providers. Diabetes & Metabolism. 2013;39(1):78-84. doi: 10.1016/j.diabet.2012.07.003
48.	Griadil TI, Chopey IV, Debreceni KO, Hechko MM, Mykhalko YO, Feysa SV. Comparison of the effect of dapagliflozin on contrast to standard therapy of the patients with type 2 diabetes mellitus and concomitant obesity, their effect on laboratory and anthropometric parameters. Wiadomości Lekarskie. 2020;73(3):457-61. doi: 10.36740/WLek202003109
49.	Hanem LGE, Stridsklev S, Júlíusson PB, Salvesen Ø, Roelants M, Carlsen SM, et al. Metformin use in PCOS pregnancies increases the risk of offspring overweight at 4 years of age: follow-up of two RCTs. The Journal of Clinical Endocrinology & Metabolism. 2018;103(4):1612-21. doi: 10.1210/jc.2017-02419
50.	Hayes JF, Russell GB, Tate DF, Espeland MA, LaRose JG, Gorin AA, et al. Who loses weight in a weight gain prevention program? A comparison of weight losers and weight maintainers at 3 years. Health Psychology. 2021;40(8):523-33. doi: 10.1037/hea0001082
51.	Hedjoudje A, Abu Dayyeh BK, Cheskin LJ, Adam A, Neto MG, Badurdeen D, et al. Efficacy and safety of endoscopic sleeve gastroplasty: A systematic review and meta-analysis. Clinical Gastroenterology and Hepatology. 2020;18(5):1043-53.e4. doi: 10.1016/j.cgh.2019.08.022
52.	Holterman A-XL, Holterman M, Browne A, Henriques S, Guzman G, Fantuzzi G. Patterns of surgical weight loss and resolution of metabolic abnormalities in superobese bariatric adolescents. Journal of Pediatric Surgery. 2012;47(9):1633-9. doi: 10.1016/j.jpedsurg.2012.02.002
53.	Hong K, Herrmann K, Dybala C, Halseth AE, Lam H, Foreyt JP. Naltrexone/bupropion extended release-induced weight loss is independent of nausea in subjects without diabetes. Clinical Obesity. 2016;6(5):305-12. doi: 10.1111/cob.12157

54.	Hoy SM. Lorcaserin: a review of its use in chronic weight management. Drugs. 2013;73(5):463-73. doi: 10.1007/s40265-013-0035-1
55.	Hutchesson MJ, de Jonge Mulock Houwer M, Brown HM, Lim S, Moran LJ, Vincze L, et al. Supporting women of childbearing age in the prevention and treatment of overweight and obesity: A scoping review of randomized control trials of behavioral interventions. BMC Women's Health. 2020;20:14. doi: 10.1186/s12905-020-0882-3
56.	Jakicic JM, Tate DF, Lang W, Davis KK, Polzien K, Neiberg RH, et al. Objective physical activity and weight loss in adults: The step-up randomized clinical trial. Obesity. 2014;22(11):2284-92. doi: 10.1002/oby.20830
57.	Jendle J, Birkenfeld AL, Polonsky WH, Silver R, Uusinarkaus K, Hansen T, et al. Improved treatment satisfaction in patients with type 2 diabetes treated with once-weekly semaglutide in the SUSTAIN trials. Diabetes, Obesity and Metabolism. 2019;21(10):2315-26. doi: 10.1111/dom.13816
58.	Johnston CA, Tyler C, Palcic JL, Stansberry SA, Gallagher MR, Foreyt JP. Smaller weight changes in standardized body mass index in response to treatment as weight classification increases. Journal of Pediatrics. 2011;158(4):624-7. doi: 10.1016/j.jpeds.2010.09.049
59.	Kanaya AM. Enhanced brief lifestyle counseling for obesity was better than usual care for weight loss at 2 years. Annals of Internal Medicine. 2012;156(6). doi: 10.7326/0003-4819-156-6-201202210-020
60.	Katzmarzyk PT, Mire EF, Martin CK, Newton RL, Apolzan JW, Denstel KD, et al. Physical activity and weight loss in a pragmatic weight loss trial. International Journal of Obesity. 2023;47(3):244-8. doi: 10.1038/s41366-023-01260-1
61.	Kelly EM, Tungol AA, Wesolowicz LA. Formulary management of 2 new agents: lorcaserin and phentermine/topiramate for weight loss. Journal of Managed Care Pharmacy. 2013;19(8):642-54. doi: 10.18553/jmcp.2013.19.8.642
62.	Kelly L, Harrison M, Richardson N, Carroll P, Robertson S, Keohane A, et al. The impact of a gender-specific physical activity intervention on the fitness and fatness profile of men in Ireland. Eur J Pub Health. 2019;29(6):1154-60. doi: 10.1093/eurpub/ckz100
63.	Keyserling TC, Samuel-Hodge CD, Pitts SJ, Garcia BA, Johnston LF, Gizlice Z, et al. A community-based lifestyle and weight loss intervention promoting a Mediterranean-style diet pattern evaluated in the stroke belt of North Carolina: The Heart Healthy Lenoir Project. BMC Public Health. 2016;16:732. doi: 10.1186/s12889-016-3370-9
64.	Kolotkin RL, Gadde KM, Peterson CA, Crosby RD. Health-related quality of life in two randomized controlled trials of phentermine/topiramate for obesity: What mediates improvement? Quality of Life Research. 2016;25(5):1237-44. doi: 10.1007/s11136-015-1153-x
65.	Larusdottir H, Saevarsdottir H, Steingrimsdottir L, Gumundsson L, Arnarson EO. [The effectiveness of the treatment program "Enjoy Eating" on health and mood in obese women]. Læknablaðið. 2014;100(1). doi: 10.17992/lbl.2014.01.528
66.	le Roux C, Aroda V, Hemmingsson J, Cancino AP, Christensen R, Pi-Sunyer X. Comparison of efficacy and safety of liraglutide 3.0 mg in individuals with BMI above and below 35 kg/m²: a post-hoc analysis. Obesity Facts. 2017;10(6):531-44. doi: 10.1159/000478099
67.	Lee W-J, Almalki OM, Ser K-H, Chen J-C, Lee Y-C. Randomized controlled trial of one anastomosis gastric bypass versus Roux-en-Y gastric bypass for obesity: Comparison of the YOMEGA and Taiwan studies. Obesity Surgery. 2019;29(9):3047-53. doi: 10.1007/s11695-019-04065-2
68.	Li A, Li X, Zhou T, Ma H, Heianza Y, Williamson DA, et al. Sleep disturbance and changes in energy intake and body composition during weight loss in the POUNDS Lost trial. Diabetes. 2022;71(5):934-44. doi: 10.2337/db21-0699
69.	Li P, Fu P, Chen J, Wang L-H, Wang D-R. Laparoscopic Roux-en-Y gastric bypass vs. Laparoscopic sleeve gastrectomy for morbid obesity and diabetes mellitus: A meta-analysis of sixteen recent studies. Hepatogastroenterology. 2013;60(121):132-7. doi: 10.5754/hge12510
70.	Lingvay I, Cheng AYY, Levine JA, Gomez-Valderas E, Allen SE, Ranta K, et al. Achievement of glycaemic targets with weight loss and without hypoglycaemia in type 2 diabetes with the once-weekly glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 receptor agonist tirzepatide: a post

	hoc analysis of the SURPASS-1 to -5 studies. Diabetes, Obesity and Metabolism. 2023;25(4):965-74. doi: 10.1111/dom.14943
71.	Liu J, Zhang A, Li L. Sleep duration and overweight/obesity in children: Review and implications for pediatric nursing. Journal for Specialists in Pediatric Nursing. 2012;17(3):193-204. doi: 10.1111/j.1744-6155.2012.00332.x
72.	Loves S, van Groningen L, Filius M, Mekking M, Brandon T, Tack CJ, et al. High-dose, diazoxide-mediated insulin suppression boosts weight loss induced by lifestyle intervention. The Journal of Clinical Endocrinology & Metabolism. 2018;103(11):4014-22. doi: 10.1210/jc.2018-01147
73.	Macknin M, Stegmeier N, Thomas A, Worley S, Li L, Hazen SL, et al. Three healthy eating patterns and cardiovascular disease risk markers in 9 to 18 year olds with body mass index >95%: A randomized trial. Clin Pediatr. 2021;60(11-12):474-84. doi: 10.1177/00099228211044841
74.	Madrona Marcos FM, Panisello Royo JM, Carbayo Herencia JA, Alins J, Tarraga Marcos L, Castell Panisello E, et al. [Motivational intervention for obesity in primary care using a physical activity program]. Nutrición Hospitalaria. 2020;37(2):275-84. doi: 10.20960/nh.02601
75.	Malkin SJP, Russel-Szymczyk M, Psota M, Hlavinkova L, Hunt B. The management of type 2 diabetes with once-weekly semaglutide versus dulaglutide: a long-term cost-effectiveness analysis in Slovakia. Advances in Therapy. 2019;36(8):2034-51. doi: 10.1007/s12325-019-00965-y
76.	Matsuba I, Kanamori A, Takihata M, Takai M, Maeda H, Kubota A, et al. Canagliflozin increases calorie intake in type 2 diabetes without changing the energy ratio of the three macronutrients: CANA-K Study. Diabetes Technology & Therapeutics. 2020;22(3):228-34. doi: 10.1089/dia.2019.0372
77.	McNeil J, Brenner DR, Courneya KS, Friedenreich CM. Dose-response effects of aerobic exercise on energy compensation in postmenopausal women: Combined results from two randomized controlled trials. International Journal of Obesity. 2017;41(8):1196-202. doi: 10.1038/ijo.2017.87
78.	Mogul H, Freeman R, Nguyen K. Metformin-sustained weight loss and reduced android fat tissue at 12 months in Empowir (Enhance The Metabolic Profile Of Women With Insulin Resistance): a double blind, placebo-controlled, randomized trial of normoglycemic women with midlife weight gain. Endocrine Practice. 2016;22(5):575-86. doi: 10.4158/EP151087.OR
79.	Montenegro M, Slongo H, Juliato CRT, Minassian VA, Tavakkoli A, Brito LGO. The impact of bariatric surgery on pelvic floor dysfunction: A systematic review. Journal of Minimally Invasive Gynecology. 2019;26(5):816-25. doi: 10.1016/j.jmig.2019.01.013
80.	Nakanishi H, Matar RH, Vahibe A, Abu Dayyeh BK, Galvani C, Pullatt R, et al. Single versus double anastomosis duodenal switch in the management of obesity: A meta-analysis and systematic review. Surgical Laparoscopy, Endoscopy & Percutaneous Techniques. 2022;32(5):595-605. doi: 10.1097/SLE.0000000000001102
81.	Narasimhan S, Weinstock RS. Youth-onset type 2 diabetes mellitus: lessons learned from the TODAY Study. Mayo Clinic Proceedings. 2014;89(6):806-16. doi: 10.1016/j.mayocp.2014.01.009
82.	Newsome P, Francque S, Harrison S, Ratziu V, Van Gaal L, Calanna S, et al. Effect of semaglutide on liver enzymes and markers of inflammation in subjects with type 2 diabetes and/or obesity. Alimentary Pharmacology & Therapeutics. 2019;50(2):193-203. doi: 10.1111/apt.15316
83.	Ning G, Bandgar T, Hehnke U, Lee J, Chan JCN. Efficacy and safety of linagliptin in 2681 Asian patients stratified by age, obesity, and renal function: a pooled analysis of randomized clinical trials. Advances in Therapy. 2017;34(9):2150-62. doi: 10.1007/s12325-017-0595-7
84.	Novotny R, Davis J, Butel J, Boushey CJ, Fialkowski MK, Nigg CR, et al. Effect of the Children's Healthy Living program on young child overweight, obesity, and acanthosis nigricans in the US-affiliated Pacific Region: A randomized clinical trial. JAMA Network Open. 2018;1(6):e183896. doi: 10.1001/jamanetworkopen.2018.3896
85.	Novotny R, Yamanaka AB, Butel J, Boushey CJ, Dela Cruz R, Aflague T, et al. Maintenance outcomes of the Children's Healthy Living program on overweight, obesity, and acanthosis nigricans among young children in the US-affiliated Pacific Region: A randomized clinical trial. JAMA Network Open. 2022;5(6):e2214802. doi: 10.1001/jamanetworkopen.2022.14802
86.	Nuffer W, Trujillo JM, Megyeri J. A comparison of new pharmacological agents for the treatment of obesity. Annals of Pharmacotherapy. 2016;50(5):376-88. doi: 10.1177/1060028016634351

87.	O'Neil PM, Garvey WT, Gonzalez-Campoy JM, Mora P, Ortiz RV, Guerrero G, et al. Effects of liraglutide 3.0 mg on weight and risk factors in Hispanic versus Non-Hispanic populations: Subgroup analysis from scale randomized trials. Endocrine Practice. 2016;22(11):1277-87. doi: 10.4158/EP151181.OR
88.	Olbers T, Gronowitz E, Werling M, Marlid S, Flodmark CE, Peltonen M, et al. Two-year outcome of laparoscopic Roux-en-Y gastric bypass in adolescents with severe obesity: Results from a Swedish Nationwide Study (AMOS). International Journal of Obesity. 2012;36(11):1388-95. doi: 10.1038/ijo.2012.160
89.	Ottney A. Glucagon-like peptide-1 receptor agonists for weight loss in adult patients without diabetes. American Journal of Health-System Pharmacy. 2013;70(23):2097-103. doi: 10.2146/ajhp130081
90.	Palmeira AL, Branco TL, Martins SC, Minderico CS, Silva MN, Vieira PN, et al. Change in body image and psychological well-being during behavioral obesity treatment: Associations with weight loss and maintenance. Body Image. 2010;7(3):187-93. doi: 10.1016/j.bodyim.2010.03.002
91.	Parks EP, Zemel B, Moore RH, Berkowitz RI. Change in body composition during a weight loss trial in obese adolescents. Pediatric Obesity. 2014;9(1):26-35. doi: 10.1111/j.2047-6310.2012.00139.x
92.	Pedersen AJT, Stage TB, Glintborg D, Andersen M, Christensen MMH. The pharmacogenetics of metformin in women with polycystic ovary syndrome: a randomized trial. Basic & Clinical Pharmacology & Toxicology. 2018;122(2):239-44. doi: 10.1111/bcpt.12874
93.	Pelletier-Beaumont E, Arsenault BJ, Almeras N, Bergeron J, Tremblay A, Poirier P, et al. Normalization of visceral adiposity is required to normalize plasma apolipoprotein B levels in response to a healthy eating/physical activity lifestyle modification program in viscerally obese men. Atherosclerosis. 2012;221(2):577-82. doi: 10.1016/j.atherosclerosis.2012.01.023
94.	Penn L, White M, Lindstrom J, den Boer AT, Blaak E, Eriksson JG, et al. Importance of weight loss maintenance and risk prediction in the prevention of type 2 diabetes: Analysis of European Diabetes Prevention Study RCT. PloS one. 2013;8(2):e57143. doi: 10.1371/journal.pone.0057143
95.	Phelan S, Clifton RG, Haire-Joshu D, Redman LM, Van Horn L, Evans M, et al. One-year postpartum anthropometric outcomes in mothers and children in the LIFE-Moms lifestyle intervention clinical trials. International Journal of Obesity. 2020;44(1):57-68. doi: 10.1038/s41366-019-0410-4
96.	Phillips A, Clements JN. Clinical review of subcutaneous semaglutide for obesity. Journal of Clinical Pharmacy and Therapeutics. 2022;47(2):184-93. doi: 10.1111/jcpt.13574
97.	Porter Starr KN, McDonald SR, Bales CW. Obesity and physical frailty in older adults: A scoping review of lifestyle intervention trials. Journal of the American Medical Directors Association. 2014;15(4):240-50. doi: 10.1016/j.jamda.2013.11.008
98.	Pratt SI, Ferron JC, Wolfe R, Xie H, Brunette M, Santos M, et al. Healthy choices, healthy changes: a randomized trial of incentives to promote healthy eating and exercise in people with schizophrenia and other serious mental illnesses. Schizophrenia Research. 2023;255:1-8. doi: 10.1016/j.schres.2023.03.007
99.	Reinehr T, Bucksch J, Muller A, Finne E, Kolip P. 7-year follow-up of a lifestyle intervention in overweight children: Comparison to an untreated control group. Clinical Nutrition. 2018;37(5):1558-62. doi: 10.1016/j.clnu.2017.08.017
100.	Ronneberg CR, Lv N, Xiao L, Rosas LG, Shrestha R, Dosala S, et al. Weight loss effects in usual primary care: Findings from 5 behavioral weight loss RCTS. Obesity Research & Clinical Practice. 2021;15(2):180-3. doi: 10.1016/j.orcp.2021.02.001
101.	Russell S. Incretin-based therapies for type 2 diabetes mellitus: a review of direct comparisons of efficacy, safety and patient satisfaction. International Journal of Clinical Pharmacy. 2013;35(2):159-72. doi: 10.1007/s11096-012-9729-9
102.	Said MA, Almatar AA, Alibrahim MS. Higher sedentary behaviors and lower levels of specific knowledge are risk factors for physical activity-related injuries in Saudi adolescents. International Journal of Environmental Research & Public Health. 2023;20(5):4610. doi: 10.3390/ijerph20054610
103.	Sarwer DB, Moore RH, Diewald LK, Chittams J, Berkowitz RI, Vetter M, et al. The impact of a primary care-based weight loss intervention on the quality of life. International Journal of Obesity. 2013;37 Suppl 1:S25-30. doi: 10.1038/ijo.2013.93

104.	Scheen AJ, Radermecker RP, Paquot N. [Focus on tirzepatide, a dual unimolecular GIP-GLP-1 receptor agonist in type 2 diabetes]. Rev Med Suisse. 2022;18(792):1539-44. doi: 10.53738/revmed.2022.18.792.1539
105.	Schulman AR, Kumar N, Thompson CC. Transoral outlet reduction: A comparison of purse-string with interrupted stitch technique. Gastrointestinal Endoscopy. 2018;87(5):1222-8. doi: 10.1016/j.gie.2017.10.034
106.	Shabutdinova OR, Dautov AR, Samkov AA, Kononenko AV, Sargaliev AF, Davletshin AR, et al. [Semaglutide - effectiveness in weight loss and side effects when used according to studies by SUSTAIN, PIONEER, STEP]. Probl Endokrinol. 2023;69(3):68-82. doi: 10.14341/probl13197
107.	Sherwood NE, Crain AL, Seburg EM, Butryn ML, Forman EM, Crane MM, et al. BestFIT sequential multiple assignment randomized trial results: A SMART approach to developing individualized weight loss treatment sequences. Annals of Behavioral Medicine. 2022;56(3):291-304. doi: 10.1093/abm/kaab061
108.	Shirai K, Tanaka M, Fujita T, Fujii Y, Shimomasuda M, Sakai S, et al. Reduction of excessive visceral fat and safety with 52-week administration of lipase inhibitor orlistat in Japanese: long-term clinical study. Advances in Therapy. 2019;36(1):217-31. doi: 10.1007/s12325-018-0822-x
109.	Siegel JM, Prelip ML, Erausquin JT, Kim SA. A worksite obesity intervention: Results from a group-randomized trial. American Journal of Public Health. 2010;100(2):327-33. doi: 10.2105/AJPH.2008.154153
110.	Skroubis G, Kouri N, Mead N, Kalfarentzos F. Long-term results of a prospective comparison of Roux-en-Y gastric bypass versus a variant of biliopancreatic diversion in a non-superobese population (BMI 35-50 kg/m(2)). Obesity Surgery. 2014;24(2):197-204. doi: 10.1007/s11695-013-1081-1
111.	Slotman GJ. Prospectively validated preoperative prediction of weight and co-morbidity resolution in individual patients comparing five bariatric operations. Surgery for Obesity and Related Diseases. 2017;13(9):1590-7. doi: 10.1016/j.soard.2017.04.013
112.	Smith SR, O'Neil PM, Astrup A, Finer N, Sanchez-Kam M, Fraher K, et al. Early weight loss while on lorcaserin, diet and exercise as a predictor of week 52 weight-loss outcomes. Obesity. 2014;22(10):2137-46. doi: 10.1002/oby.20841
113.	Snel M, van Diepen JA, Stijnen T, Pijl H, Romijn JA, Meinders AE, et al. Immediate and long-term effects of addition of exercise to a 16-week very low calorie diet on low-grade inflammation in obese, insulin-dependent type 2 diabetic patients. Food and Chemical Toxicology. 2011;49(12):3104-11. doi: 10.1016/j.fct.2011.09.032
114.	Terranova CO, Lawler SP, Spathonis K, Eakin EG, Reeves MM. Breast cancer survivors' experience of making weight, dietary and physical activity changes during participation in a weight loss intervention. Supportive Care in Cancer. 2017;25(5):1455-63. doi: 10.1007/s00520-016-3542-2
115.	Thomas DM, Ivanescu AE, Martin CK, Heymsfield SB, Marshall K, Bodrato VE, et al. Predicting successful long-term weight loss from short-term weight-loss outcomes: New insights from a dynamic energy balance model (the POUNDS Lost study). The American Journal of Clinical Nutrition. 2015;101(3):449-54. doi: 10.3945/ajcn.114.091520
116.	Type 2 diabetes and metformin. First choice for monotherapy: weak evidence of efficacy but well-known and acceptable adverse effects. Prescrire International. 2014;23(154):269-72.
117.	Utzschneider KM, Ehrmann DA, Arslanian SA, Barengolts E, Buchanan TA, Caprio S, et al. Weight loss and beta-cell responses following gastric banding or pharmacotherapy in adults with impaired glucose tolerance or type 2 diabetes: A randomized trial. Obesity. 2022;30(8):1579-88. doi: 10.1002/oby.23475
118.	Vadiveloo M, Parker H, Raynor H. Increasing low-energy-dense foods and decreasing high-energy-dense foods differently influence weight loss trial outcomes. International Journal of Obesity. 2018;42(3):479-86. doi: 10.1038/ijo.2017.303
119.	van Rijn S, Roebroek YGM, de Jonge C, Greve JWM, Bouvy ND. Effect of the EndoBarrier device: A 4-year follow-up of a multicenter randomized clinical trial. Obesity Surgery. 2019;29(4):1117-21. doi: 10.1007/s11695-018-03659-6

120.	Venditti EM, Marcus MD, Miller RG, Arena VC, Greenspan SL, Rockette-Wagner B. Group lifestyle phone maintenance for weight, health, and physical function in adults aged 65-80 years: A randomized clinical trial. The Journals of Gerontology: Series A. 2021;76(2):352-60. doi: 10.1093/gerona/glaa229
121.	Verma S, Bhatta M, Davies M, Deanfield JE, Garvey WT, Jensen C, et al. Effects of once-weekly semaglutide 2.4 mg on C-reactive protein in adults with overweight or obesity (STEP 1, 2, and 3): exploratory analyses of three randomised, double-blind, placebo-controlled, phase 3 trials. eClinicalMedicine. 2023;55. doi: 10.1016/j.eclinm.2022.101737
122.	Vilchis-Gil J, Klünder-Klünder M, Duque X, Flores-Huerta S. Decreased body mass index in schoolchildren after yearlong information sessions with parents reinforced with web and mobile phone resources: Community trial. J Med Internet Res. 2016;18(6):e174. doi: 10.2196/jmir.5584
123.	Vitolins MZ, Isom SP, Blackwell CS, Kernodle D, Sydell JM, Pedley CF, et al. The healthy living partnerships to prevent diabetes and the diabetes prevention program: A comparison of year 1 and 2 intervention results. Translational Behavioral Medicine. 2017;7(2):371-8. doi: 10.1007/s13142-016-0447-z
124.	von Scholten BJ, Davies MJ, Persson F, Hansen TW, Madsbad S, Endahl L, et al. Effect of weight reductions on estimated kidney function: post-hoc analysis of two randomized trials. Journal of Diabetes and its Complications. 2017;31(7):1164-8. doi: 10.1016/j.jdiacomp.2017.04.003
125.	Wing RR, Creasman JM, West DS, Richter HE, Myers D, Burgio KL, et al. Improving urinary incontinence in overweight and obese women through modest weight loss. Obstetrics & Gynecology. 2010;116(2 Pt 1):284-92. doi: 10.1097/AOG.0b013e3181e8fb60
126.	Wölnerhanssen BK, Peterli R, Hurme S, Bueter M, Helmio M, Juuti A, et al. Laparoscopic Roux-en-Y gastric bypass versus laparoscopic sleeve gastrectomy: 5-year outcomes of merged data from two randomized clinical trials (SLEEVEPASS and SM-BOSS). British Journal of Surgery. 2021;108(1):49-57. doi: 10.1093/bjs/znaa011
127.	Zhang J-P, Weiss JJ, McCardle M, Klopchin H, Rosendahl E, Maayan L, et al. Effectiveness of a cognitive behavioral weight management intervention in obese patients with psychotic disorders compared to patients with nonpsychotic disorders or no psychiatric disorders: Results from a 12-month, real-world study. Journal of Clinical Psychopharmacology. 2012;32(4):458-64. doi: 10.1097/JCP.0b013e31825cccd2

Table D5: Final follow up less than 12 months from baseline (n=115)

Publication details	
1.	Babbar S, Porter BW, Williams KB. The impact of prenatal yoga on exercise attitudes and behavior: teachable moments from a randomized controlled trial. International Journal of Yoga Therapy. 2017;27(1):37-48. doi: 10.17761/1531-2054-27.1.37
2.	Ballin M, Lundberg E, Sorlen N, Nordstrom P, Hult A, Nordstrom A. Effects of interval training on visceral adipose tissue in centrally obese 70-year-old individuals: a randomized controlled trial. Journal of the American Geriatrics Society. 2019;67(8):1625-31. doi: 10.1111/jgs.15919
3.	Barham K, West S, Trief P, Morrow C, Wade M, Weinstock RS. Diabetes prevention and control in the workplace: a pilot project for county employees. Journal of Public Health Management & Practice. 2011;17(3):233-41. doi: 10.1097/PHH.0b013e3181fd4cf6
4.	Berkowitz RI, Wadden TA, Gehrman CA, Bishop-Gilyard CT, Moore RH, Womble LG, et al. Meal replacements in the treatment of adolescent obesity: a randomized controlled trial. Obesity. 2011;19(6):1193-9. doi: 10.1038/oby.2010.288
5.	Bolinder J, Ljunggren Ö, Kullberg J, Johansson L, Wilding J, Langkilde AM, et al. Effects of dapagliflozin on body weight, total fat mass, and regional adipose tissue distribution in patients with type 2 diabetes mellitus with inadequate glycemic control on metformin. The Journal of Clinical Endocrinology & Metabolism. 2012;97(3):1020-31. doi: 10.1210/jc.2011-2260
6.	Boppre G, Borges LPSL, Diniz-Sousa F, Veras L, Devezas V, Preto J, et al. Effects of a supervised exercise training on body composition after bariatric surgery: a randomized controlled trial. Obesity. 2023;31(11):2750-61. doi: 10.1002/oby.23894

7.	Calugi S, Marchesini G, El Ghoch M, Gavasso I, Dalle Grave R. The influence of weight-loss expectations on weight loss and of weight-loss satisfaction on weight maintenance in severe obesity. Journal of the Academy of Nutrition & Dietetics. 2017;117(1):32-8. doi: 10.1016/j.jand.2016.09.001
8.	Chanoine J-P, Richard M. Early weight loss and outcome at one year in obese adolescents treated with orlistat or placebo. International Journal of Pediatric Obesity. 2011;6(2):95-101. doi: 10.3109/17477166.2010.519387
9.	Christenson J, Whitby SJ, Mellor D, Thomas J, McKune A, Roach PD, et al. The effects of resveratrol supplementation in overweight and obese humans: a systematic review of randomized trials. Metabolic Syndrome and Related Disorders. 2016;14(7):323-33. doi: 10.1089/met.2016.0035
10.	Christison AL, Evans TA, Bleess BB, Wang H, Aldag JC, Binns HJ. Exergaming for health: A randomized study of community-based exergaming curriculum in pediatric weight management. Games for health journal. 2016;5(6):413-21. doi: 10.1089/g4h.2015.0097
11.	Crichton GE, Howe PRC, Buckley JD, Coates AM, Murphy KJ. Dairy consumption and cardiometabolic health: Outcomes of a 12-month crossover trial. Nutrition & Metabolism. 2012;9(1):19-29. doi: 10.1186/1743-7075-9-19
12.	Croker H, Viner RM, Nicholls D, Haroun D, Chadwick P, Edwards C, et al. Family-based behavioural treatment of childhood obesity in a UK National Health Service setting: Randomized controlled trial. International Journal of Obesity. 2012;36(1):16-26. doi: 10.1038/ijo.2011.182
13.	D'Ambrosio V, Brunelli R, Vena F, Di Mascio D, Marchetti C, Boccherini C, et al. Metformin reduces maternal weight gain in obese pregnant women: a systematic review and meta-analysis of two randomized controlled trials. Diabetes/Metabolism Research and Reviews. 2019;35(6):e3164. doi: 10.1002/dmrr.3164
14.	da Silva Gonçalves L, Santos Lopes da Silva L, Rodrigues Benjamim CJ, Tasinafo MF, Bohn L, Ferreira Abud G, et al. The effects of different exercise training types on body composition and physical performance in older adults with sarcopenic obesity: a systematic review and meta-analysis. The Journal of Nutrition, Health & Aging. 2023;27(11):1076-90. doi: 10.1007/s12603-023-2018-6
15.	Dalle Grave R, Calugi S, Gavasso I, El Ghoch M, Marchesini G. A randomized trial of energy-restricted high-protein versus high-carbohydrate, low-fat diet in morbid obesity. Obesity. 2013;21(9):1774-81. doi: 10.1002/oby.20320
16.	Danielsen YS, Nordhus IH, Juliusson PB, Maehle M, Pallesen S. Effect of a family-based cognitive behavioural intervention on body mass index, self-esteem and symptoms of depression in children with obesity (aged 7-13): A randomised waiting list controlled trial. Obesity Research & Clinical Practice. 2013;7(2):e116-e28. doi: 10.1016/j.orcp.2012.06.003
17.	de Niet J, Timman R, Bauer S, van den Akker E, Buijks H, de Klerk C, et al. The effect of a short message service maintenance treatment on body mass index and psychological well-being in overweight and obese children: A randomized controlled trial. Pediatric Obesity. 2012;7(3):205-19. doi: 10.1111/j.2047-6310.2012.00048.x
18.	de Quadros LG, Neto MG, Marchesini JC, Teixeira A, Grecco E, Junior RLK, et al. Endoscopic argon plasma coagulation vs. Multidisciplinary evaluation in the management of weight regain after gastric bypass surgery: A randomized controlled trial with SHAM group. Obesity Surgery. 2020;30(5):1904-16. doi: 10.1007/s11695-020-04414-6
19.	de Wit HM, te Groen M, Rovers MM, Tack CJ. The placebo response of injectable GLP-1 receptor agonists vs. oral DPP-4 inhibitors and SGLT-2 inhibitors: a systematic review and meta-analysis. British Journal of Clinical Pharmacology. 2016;82(1):301-14. doi: 10.1111/bcp.12925
20.	de Zwaan M, Herpertz S, Zipfel S, Svaldi J, Friederich H-C, Schmidt F, et al. Effect of internet-based guided self-help vs individual face-to-face treatment on full or subsyndromal binge eating disorder in overweight or obese patients: The interbed randomized clinical trial. JAMA Psychiatry. 2017;74(10):987-95. doi: 10.1001/jamapsychiatry.2017.2150
21.	Delgado-Floody P, Chirosa-Rios L, Guzman-Guzman IP, Vargas CA, Sandoval-Aguilera K, Caamano-Navarrete F, et al. The social distance impacts from covid-19 pandemic on the development of two orders of a concurrent training programme for morbidly obese patients. International Journal of Environmental Research & Public Health. 2022;19(20). doi: 10.3390/ijerph192013408

22.	Drakos P, Volteas P, Seeras K, Humayon S, Flink B, Yang J, et al. S157-a structured early intervention program in patients with predicted poor long-term outcome following bariatric surgery: A prospective randomized study. Surgical Endoscopy. 2022;36(9):6903-14. doi: 10.1007/s00464-022-09029-9
23.	Du Q, Wang YJ. Comparative efficacy of thiazolidinediones and metformin for polycystic ovary syndrome. Saudi Med J. 2012;33(9):954-61.
24.	Ferrara P, Del Bufalo F, Ianniello F, Franceschini A, Paolini Paoletti F, Massart F, et al. Diet and physical activity "defeated" tuberil r in treatment of childhood obesity. Minerva Endocrinologica. 2013;38(2):181-5.
25.	Forman EM, Butryn ML, Manasse SM, Crosby RD, Goldstein SP, Wyckoff EP, et al. Acceptance-based versus standard behavioral treatment for obesity: Results from the mind your health randomized controlled trial. Obesity. 2016;24(10):2050-6. doi: 10.1002/oby.21601
26.	Garibay-Nieto N, Queipo-García G, Alvarez F, Bustos M, Villanueva E, Ramírez F, et al. Effects of conjugated linoleic acid and metformin on insulin sensitivity in obese children: randomized clinical trial. The Journal of Clinical Endocrinology & Metabolism. 2017;102(1):132-40. doi: 10.1210/jc.2016-2701
27.	Gerber BS, Schiffer L, Brown AA, Berbaum ML, Rimmer JH, Braunschweig CL, et al. Video telehealth for weight maintenance of African-American women. Journal of Telemedicine & Telecare. 2013;19(5):266-72. doi: 10.1177/1357633X13490901
28.	Godfrey KM, Schumacher LM, Butryn ML, Forman EM. Physical activity intentions and behavior mediate treatment response in an acceptance-based weight loss intervention. Annals of Behavioral Medicine. 2019;53(12):1009-19. doi: 10.1093/abm/kaz011
29.	Goodpaster BH, Delany JP, Otto AD, Kuller L, Vockley J, South-Paul JE, et al. Effects of diet and physical activity interventions on weight loss and cardiometabolic risk factors in severely obese adults: A randomized trial. JAMA. 2010;304(16):1795-802. doi: 10.1001/jama.2010.1505
30.	Greenlee HA, Crew KD, Mata JM, McKinley PS, Rundle AG, Zhang W, et al. A pilot randomized controlled trial of a commercial diet and exercise weight loss program in minority breast cancer survivors. Obesity. 2013;21(1):65-76. doi: 10.1002/oby.20245
31.	Haire-Joshu D, Cahill AG, Stein RI, Cade WT, Woolfolk CL, Moley K, et al. Randomized controlled trial of home-based lifestyle therapy on postpartum weight in underserved women with overweight or obesity. Obesity. 2019;27(4):535-41. doi: 10.1002/oby.22413
32.	Halseth A, Shan K, Walsh B, Gilder K, Fujioka K. Method-of-use study of naltrexone sustained release (SR)/bupropion SR on body weight in individuals with obesity. Obesity. 2017;25(2):338-45. doi: 10.1002/oby.21726
33.	Han Y, Li Y, He B. GLP-1 receptor agonists versus metformin in PCOS: a systematic review and meta-analysis. Reproductive BioMedicine Online. 2019;39(2):332-42. doi: 10.1016/j.rbmo.2019.04.017
34.	Hernandez-Alvarez ED, Valero-Bernal MV, Mancera-Soto EM. Efficacy of the prescription of physical activity in the obese child population. Revista de Salud Pública. 2015;17(1):120-31. doi: 10.15446/rsap.v17n1.43536
35.	Hinton PS, Rector RS, Linden MA, Warner SO, Dellsperger KC, Chockalingam A, et al. Weight-loss-associated changes in bone mineral density and bone turnover after partial weight regain with or without aerobic exercise in obese women. Eur J Clin Nutr. 2012;66(5):606-12. doi: 10.1038/ejcn.2011.212
36.	Hoffmann VP, Case M, Jacobson JG. Assessment of treatment algorithms including amantadine, metformin, and zonisamide for the prevention of weight gain with olanzapine: a randomized controlled open-label study. The Journal of Clinical Psychiatry. 2011;73(2):216-23. doi: 10.4088/JCP.09m05580
37.	Hofsteenge GH, Weijs PJM, Delemarre-van de Waal HA, de Wit M, Chinapaw MJM. Effect of the Go4it multidisciplinary group treatment for obese adolescents on health related quality of life: A randomised controlled trial. BMC Public Health. 2013;13:939. doi: 10.1186/1471-2458-13-939
38.	Ing CT, Miyamoto RES, Fang R, Antonio M, Paloma D, Braun KL, et al. Comparing weight loss-maintenance outcomes of a worksite-based lifestyle program delivered via DVD and face-to-face: A randomized trial. Health Education & Behavior. 2018;45(4):569-80. doi: 10.1177/1090198118757824
39.	Kanaya AM, Santoyo-Olsson J, Gregorich S, Grossman M, Moore T, Stewart AL. The Live Well, Be Well study: A community-based, translational lifestyle program to lower diabetes risk factors in ethnic

	minority and lower-socioeconomic status adults. American Journal of Public Health. 2012;102(8):1551-8. doi: 10.2105/AJPH.2011.300456
40.	Katsagoni CN, Papachristou E, Sidossis A, Sidossis L. Effects of dietary and lifestyle interventions on liver, clinical and metabolic parameters in children and adolescents with non-alcoholic fatty liver disease: A systematic review. Nutrients. 2020;12(9):2864. doi: 10.3390/nu12092864
41.	Ke X, Ting Y, Li-Ya A, Yue-Ying L, Yu-Xing Q, Xiong-Zhi C, et al. The relationship between pistachio (Pistacia vera L) intake and adiposity: A systematic review and meta-analysis of randomized controlled trials. Medicine. 2020;99(34):1-6. doi: 10.1097/MD.0000000000021136
42.	Kilicarslan Toruner E, Savaser S. A controlled evaluation of a school-based obesity prevention in Turkish school children. Journal of School Nursing. 2010;26(6):473-82. doi: 10.1177/1059840510383987
43.	Kite C, Lahart IM, Afzal I, Broom DR, Randeva H, Kyrou I, et al. Exercise, or exercise and diet for the management of polycystic ovary syndrome: A systematic review and meta-analysis. Systematic reviews. 2019;8(1):51. doi: 10.1186/s13643-019-0962-3
44.	Kolip P, Finne E, Schaefer A, Winkel K, Reinehr T. [Evaluation of the "obeldicks light training" programme for overweight children and adolescents]. Das Gesundheitswesen. 2015;77 Suppl 1:S56-7. doi: 10.1055/s-0032-1331255
45.	Kong AS, Sussman AL, Yahne C, Skipper BJ, Burge MR, Davis SM. School-based health center intervention improves body mass index in overweight and obese adolescents. Journal of Obesity. 2013;2013:1-10. doi: 10.1155/2013/575016
46.	Kramer MK, Molenaar DM, Arena VC, Venditti EM, Meehan RJ, Miller RG, et al. Improving employee health: Evaluation of a worksite lifestyle change program to decrease risk factors for diabetes and cardiovascular disease. Journal of Occupational and Environmental Medicine. 2015;57(3):284-91. doi: 10.1097/JOM.0000000000000350
47.	Kuk JL, Lee S. Assessing the utility of cardiorespiratory fitness, visceral fat, and liver fat in predicting changes in insulin sensitivity beyond simple changes in body weight after exercise training in adolescents. Applied Physiology, Nutrition & Metabolism. 2021;46(1):55-62. doi: 10.1139/apnm-2020-0284
48.	LeBlanc ES, Smith NX, Vesco KK, Paul IM, Stevens VJ. Weight loss prior to pregnancy and subsequent gestational weight gain: Prepare, a randomized clinical trial. American Journal of Obstetrics and Gynecology. 2021;224(1):P99.E1-.E14. doi: 10.1016/j.ajog.2020.07.027
49.	Lee SY, Kim J, Oh S, Kim Y, Woo S, Jang HB, et al. A 24-week intervention based on nutrition care process improves diet quality, body mass index, and motivation in children and adolescents with obesity. Nutrition Research. 2020;84:53-62. doi: 10.1016/j.nutres.2020.09.005
50.	Lennefer T, Lopper E, Wiedemann AU, Hess U, Hoppe A. Improving employees' work-related well-being and physical health through a technology-based physical activity intervention: A randomized intervention-control group study. Journal of Occupational Health Psychology. 2020;25(2):143-58. doi: 10.1037/ocp0000169
51.	Li R, Mai T, Zheng S, Zhang Y. Effect of metformin and exenatide on pregnancy rate and pregnancy outcomes in overweight or obese infertility PCOS women: long-term follow-up of an RCT. Archives of Gynecology and Obstetrics. 2022;306(5):1711-21. doi: 10.1007/s00404-022-06700-3
52.	Liang Z, Wu Q, Chen B, Yu P, Zhao H, Ouyang X. Effect of laparoscopic Roux-en-Y gastric bypass surgery on type 2 diabetes mellitus with hypertension: A randomized controlled trial. Diabetes Research & Clinical Practice. 2013;101(1):50-6. doi: 10.1016/j.diabres.2013.04.005
53.	Lin M, Mahmooth Z, Dedhia N, Frutchey R, Mercado CE, Epstein DH, et al. Tailored, interactive text messages for enhancing weight loss among African American adults: The TRIMM randomized controlled trial. The American Journal of Medicine. 2015;128(8):896-904. doi: 10.1016/j.amjmed.2015.03.013
54.	Manasse SM, Flack D, Dochat C, Zhang F, Butryn ML, Forman EM. Not so fast: The impact of impulsivity on weight loss varies by treatment type. Appetite. 2017:193-9. doi: 10.1016/j.appet.2017.02.042
55.	Marc-Hernandez A, Ruiz-Tovar J, Aracil A, Guillen S, Moya-Ramon M. Effects of a high-intensity exercise program on weight regain and cardio-metabolic profile after 3 years of bariatric surgery: A randomized trial. Scientific Reports. 2020;10(1):3123. doi: 10.1038/s41598-020-60044-z

56.	Marsigliante S, Gomez-Lopez M, Muscella A. Effects on children's physical and mental well-being of a physical-activity-based school intervention program: A randomized study. International Journal of Environmental Research & Public Health. 2023;20(3):1927. doi: 10.3390/ijerph20031927
57.	Martínez-Amat A, Aibar-Almazán A, Fábrega-Cuadros R, Cruz-Díaz D, Jiménez-García JD, Pérez-López FR, et al. Exercise alone or combined with dietary supplements for sarcopenic obesity in community-dwelling older people: A systematic review of randomized controlled trials. Maturitas. 2018;110:92-103. doi: 10.1016/j.maturitas.2018.02.005
58.	Martinez-Victoria E, Yago MD. Omega 3 polyunsaturated fatty acids and body weight. The British Journal of Nutrition. 2012;107 Suppl 2:S107-16. doi: 10.1017/S000711451200150X
59.	Mathieu C, Rodbard HW, Cariou B, Handelsman Y, Philis-Tsimikas A, Ocampo Francisco AM, et al. A comparison of adding liraglutide versus a single daily dose of insulin aspart to insulin degludec in subjects with type 2 diabetes (BEGIN: VICTOZA ADD-ON). Diabetes, Obesity and Metabolism. 2014;16(7):636-44. doi: 10.1111/dom.12262
60.	McVay MA, Jeffreys AS, King HA, Olsen MK, Voils CI, Yancy Jr WS. The relationship between pretreatment dietary composition and weight loss during a randomised trial of different diet approaches. Journal of Human Nutrition and Dietetics. 2015;28(s2):16-23. doi: 10.1111/jhn.12188
61.	Medeiros VGd, Pajecki D, Dias MCG, Dantas ACB, Cleva Rd, Santo MA. Food tolerance and nutritional risk after sleeve gastrectomy and roux-en-y gastric bypass in elderly patients with severe obesity: A prospective, randomized controlled trial. Arquivos de Gastroenterologia. 2022;59(3):370-4. doi: 10.1590/S0004-2803.202203000-67
62.	Memelink RG, Hummel M, Hijlkema A, Streppel MT, Bautmans I, Weijs PJM, et al. Additional effects of exercise to hypocaloric diet on body weight, body composition, glycaemic control and cardio-respiratory fitness in adults with overweight or obesity and type 2 diabetes: a systematic review and meta-analysis. Diabetic Medicine. 2023;40(7):e15096. doi: 10.1111/dme.15096
63.	Mensorio MS, Cebolla-Martí A, Rodilla E, Palomar G, Lisón JF, Botella C, et al. Analysis of the efficacy of an internet-based self-administered intervention ("living better") to promote healthy habits in a population with obesity and hypertension: An exploratory randomized controlled trial. International Journal of Medical Informatics. 2019;124:13-23. doi: 10.1016/j.ijmedinf.2018.12.007
64.	Moens E, Braet C. Training parents of overweight children in parenting skills: A 12-month evaluation. Behavioural and Cognitive Psychotherapy. 2012;40(1):1-18. doi: 10.1017/S1352465811000403
65.	Mohamad H, Ntessalen M, Craig LCA, Clark J, Fielding S, N'Dow J, et al. A self-help diet and physical activity intervention with dietetic support for weight management in men treated for prostate cancer: Pilot study of the prostate cancer weight management (pro-man) randomised controlled trial. British Journal of Nutrition. 2019;122(5):592-600. doi: 10.1017/S0007114519001090
66.	Mummah S, Robinson TN, Mathur M, Farzinkhou S, Sutton S, Gardner CD. Effect of a mobile app intervention on vegetable consumption in overweight adults: A randomized controlled trial. The International Journal of Behavioral Nutrition and Physical Activity. 2017;14(1):125. doi: 10.1186/s12966-017-0563-2
67.	Nguyen B, Shrewsbury VA, O'Connor J, Steinbeck KS, Lee A, Hill AJ, et al. Twelve-month outcomes of the Loozit randomized controlled trial: A community-based healthy lifestyle program for overweight and obese adolescents. Archives of Pediatrics & Adolescent Medicine. 2012;166(2):170-7. doi: doi:10.1001/archpediatrics.2011.841
68.	Nicklas JM, Pyle L, Soares A, Leiferman JA, Bull SS, Tong S, et al. The Fit After Baby randomized controlled trial: an mHealth postpartum lifestyle intervention for women with elevated cardiometabolic risk. PLOS ONE. 2024;19(1):e0296244. doi: 10.1371/journal.pone.0296244
69.	Nicklas JM, Zera CA, England LJ, Rosner BA, Horton E, Levkoff SE, et al. A web-based lifestyle intervention for women with recent gestational diabetes mellitus: A randomized controlled trial. Obstetrics & Gynecology. 2014;124(3):563-70. doi: 10.1097/AOG.0000000000000420
70.	Nijamkin MP, Campa A, Sosa J, Baum M, Himburg S, Johnson P. Comprehensive nutrition and lifestyle education improves weight loss and physical activity in Hispanic Americans following gastric bypass surgery: A randomized controlled trial. Journal of the Academy of Nutrition & Dietetics. 2012;112(3):382-90. doi: 10.1016/j.jada.2011.10.023

71.	Ojeda-Rodríguez A, Zazpe I, Morell-Azanza L, Chueca MJ, Azcona-Sanjulian MC, Marti A. Improved diet quality and nutrient adequacy in children and adolescents with abdominal obesity after a lifestyle intervention. Nutrients. 2018;10(10):1500. doi: 10.3390/nu10101500
72.	Onakpoya I, Davies L, Ernst E. Efficacy of herbal supplements containing citrus aurantium and synephrine alkaloids for the management of overweight and obesity: A systematic review. Focus on Alternative & Complementary Therapies. 2011;16(4):254-60. doi: 10.1111/j.2042-7166.2011.01115.x
73.	Panda SR, Jain M, Jain S, Saxena R, Hota S. Effect of orlistat versus metformin in various aspects of polycystic ovarian syndrome: a systematic review of randomized control trials. The Journal of Obstetrics and Gynecology of India. 2018;68(5):336-43. doi: 10.1007/s13224-018-1140-6
74.	Pereira MJ, Lundkvist P, Kamble PG, Lau J, Martins JG, Sjöström CD, et al. A randomized controlled trial of dapagliflozin plus once-weekly exenatide versus placebo in individuals with obesity and without diabetes: metabolic effects and markers associated with bodyweight loss. Diabetes Therapy. 2018;9(4):1511-32. doi: 10.1007/s13300-018-0449-6
75.	Petrella RJ, Gill DP, Zou G, De Cruz A, Riggin B, Bartol C, et al. Hockey Fans in Training: A pilot pragmatic randomized controlled trial. Medicine & Science in Sports & Exercise. 2017;49(12):2506-16. doi: 10.1249/MSS.0000000000001380
76.	Raeisi-Dehkordi H, Amiri M, Humphries KH, Salehi-Abargouei A. The effect of canola oil on body weight and composition: A systematic review and meta-analysis of randomized controlled clinical trials. Advances in Nutrition. 2019;10(3):419-32. doi: 10.1093/advances/nmy108
77.	Ramezani-Jolfaie N, Mohammadi M, Salehi-Abargouei A. Effects of a healthy Nordic diet on weight loss in adults: A systematic review and meta-analysis of randomized controlled clinical trials. Eating and Weight Disorders. 2020;25(5):1141-50. doi: 10.1007/s40519-019-00773-x
78.	Reuss-Borst M, Peters E, Paloyo AR, Reichert AR, Tauchmann H. [Financial incentives on weight loss after rehabilitation]. Versicherungsmedizin. 2015;67(2):64-9.
79.	Rubino D, Abrahamsson N, Davies M, Hesse D, Greenway FL, Jensen C, et al. Effect of continued weekly subcutaneous semaglutide vs placebo on weight loss maintenance in adults with overweight or obesity the STEP 4 randomized clinical trial. JAMA. 2021;325(14):1414-25. doi: 10.1001/jama.2021.3224
80.	Sacher PM, Kolotourou M, Chadwick PM, Cole TJ, Lawson MS, Lucas A, et al. Randomized controlled trial of the MEND program: A family-based community intervention for childhood obesity. Obesity. 2010;18 Suppl 1:S62-8. doi: 10.1038/oby.2009.433
81.	Sadeghi O, Sadeghian M, Rahmani S, Maleki V, Larijani B, Esmaillzadeh A. Whole-grain consumption does not affect obesity measures: An updated systematic review and meta-analysis of randomized clinical trials. Advances in Nutrition. 2020;11(2):280-92. doi: 10.1093/advances/nmz076
82.	Saelens BE, Grow HM, Stark LJ, Seeley RJ, Roehrig H. Efficacy of increasing physical activity to reduce children's visceral fat: A pilot randomized controlled trial. International Journal of Pediatric Obesity. 2011;6(2):102-12. doi: 10.3109/17477166.2010.482157
83.	Salamun V, Jensterle M, Janez A, Vrtacnik Bokal E. Liraglutide increases IVF pregnancy rates in obese PCOS women with poor response to first-line reproductive treatments: a pilot randomized study. European Journal of Endocrinology. 2018;179(1):1-11. doi: 10.1530/EJE-18-0175
84.	Salse-Batán J, Suárez-Iglesias D, Sanchez-Lastra MA, Ayán Pérez C. Aquatic exercise for people with intellectual disabilities: findings from a systematic review. International Journal of Developmental Disabilities. 2023;69(2):134-46. doi: 10.1080/20473869.2021.1924033
85.	Sanjay P, Jalwal A. A study to compare the effectiveness of aerobic exercises versus resistance training in overweight and obese adolescents. Indian Journal of Physiotherapy & Occupational Therapy. 2012;6(4):244-8.
86.	Santilli F, Simeone PG, Guagnano MT, Leo M, Maccarone MT, Di Castelnuovo A, et al. Effects of liraglutide on weight loss, fat distribution, and β-cell function in obese subjects with prediabetes or early type 2 diabetes. Diabetes Care. 2017;40(11):1556-64. doi: 10.2337/dc17-0589
87.	Schliemann D, Woodside JV. The effectiveness of dietary workplace interventions: A systematic review of systematic reviews. Public Health Nutrition. 2019;22(5):942-55. doi: 10.1017/S1368980018003750

88.	Schmidt JB, Pedersen SD, Gregersen NT, Vestergaard L, Nielsen MS, Ritz C, et al. Effects of RYGB on energy expenditure, appetite and glycaemic control: A randomized controlled clinical trial. International Journal of Obesity. 2016;40(2):281-90. doi: 10.1038/ijo.2015.162
89.	Schwingshackl L, Dias S, Strasser B, Hoffmann G. Impact of different training modalities on anthropometric and metabolic characteristics in overweight/obese subjects: A systematic review and network meta-analysis. PloS one. 2013;8(12):e82853. doi: 10.1371/journal.pone.0082853
90.	Sellberg F, Possmark S, Willmer M, Tynelius P, Berglind D. One-year follow-up of a dissonance-based intervention on quality of life, wellbeing, and physical activity after Roux-en-Y gastric bypass surgery: A randomized controlled trial. Surgery for Obesity and Related Diseases. 2019;15(10):1731-7. doi: 10.1016/j.soard.2019.07.001
91.	Sharma V, Ricketts HC, McCombie L, Brosnahan N, Crawford L, Slaughter L, et al. A total diet replacement weight management program for difficult-to-treat asthma associated with obesity: a randomized controlled feasibility trial. Chest. 2023;163(5):1026-37. doi: 10.1016/j.chest.2023.01.015
92.	Skjakodegard HF, Conlon RPK, Hystad SW, Roelants M, Olsson SJG, Frisk B, et al. Family-based treatment of children with severe obesity in a public healthcare setting: Results from a randomized controlled trial. Clinical Obesity. 2022;12(3):e12513. doi: 10.1111/cob.12513
93.	Smith JR, Greaves CJ, Thompson JL, Taylor RS, Jones M, Armstrong R, et al. The community-based prevention of diabetes (ComPoD) study: A randomised, waiting list controlled trial of a voluntary sector-led diabetes prevention programme. International Journal of Behavioral Nutrition & Physical Activity. 2019;16:112. doi: 10.1186/s12966-019-0877-3
94.	Song Y, Wang H, Huang H, Zhu Z. Comparison of the efficacy between NAC and metformin in treating PCOS patients: a meta-analysis. Gynecological Endocrinology. 2020;36(3):204-10. doi: 10.1080/09513590.2019.1689553
95.	Taveras EM, Marshall R, Horan CM, Gillman MW, Hacker K, Kleinman KP, et al. Improving children's obesity-related health care quality: Process outcomes of a cluster-randomized controlled trial. Obesity. 2014;22(1):27-31. doi: 10.1002/oby.20612
96.	Taylor K, Gurney K, Han J, Pencek R, Walsh B, Trautmann M. Exenatide once weekly treatment maintained improvements in glycemic control and weight loss over 2 years. BMC Endocrine Disorders. 2011;11:9. doi: 10.1186/1472-6823-11-9
97.	Theodorakopoulos C, Jones J, Bannerman E, Greig CA. Effectiveness of nutritional and exercise interventions to improve body composition and muscle strength or function in sarcopenic obese older adults: A systematic review. Nutrition Research. 2017;43:3-15. doi: 10.1016/j.nutres.2017.05.002
98.	Thompson CC, Chand B, Chen YK, DeMarco DC, Miller L, Schweitzer M, et al. Endoscopic suturing for transoral outlet reduction increases weight loss after Roux-en-Y gastric bypass surgery. Gastroenterology. 2013;145(1):129-37.e3. doi: 10.1053/j.gastro.2013.04.002
99.	Thorndike AN, Sonnenberg L, Healey E, Myint-U K, Kvedar JC, Regan S. Prevention of weight gain following a worksite nutrition and exercise program: A randomized controlled trial. American Journal of Preventive Medicine. 2012;43(1):27-33. doi: 10.1016/j.amepre.2012.02.029
100.	Thornhill K, Charlton K, Probst Y, Neale E. Does an increased intake of added sugar affect appetite in overweight or obese adults, when compared with lower intakes? A systematic review of the literature. The British Journal of Nutrition. 2019;121(2):232-40. doi: 10.1017/S0007114518003239
101.	Toulabi T, Khosh Niyat Nikoo M, Amini F, Nazari H, Mardani M. The influence of a behavior modification interventional program on body mass index in obese adolescents. Journal of the Formosan Medical Association. 2012;111(3):153-9. doi: 10.1016/j.jfma.2011.05.007
102.	Truby H, Edwards BA, Day K, O'Driscoll DM, Young A, Ghazi L, et al. A 12-month weight loss intervention in adults with obstructive sleep apnoea: Is timing important? A step wedge randomised trial. European Journal of Clinical Nutrition. 2022;76(12):1762-9. doi: 10.1038/s41430-022-01184-5
103.	Trussardi Fayh AP, Lopes AL, Fernandes PR, Reischak-Oliveira A, Friedman R. Impact of weight loss with or without exercise on abdominal fat and insulin resistance in obese individuals: A randomised clinical trial. British Journal of Nutrition. 2013;110(3):486-92. doi: 10.1017/S0007114512005442

104.	Vadini F, Simeone PG, Boccatonda A, Guagnano MT, Liani R, Tripaldi R, et al. Liraglutide improves memory in obese patients with prediabetes or early type 2 diabetes: a randomized, controlled study. International Journal of Obesity. 2020;44(6):1254-63. doi: 10.1038/s41366-020-0535-5
105.	Velija-Asimi Z, Izetbegovic S, Karamehic J, Coric J, Panjeta M, Macic-Dzankovic A, et al. The effects of dipeptidyl peptidase-4 inhibitors in treatment of obese patients with type 2 diabetes. Med Arch. 2013;67(5):365-7. doi: 10.5455/medarh.2013.67.365-367
106.	Vink RG, Roumans NJ, Mariman EC, van Baak MA. Dietary weight loss-induced changes in RBP4, FFA, and ACE predict weight regain in people with overweight and obesity. Physiological Reports. 2017;5(21). doi: 10.14814/phy2.13450
107.	Wang Y, Wang D, Cheng J, Fang X, Chen Y, Yu L, et al. Efficacy and tolerability of pharmacological interventions on metabolic disturbance induced by atypical antipsychotics in adults: a systematic review and network meta-analysis. Journal of Psychopharmacology. 2021;35(9):1111-9. doi: 10.1177/02698811211035391
108.	Wang Y, Zheng Y, Kuang L, Yang K, Xie J, Liu X, et al. Effects of probiotics in patients with morbid obesity undergoing bariatric surgery: a systematic review and meta-analysis. International Journal of Obesity. 2023;47(11):1029-42. doi: 10.1038/s41366-023-01375-5
109.	Wilfley DE, Saelens BE, Stein RI, Best JR, Kolko RP, Schechtman KB, et al. Dose, content, and mediators of family-based treatment for childhood obesity: A multisite randomized clinical trial. JAMA Pediatrics. 2017;171(12):1151-9. doi: 10.1001/jamapediatrics.2017.2960
110.	Xing C, Li C, He B. Insulin sensitizers for improving the endocrine and metabolic profile in overweight women with PCOS. The Journal of Clinical Endocrinology & Metabolism. 2020;105(9):2950-63. doi: 10.1210/clinem/dgaa337
111.	Yanovski JA, Krakoff J, Salaita CG, McDuffie JR, Kozlosky M, Sebring NG, et al. Effects of metformin on body weight and body composition in obese insulin-resistant children: a randomized clinical trial. Diabetes. 2011;60(2):477-85. doi: 10.2337/db10-1185
112.	Yeary KHK, Moore PC, Gauss CH, Cornell C, Prewitt TE, Shakya S, et al. Reach and adoption of a randomized weight loss maintenance trial in rural African Americans of faith: The WORD (Wholeness, Oneness, Righteousness, Deliverance). American Journal of Health Promotion. 2019;33(4):549-57. doi: 10.1177/0890117118805065
113.	Yoshimura E, Tajiri E, Michiwaki R, Matsumoto N, Hatamoto Y, Tanaka S. Long-term effects of the use of a step count-specific smartphone app on physical activity and weight loss: Randomized controlled clinical trial. JMIR mHealth and uHealth. 2022;10(10):e35628. doi: 10.2196/35628
114.	Zhang J, Xing C, Cheng X, He B. Canagliflozin combined with metformin versus metformin monotherapy for endocrine and metabolic profiles in overweight and obese women with polycystic ovary syndrome: a single-center, open-labeled prospective randomized controlled trial. Frontiers in Endocrinology. 2022;13. doi: 10.3389/fendo.2022.1003238
115.	Zhang T, Liu H, Lu Y, Wang Q. The nexus of sports-based development and education of mental health and physical fitness. International Journal of Environmental Research & Public Health. 2023;20(4):20. doi: 10.3390/ijerph20043737

Table D6: Ineligible patient population (n=88)

Publication details	
1.	Adab P, Barrett T, Bhopal R, Cade JE, Canaway A, Cheng KK, et al. The West Midlands ActiVe lifestyle and healthy Eating in School children (WAVES) study: A cluster randomised controlled trial testing the clinical effectiveness and cost-effectiveness of a multifaceted obesity prevention intervention programme targeted at. Health Technology Assessment. 2018;22(8). doi: 10.3310/hta22080
2.	Alvirde-Garcia U, Rodriguez-Guerrero AJ, Henao-Moran S, Gomez-Perez FJ, Aguilar-Salinas CA. [Results of a community-based life style intervention program for children]. Salud Pública de México. 2013;55 Suppl 3:406-14.
3.	Andrade S, Lachat C, Ochoa-Aviles A, Verstraeten R, Huybregts L, Roberfroid D, et al. A school-based intervention improves physical fitness in Ecuadorian adolescents: A cluster-randomized controlled trial.

	International Journal of Behavioral Nutrition & Physical Activity. 2014;11:153. doi: 10.1186/s12966-014-0153-5
4.	Arnaiz P, Seelig H, Gerber M, Adams L, Degen J, Dolley D, et al. Intervention effects and long-term changes in physical activity and cardiometabolic outcomes among children at risk of noncommunicable diseases in South Africa: a cluster-randomized controlled trial and follow-up analysis. Frontiers in Public Health. 2023;11. doi: 10.3389/fpubh.2023.1199381
5.	Bacardí-Gascon M, Pérez-Morales ME, Jiménez-Cruz A. A six month randomized school intervention and an 18-month follow-up intervention to prevent childhood obesity in Mexican elementary schools. Nutrición Hospitalaria. 2012;27(3):755-62. doi: 10.3305/nh.2012.27.3.5756
6.	Bäcklund C, Sundelin G, Larsson C. Effects of a 2-year lifestyle intervention on physical activity in overweight and obese children. Advances in Physiotherapy. 2011;13(3):97-109. doi: 10.3109/14038196.2011.562540
7.	Bender MS, Choi J, Won GY, Fukuoka Y. Randomized controlled trial lifestyle interventions for Asian Americans: A systematic review. Preventive Medicine. 2014;67:171-81. doi: 10.1016/j.ypmed.2014.07.034
8.	Bonsergent E, Agrinier N, Thilly N, Tessier S, Legrand K, Lecomte E, et al. Overweight and obesity prevention for adolescents: A cluster randomized controlled trial in a school setting. American Journal of Preventive Medicine. 2013;44(1):30-9. doi: 10.1016/j.amepre.2012.09.055
9.	Breheny K, Passmore S, Adab P, Martin J, Hemming K, Lancashire ER, et al. Effectiveness and cost-effectiveness of The Daily Mile on childhood weight outcomes and wellbeing: A cluster randomised controlled trial. International Journal of Obesity. 2020;44(4):812-22. doi: 10.1038/s41366-019-0511-0
10.	Brito Beck da Silva K, Ortelan N, Giardini Murta S, Sartori I, Couto RD, Leovigildo Fiaccone R, et al. Evaluation of the computer-based intervention program Stayingfit Brazil to promote healthy eating habits: The results from a school cluster-randomized controlled trial. International Journal of Environmental Research & Public Health. 2019;16(10):1674. doi: 10.3390/ijerph16101674
11.	Brotman LM, Dawson-McClure S, Huang K-Y, Theise R, Kamboukos D, Wang J, et al. Early childhood family intervention and long-term obesity prevention among high-risk minority youth. Pediatrics. 2012;129(3):e621-e8. doi: 10.1542/peds.2011-1568
12.	Carty CL, Kooperberg C, Neuhouser ML, Tinker L, Howard B, Wactawski-Wende J, et al. Low-fat dietary pattern and change in body-composition traits in the women's health initiative dietary modification trial. American Journal of Clinical Nutrition. 2011;93(3):516-24. doi: 10.3945/ajcn.110.006395
13.	Cloutier MM, Wiley JF, Kuo CL, Cornelius T, Wang Z, Gorin AA. Outcomes of an early childhood obesity prevention program in a low-income community: A pilot, randomized trial. Pediatric Obesity. 2018;13(11):677-85. doi: 10.1111/ijpo.12458
14.	Cohen TR, Hazell TJ, Vanstone CA, Rodd C, Weiler HA. A family-centered lifestyle intervention for obese six- to eight-year-old children: Results from a one-year randomized controlled trial conducted in Montreal, Canada. Canadian Journal of Public Health. 2016;107:e453-e60. doi: 10.17269/cjph.107.5470
15.	Coleman KJ, Shordon M, Caparosa SL, Pomichowski ME, Dzewaltowski DA. The healthy options for nutrition environments in schools (Healthy ONES) group randomized trial: Using implementation models to change nutrition policy and environments in low income schools. International Journal of Behavioral Nutrition & Physical Activity. 2012;9:80. doi: 10.1186/1479-5868-9-80
16.	Courneya KS, Segal RJ, McKenzie DC, Dong H, Gelmon K, Friedenreich CM, et al. Effects of exercise during adjuvant chemotherapy on breast cancer outcomes. Medicine & Science in Sports & Exercise. 2014;46(9):1744-51. doi: 10.1249/MSS.0000000000000297
17.	Courteix D, Valente-dos-Santos J, Ferry B, Lac G, Lesourd B, Chapier R, et al. Multilevel approach of a 1-year program of dietary and exercise interventions on bone mineral content and density in metabolic syndrome--the RESOLVE randomized controlled trial. PloS one. 2015;10(9):e0136491. doi: 10.1371/journal.pone.0136491
18.	Cruz-Cobo C, Santi-Cano MJ. Efficacy of diabetes education in adults with diabetes mellitus type 2 in primary care: a systematic review. Journal of Nursing Scholarship. 2020;52(2):155-63. doi: 10.1111/jnu.12539

19.	Cunningham-Sabo L, Lohse B, Nigg CR, Parody RJ. Fourth-grade cooking and physical activity intervention reveals associations with cooking experience and sex. Journal of Nutrition Education & Behavior. 2023;55(3):191-204. doi: 10.1016/j.jneb.2022.10.008
20.	Dalrymple KV, Tydeman FAS, Taylor PD, Flynn AC, O'Keeffe M, Briley AL, et al. Adiposity and cardiovascular outcomes in three-year-old children of participants in UPBEAT, an RCT of a complex intervention in pregnant women with obesity. Pediatric Obesity. 2021;16(3):e12725. doi: 10.1111/ijpo.12725
21.	De Coen V, De Bourdeaudhuij I, Vereecken C, Verbestel V, Haerens L, Huybrechts I, et al. Effects of a 2-year healthy eating and physical activity intervention for 3-6-year-olds in communities of high and low socio-economic status: The POP (Prevention of Overweight among Pre-school and school children) project. Public Health Nutrition. 2012;15(9):1737-45. doi: 10.1017/S1368980012000687
22.	Dewar DL, Morgan PJ, Plotnikoff RC, Okely AD, Collins CE, Batterham M, et al. The nutrition and enjoyable activity for teen girls study: A cluster randomized controlled trial. American Journal of Preventive Medicine. 2013;45(3):313-7. doi: 10.1016/j.amepre.2013.04.014
23.	Díaz M, Bassols J, López-Bermejo A, de Zegher F, Ibáñez L. Metformin treatment to reduce central adiposity after prenatal growth restraint: a placebo-controlled pilot study in prepubertal children. Pediatric Diabetes. 2015;16(7):538-45. doi: 10.1111/pedi.12220
24.	Diri H, Karaburgu S, Acmaz B, Unluhizarci K, Tanriverdi F, Karaca Z, et al. Comparison of spironolactone and spironolactone plus metformin in the treatment of polycystic ovary syndrome. Gynecological Endocrinology. 2016;32(1):42-5. doi: 10.3109/09513590.2015.1080679
25.	Dzewaltowski DA, Rosenkranz RR, Geller KS, Coleman KJ, Welk GJ, Hastmann TJ, et al. HOP'N after-school project: An obesity prevention randomized controlled trial. International Journal of Behavioral Nutrition & Physical Activity. 2010;7:90. doi: 10.1186/1479-5868-7-90
26.	Elder JP, Crespo NC, Corder K, Ayala GX, Slymen DJ, Lopez NV, et al. Childhood obesity prevention and control in city recreation centres and family homes: The MOVE/me Muevo project. Pediatric Obesity. 2014;9(3):218-31. doi: 10.1111/j.2047-6310.2013.00164.x
27.	Ezendam NPM, Brug J, Oenema A. Evaluation of the web-based computer-tailored FATaintPHAT intervention to promote energy balance among adolescents: Results from a school cluster randomized trial. Archives of Pediatrics & Adolescent Medicine. 2012;166(3):248-55. doi: 10.1001/archpediatrics.2011.204
28.	Farmer VL, Williams SM, Mann JI, Schofield G, McPhee JC, Taylor RW. The effect of increasing risk and challenge in the school playground on physical activity and weight in children: A cluster randomised controlled trial (PLAY). International Journal of Obesity. 2017;41(5):793-800. doi: 10.1038/ijo.2017.41
29.	Fitzgibbon ML, Stolley MR, Schiffer L, Kong A, Braunschweig CL, Gomez-Perez SL, et al. Family-based hip-hop to health: Outcome results. Obesity. 2013;21(2):274-83. doi: 10.1002/oby.20269
30.	Gómez SF, Casas Esteve R, Subirana I, Serra-Majem L, Fletas Torrent M, Homs C, et al. Effect of a community-based childhood obesity intervention program on changes in anthropometric variables, incidence of obesity, and lifestyle choices in spanish children aged 8 to 10 years. European Journal of Pediatrics. 2018;177(10):1531-9. doi: 10.1007/s00431-018-3207-x
31.	Grydeland M, Bergh IH, Bjelland M, Lien N, Andersen LF, Ommundsen Y, et al. Intervention effects on physical activity: The HEIA study - a cluster randomized controlled trial. International Journal of Behavioral Nutrition & Physical Activity. 2013;10:17. doi: 10.1186/1479-5868-10-17
32.	Grydeland M, Bjelland M, Anderssen SA, Klepp K-I, Bergh IH, Andersen LF, et al. Effects of a 20-month cluster randomised controlled school-based intervention trial on BMI of school-aged boys and girls: The HEIA study. British Journal of Sports Medicine. 2014;48(9):768-73. doi: 10.1136/bjsports-2013-092284
33.	Haakstad LAH, Kissel I, Bø K. Long-term effects of participation in a prenatal exercise intervention on body weight, body mass index, and physical activity level: A 6-year follow-up study of a randomized controlled trial. The Journal of Maternal-Fetal & Neonatal Medicine. 2021;34(9):1347-55. doi: 10.1080/14767058.2019.1636028
34.	Haiquan X, Yanping L, Qian Z, Xiaoqi H, Ailing L, Songming D, et al. Comprehensive school-based intervention to control overweight and obesity in China: A cluster randomized controlled trial. Asia Pacific Journal of Clinical Nutrition. 2017;26(6):1139-51. doi: 10.6133/apjcn.112016.05

35.	Hankonen N, Sutton S, Prevost AT, Simmons RK, Griffin SJ, Kinmonth AL, et al. Which behavior change techniques are associated with changes in physical activity, diet and body mass index in people with recently diagnosed diabetes? Annals of Behavioral Medicine. 2015;49(1):7-17. doi: 10.1007/s12160-014-9624-9
36.	Harashima SI, Ogura M, Tanaka D, Fukushima T, Wang Y, Koizumi T, et al. Sitagliptin add-on to low dosage sulphonylureas: efficacy and safety of combination therapy on glycaemic control and insulin secretion capacity in type 2 diabetes. International Journal of Clinical Practice. 2012;66(5):465-76. doi: 10.1111/j.1742-1241.2012.02903.x
37.	Hayes JF, Tate DF, Espeland MA, LaRose JG, Gorin AA, Lewis CE, et al. Patterns of weight change in a weight gain prevention study for young adults. Obesity. 2021;29(11):1848-56. doi: 10.1002/oby.23268
38.	Hesketh KD, Salmon J, McNaughton SA, Crawford D, Abbott G, Cameron AJ, et al. Long-term outcomes (2 and 3.5 years post-intervention) of the INFANT early childhood intervention to improve health behaviors and reduce obesity: Cluster randomised controlled trial follow-up. International Journal of Behavioral Nutrition & Physical Activity. 2020;17(1):95. doi: 10.1186/s12966-020-00994-9
39.	Hodgkinson A, Abbott J, Hurley MA, Lowe N, Qualter P. An educational intervention to prevent overweight in pre-school years: A cluster randomised trial with a focus on disadvantaged families. BMC Public Health. 2019;19:1430. doi: 10.1186/s12889-019-7595-2
40.	Ibáñez L, López-bermejo A, Díaz M, Enríquez G, Del Río L, De Zegher F. Low-dose pioglitazone, flutamide, metformin plus an estro-progestagen for non-obese young women with polycystic ovary syndrome: increasing efficacy and persistent safety over 30 months. Gynecological Endocrinology. 2010;26(12):869-73. doi: 10.3109/09513590.2010.487589
41.	Ickovics JR, Duffany KOC, Shebl FM, Peters SM, Read MA, Gilstad-Hayden KR, et al. Implementing school-based policies to prevent obesity: Cluster randomized trial. American Journal of Preventive Medicine. 2019;56(1):e1-e11. doi: 10.1016/j.amepre.2018.08.026
42.	Imayama I, Alfano CM, Cadmus Bertram LA, Wang C, Xiao L, Duggan C, et al. Effects of 12-month exercise on health-related quality of life: A randomized controlled trial. Preventive Medicine. 2011;52(5):344-51. doi: 10.1016/j.ypmed.2011.02.016
43.	Ismail K, Bayley A, Twist K, Stewart K, Ridge K, Britneff E, et al. Reducing weight and increasing physical activity in people at high risk of cardiovascular disease: A randomised controlled trial comparing the effectiveness of enhanced motivational interviewing intervention with usual care. Heart. 2020;106(6):447-54. doi: 10.1136/heartjnl-2019-315656
44.	Ismail K, Stahl D, Bayley A, Twist K, Stewart K, Ridge K, et al. Enhanced motivational interviewing for reducing weight and increasing physical activity in adults with high cardiovascular risk: The MOVE IT three-arm RCT. Health Technology Assessment. 2019;23(69). doi: 10.3310/hta23690
45.	Jepma P, Jorstad HT, Snaterse M, Ter Riet G, Kragten H, Lachman S, et al. Lifestyle modification in older versus younger patients with coronary artery disease. Heart. 2020;106(14):1066-72. doi: 10.1136/heartjnl-2019-316056
46.	Kashiwagi A, Takahashi H, Ishikawa H, Yoshida S, Kazuta K, Utsuno A, et al. A randomized, double-blind, placebo-controlled study on long-term efficacy and safety of ipragliflozin treatment in patients with type 2 diabetes mellitus and renal impairment: results of the Long-Term ASP1941 Safety Evaluation in Patients with Type 2 Diabetes with Renal Impairment (LANTERN) study. Diabetes, Obesity and Metabolism. 2015;17(2):152-60. doi: 10.1111/dom.12403
47.	Kemmler W, von Stengel S. Whole-body electromyostimulation as a means to impact muscle mass and abdominal body fat in lean, sedentary, older female adults: Subanalysis of the TEST-III trial. Clinical Interventions in Aging. 2013;8:1353-64. doi: 10.2147/CIA.S52337
48.	Klesges RC, Obarzanek E, Kumanyika S, Murray DM, Klesges LM, Relyea GE, et al. The Memphis Girls' health Enrichment Multi-site Studies (GEMS): An evaluation of the efficacy of a 2-year obesity prevention program in African American girls. Archives of Pediatrics & Adolescent Medicine. 2010;164(11):1007-14. doi: 10.1001/archpediatrics.2010.196
49.	Knowlden A, Sharma M. One-year efficacy testing of enabling mothers to prevent pediatric obesity through web-based education and reciprocal determinism (EMPOWER) randomized control trial. Health Education & Behavior. 2016;43(1):94-106. doi: 10.1177/1090198115596737

50.	Knudsen MD, Hjartaker A, Robb KA, de Lange T, Hoff G, Berstad P. Improving cancer preventive behaviors: A randomized trial of tailored lifestyle feedback in colorectal cancer screening. Cancer Epidemiology, Biomarkers & Prevention. 2018;27(12):1442-9. doi: 10.1158/1055-9965.EPI-18-0268
51.	Kobel S, Lammle C, Wartha O, Kesztyus D, Wirt T, Steinacker JM. Effects of a randomised controlled school-based health promotion intervention on obesity related behavioural outcomes of children with migration background. Journal of Immigrant and Minority Health. 2017;19(2):254-62. doi: 10.1007/s10903-016-0460-9
52.	Lawler SP, Winkler EAH, Goode AD, Fjeldsoe BS, Reeves MM, Eakin EG. Moderators of health behavior initiation and maintenance in a randomized telephone counseling trial. Preventive Medicine. 2014;61:34-41. doi: 10.1016/j.ypmed.2014.01.002
53.	Lázaro I, Díaz M, Cabré A, Masana L, Ibáñez L. Fatty acid-binding protein-4 plasma levels are associated to metabolic abnormalities and response to therapy in girls and young women with androgen excess. Gynecological Endocrinology. 2011;27(11):935-9. doi: 10.3109/09513590.2011.569608
54.	Leiter LA, Gross JL, Chow F, Miller D, Johnson S, Ahrén B. Once weekly glucagon-like peptide-1 receptor agonist albiglutide vs. prandial insulin added to basal insulin in patients with type 2 diabetes mellitus: results over 52 weeks. Journal of Diabetes and its Complications. 2017;31(8):1283-5. doi: 10.1016/j.jdiacomp.2017.05.010
55.	Ligibel JA, Zheng Y, Barry WT, Sella T, Ruddy KJ, Greaney ML, et al. Effects of an educational physical activity intervention in young women with newly diagnosed breast cancer: findings from the Young and Strong Study. Cancer. 2023;129(14):2135-43. doi: 10.1002/cncr.34779
56.	Lin S-t, Xu Z-y, Wang J-j, Li B-h, Pei Z-c, Wang H-j, et al. [Physical activities and dietary intervention on metabolic syndrome in children]. Chinese Journal of Epidemiology. 2012;33(2):135-9. doi: 10.3760/cma.j.issn.0254-6450.2012.02.002
57.	McFarlin BK, Johnston CJ, Carpenter KC, Davidson T, Moreno JL, Strohacker K, et al. A one-year school-based diet/exercise intervention improves non-traditional disease biomarkers in Mexican-American children. Maternal & Child Nutrition. 2013;9(4):524-32. doi: 10.1111/j.1740-8709.2011.00398.x
58.	Mihas C, Mariolis A, Manios Y, Naska A, Arapaki A, Mariolis-Sapsakos T, et al. Evaluation of a nutrition intervention in adolescents of an urban area in Greece: Short- and long-term effects of the VYRONAS study. Public Health Nutr. 2010;13(5):712-9. doi: 10.1017/S1368980009991625
59.	Moya Martinez P, Sanchez Lopez M, Lopez Bastida J, Escribano Sotos F, Notario Pacheco B, Salcedo Aguilar F, et al. [cost-effectiveness of an intervention to reduce overweight and obesity in 9-10-year-olds. The Cuenca study]. Gaceta Sanitaria. 2011;25(3):198-204. doi: 10.1016/j.gaceta.2010.11.003
60.	Myers EF, Gerstein DE, Foster J, Ross M, Brown K, Kennedy E, et al. Energy balance for kids with play: Design and implementation of a multi-component school-based obesity prevention program. Childhood Obesity. 2014;10(3):251-9. doi: 10.1089/chi.2013.0075
61.	Natale RA, Messiah SE, Asfour LS, Uhlhorn SB, Englebert NE, Arheart KL. Obesity prevention program in childcare centers: Two-year follow-up. American Journal of Health Promotion. 2017;31(6):502-10. doi: 10.1177/0890117116661156
62.	Nemet D, Geva D, Pantanowitz M, Igbaria N, Meckel Y, Eliakim A. Long term effects of a health promotion intervention in low socioeconomic Arab-Israeli kindergartens. BMC Pediatrics. 2013;13(1):45-. doi: 10.1186/1471-2431-13-45
63.	Nooijen CFJ, Stam HJ, Sluis T, Valent L, Twisk J, van den Berg-Emons RJG. A behavioral intervention promoting physical activity in people with subacute spinal cord injury: Secondary effects on health, social participation and quality of life. Clinical Rehabilitation. 2017;31(6):772-80. doi: 10.1177/0269215516657581
64.	Nykanen I, Rissanen TH, Sulkava R, Hartikainen S. Effects of individual dietary counseling as part of a comprehensive geriatric assessment (CGA) on nutritional status: A population-based intervention study. The Journal of Nutrition, Health & Aging. 2014;18(1):54-8. doi: 10.1007/s12603-013-0342-y
65.	Ochoa-Aviles A, Verstraeten R, Huybregts L, Andrade S, Van Camp J, Donoso S, et al. A school-based intervention improved dietary intake outcomes and reduced waist circumference in adolescents: A cluster randomized controlled trial. Nutrition Journal. 2017;16:79. doi: 10.1186/s12937-017-0299-5

66.	Olson KL, Neiberg RH, Tate DF, Garcia KR, Gorin AA, Lewis CE, et al. Weight and shape concern impacts weight gain prevention in the SNAP Trial: Implications for tailoring intervention delivery. Obesity. 2018;26(8):1270-6. doi: 10.1002/oby.22212
67.	Ono K, Wada H, Satoh-Asahara N, Inoue H, Uehara K, Funada J, et al. Effects of metformin on left ventricular size and function in hypertensive patients with type 2 diabetes mellitus: results of a randomized, controlled, multicenter, phase IV trial. American Journal of Cardiovascular Drugs. 2020;20(3):283-93. doi: 10.1007/s40256-019-00381-1
68.	Osteresch R, Fach A, Frielitz F-S, Meyer S, Schmucker J, Ruhle S, et al. Long-term effects of an intensive prevention program after acute myocardial infarction. The American Journal of Cardiology. 2021;154:7-13. doi: 10.1016/j.amjcard.2021.05.034
69.	Paavilainen E, Niinikoski H, Parkkola R, Koskensalo K, Nikkinen H, Veijola R, et al. Metformin versus insulin for gestational diabetes: adiposity variables and adipocytokines in offspring at age of 9 years. Diabetes Research and Clinical Practice. 2023;202:110780. doi: 10.1016/j.diabres.2023.110780
70.	Paul IM, Savage JS, Anzman-Frasca S, Marini ME, Beiler JS, Hess LB, et al. Effect of a responsive parenting educational intervention on childhood weight outcomes at 3 years of age: The INSIGHT randomized clinical trial. JAMA. 2018;320(5):461-8. doi: 10.1001/jama.2018.9432
71.	Robroek SJW, Polinder S, Bredt FJ, Burdorf A. Cost-effectiveness of a long-term internet-delivered worksite health promotion programme on physical activity and nutrition: A cluster randomized controlled trial. Health Education Research. 2012;27(3):399-410. doi: 10.1093/her/cys015
72.	Ruiter ELM, Molleman GRM, Kleinjan M, Kraiss JT, Ten Klooster PM, van der Velden K, et al. The effectiveness of a web-based Dutch parenting program to prevent overweight in children 9-13 years of age: Results of a two-armed cluster randomized controlled trial. PloS one. 2022;17(10):e0276168. doi: 10.1371/journal.pone.0276168
73.	Salmon J, Arundell L, Cerin E, Ridgers ND, Hesketh KD, Daly RM, et al. Transform-Us! cluster RCT: 18-month and 30-month effects on children's physical activity, sedentary time and cardiometabolic risk markers. British Journal of Sports Medicine. 2023;57(5):311-9. doi: 10.1136/bjsports-2022-105825
74.	Seino Y, Yabe D, Takami A, Niemoeller E, Takagi H. Long-term safety of once-daily lixisenatide in Japanese patients with type 2 diabetes mellitus: GetGoal-Mono-Japan. Journal of Diabetes and its Complications. 2015;29(8):1304-9. doi: 10.1016/j.jdiacomp.2015.07.003
75.	Sgambato MR, Cunha DB, Souza BSN, Henriques VT, Rodrigues RRM, Rego ALV, et al. Effectiveness of school-home intervention for adolescent obesity prevention: Parallel school randomised study. The British Journal of Nutrition. 2019;122(9):1073-80. doi: 10.1017/S0007114519001818
76.	Simon C, Kellou N, Dugas J, Platat C, Copin N, Schweitzer B, et al. A socio-ecological approach promoting physical activity and limiting sedentary behavior in adolescence showed weight benefits maintained 2.5 years after intervention cessation. Int J Obes. 2014;38(7):936-43. doi: 10.1038/ijo.2014.23
77.	Skouteris H, Hill B, McCabe M, Swinburn B, Busija L. A parent-based intervention to promote healthy eating and active behaviours in pre-school children: Evaluation of the MEND 2-4 randomized controlled trial. Pediatric Obesity. 2016;11(1):4-10. doi: 10.1111/ijpo.12011
78.	Slusser W, Frankel F, Robison K, Fischer H, Cumberland WG, Neumann C. Pediatric overweight prevention through a parent training program for 2-4 year old Latino children. Childhood Obesity. 2012;8(1):52-9. doi: 10.1089/chi.2011.0060
79.	Taghizadeh S, Farhangi MA. The effectiveness of pediatric obesity prevention policies: A comprehensive systematic review and dose-response meta-analysis of controlled clinical trials. Journal of Translational Medicine. 2020;18:480. doi: 10.1186/s12967-020-02640-1
80.	Taylor RW, Gray AR, Heath A-LM, Galland BC, Lawrence J, Sayers R, et al. Sleep, nutrition, and physical activity interventions to prevent obesity in infancy: Follow-up of the Prevention of Overweight in Infancy (POI) randomized controlled trial at ages 3.5 and 5 y. The American Journal of Clinical Nutrition. 2018;108(2):228-36. doi: 10.1093/ajcn/nqy090
81.	Truelove S, Johnson AM, Vanderloo LM, Driediger M, Burke SM, Irwin JD, et al. Preschoolers' health-related quality of life following the implementation of a childcare physical activity intervention. Applied Physiology, Nutrition & Metabolism. 2018;43(5):453-9. doi: 10.1139/apnm-2017-0396

82.	Van Rooijen AJ, Christa MV, Piet JB. A daily physical activity and diet intervention for individuals with type 2 diabetes mellitus: A randomized controlled trial. South African Journal of Physiotherapy. 2010;66(2):9-16.
83.	Wake M, Price A, Clifford S, Ukoumunne OC, Hiscock H. Does an intervention that improves infant sleep also improve overweight at age 6? Follow-up of a randomised trial. Archives of Disease in Childhood. 2011;96(6):526-32. doi: 10.1136/adc.2010.196832
84.	Walther C, Mende M, Gaede L, Muller U, Machalica K, Schuler G. [Effects of daily physical exercise at school on cardiovascular risk--results of a 2-year cluster-randomized study]. Deutsche Medizinische Wochenschrift. 2011;136(46):2348-54. doi: 10.1055/s-0031-1292049
85.	Wang Z, Xu F, Ye Q, Tse LA, Xue H, Tan Z, et al. Childhood obesity prevention through a community-based cluster randomized controlled physical activity intervention among schools in China: The health legacy project of the 2nd world summer youth Olympic games (YOG-Obesity study). International Journal of Obesity. 2018;42(4):625-33. doi: 10.1038/ijo.2017.243
86.	Wen LM, Baur LA, Simpson JM, Xu H, Hayes AJ, Hardy LL, et al. Sustainability of effects of an early childhood obesity prevention trial over time: A further 3-year follow-up of the Healthy Beginnings trial. JAMA Pediatrics. 2015;169(6):543-51. doi: 10.1001/jamapediatrics.2015.0258
87.	Wright K, Giger JN, Norris K, Suro Z. Impact of a nurse-directed, coordinated school health program to enhance physical activity behaviors and reduce body mass index among minority children: A parallel-group, randomized control trial. Int J Nurs Stud. 2013;50(6):727-37. doi: 10.1016/j.ijnurstu.2012.09.004
88.	Wright K, Suro Z. Using community-academic partnerships and a comprehensive school-based program to decrease health disparities in activity in school-aged children. J Prev Interv Community. 2014;42(2):125-39. doi: 10.1080/10852352.2014.881185

Table D7: Eligible systematic reviews that were not included in synthesis (n=84)

Publication details	
1.	Abargouei AS, Janghorbani M, Salehi-Marzijarani M, Esmaillzadeh A. Effect of dairy consumption on weight and body composition in adults: a systematic review and meta-analysis of randomized controlled clinical trials. Int J Obes. 2012;36(12):1485-93. doi: 10.1038/ijo.2011.269
2.	Balk EM, Earley A, Raman G, Avendano EA, Pittas AG, Remington PL. Combined diet and physical activity promotion programs to prevent type 2 diabetes among persons at increased risk: a systematic review for the Community Preventive Services Task Force. Ann Intern Med. 2015;163(6):437-51. doi: 10.7326/M15-0452
3.	Batrakoulis A, Jamurtas AZ, Metsios GS, Perivoliotis K, Liguori G, Feito Y, et al. Comparative efficacy of 5 exercise types on cardiometabolic health in overweight and obese adults: a systematic review and network meta-analysis of 81 randomized controlled trials. Circ Cardiovasc Qual Outcomes. 2022;15(6):433-52. doi: 10.1161/CIRCOUTCOMES.121.008243
4.	Beasley JM, Wagnild JM, Pollard TM, Roberts TR, Ahkter N. Effectiveness of diet and physical activity interventions among Chinese-origin populations living in high income countries: a systematic review. BMC Public Health. 2020;20:1019. doi: 10.1186/s12889-020-08805-3
5.	Borek AJ, Abraham C, Greaves CJ, Tarrant M. Group-based diet and physical activity weight-loss interventions: a systematic review and meta-analysis of randomised controlled trials. Appl Psychol Health Well-Being. 2018;10(1):62-86. doi: 10.1111/aphw.12121
6.	Cai X, Ji L, Chen Y, Yang W, Zhou L, Han X, et al. Comparisons of weight changes between sodium-glucose cotransporter 2 inhibitors treatment and glucagon-like peptide-1 analogs treatment in type 2 diabetes patients: a meta-analysis. Journal of Diabetes Investigation. 2017;8(4):510-7. doi: 10.1111/jdi.12625
7.	Cai X, Yang W, Gao X, Chen Y, Zhou L, Zhang S, et al. The association between the dosage of SGLT2 inhibitor and weight reduction in type 2 diabetes patients: a meta-analysis. Obesity. 2018;26(1):70-80. doi: 10.1002/oby.22066
8.	Camberos-Solis R, Jimenez-Cruz A, Bacardí-Gascón M, Culebras JM. [Long-term efficacy and safety of Roux-en-Y gastric bypass and gastric banding: systematic review]. Nutr Hosp. 2010;25(6):964-70.
9.	Chakravarty PD, McLaughlin E, Whittaker D, Byrne E, Cowan E, Xu K, et al. Comparison of laparoscopic adjustable gastric banding (LAGB) with other bariatric procedures; a systematic review of the randomised controlled trials. Surgeon. 2012;10(3):172-82. doi: 10.1016/j.surge.2012.02.001
10.	Cheong AJY, Teo YN, Teo YH, Syn NL, Ong HT, Ting AZH, et al. SGLT inhibitors on weight and body mass: a meta-analysis of 116 randomized-controlled trials. Obesity. 2022;30(1):117-28. doi: 10.1002/oby.23331
11.	Cosentino C, Marchetti C, Monami M, Mannucci E, Cresci B. Efficacy and effects of bariatric surgery in the treatment of obesity: network meta-analysis of randomized controlled trials. Nutr Metab Cardiovasc Dis. 2021;31(10):2815-24. doi: 10.1016/j.numecd.2021.06.018
12.	Ding L, Fan Y, Li H, Zhang Y, Qi D, Tang S, et al. Comparative effectiveness of bariatric surgeries in patients with obesity and type 2 diabetes mellitus: a network meta-analysis of randomized controlled trials. Obes Rev. 2020;21(8):e13030. doi: 10.1111/obr.13030
13.	Dong Z, Xu L, Liu H, Lv Y, Zheng Q, Li L. Comparative efficacy of five long-term weight loss drugs: quantitative information for medication guidelines. Obes Rev. 2017;18(12):1377-85. doi: 10.1111/obr.12606
14.	Fakhoury WK, LeReun C, Wright D. A meta-analysis of placebo-controlled clinical trials assessing the efficacy and safety of incretin-based medications in patients with type 2 diabetes. Pharmacology. 2010;86(1):44-57. doi: 10.1159/000314690
15.	Fernández-San-Martín MI, Martín-López LM, Masa-Font R, Olona-Tabueña N, Roman Y, Martin-Royo J, et al. The effectiveness of lifestyle interventions to reduce cardiovascular risk in patients with severe mental disorders: meta-analysis of intervention studies. Community Ment Health J. 2014;50(1):81-95. doi: 10.1007/s10597-013-9614-6
16.	Flores-Mateo G, Rojas-Rueda D, Basora J, Ros E, Salas-Salvadó J. Nut intake and adiposity: meta-analysis of clinical trials. Am J Clin Nutr. 2013;97(6):1346-55. doi: 10.3945/ajcn.111.031484

17.	Gan J, Wang Y, Zhou X. Whether a short or long alimentary limb influences weight loss in gastric bypass: a systematic review and meta-analysis. Obes Surg. 2018;28(11):3701-10. doi: 10.1007/s11695-018-3475-6
18.	Gero D, Dayer-Jankechova A, Worreth M, Giusti V, Suter M. Laparoscopic gastric banding outcomes do not depend on device or technique. Long-term results of a prospective randomized study comparing the Lapband® and the SAGB®. Obes Surg. 2014;24(1):114-22. doi: 10.1007/s11695-013-1074-0
19.	Gray LJ, Cooper N, Dunkley A, Warren FC, Ara R, Abrams K, et al. A systematic review and mixed treatment comparison of pharmacological interventions for the treatment of obesity. Obes Rev. 2012;13(6):483-98. doi: 10.1111/j.1467-789X.2011.00981.x
20.	Gu L, Huang X, Li S, Mao D, Shen Z, Khadaroo PA, et al. A meta-analysis of the medium- and long-term effects of laparoscopic sleeve gastrectomy and laparoscopic Roux-en-Y gastric bypass. BMC Surg. 2020;20:30. doi: 10.1186/s12893-020-00695-x
21.	Hartmann-Boyce J, Ordóñez-Mena JM, Theodoulou A, Butler AR, Freeman SC, Sutton AJ, et al. Impact of program characteristics on weight loss in adult behavioral weight management interventions: systematic review and component network meta-analysis. Obesity. 2022;30(9):1778-86. doi: 10.1002/oby.23505
22.	He S, Wang J, Zhang J, Xu J. Intermittent versus continuous energy restriction for weight loss and metabolic improvement: a meta-analysis and systematic review. Obesity. 2021;29(1):108-15. doi: 10.1002/oby.23023
23.	Hilbert A, Petroff D, Herpertz S, Pietrowsky R, Tuschen-Caffier B, Vocks S, et al. Meta-analysis of the efficacy of psychological and medical treatments for binge-eating disorder. J Consult Clin Psychol. 2019;87(1):91-105. doi: 10.1037/ccp0000358
24.	Hu Z, Sun J, Li R, Wang Z, Ding H, Zhu T, et al. A comprehensive comparison of LRYGB and LSG in obese patients including the effects on QoL, comorbidities, weight loss, and complications: a systematic review and meta-analysis. Obes Surg. 2020;30(3):819-27. doi: 10.1007/s11695-019-04306-4
25.	Jacob A, Moullec G, Lavoie KL, Laurin C, Cowan T, Tisshaw C, et al. Impact of cognitive-behavioral interventions on weight loss and psychological outcomes: a meta-analysis. Health Psychol. 2018;37(5):417-32. doi: 10.1037/hea0000576
26.	Jaruvongvanich V, Vantanasiri K, Laoveeravat P, Matar RH, Vargas EJ, Maselli DB, et al. Endoscopic full-thickness suturing plus argon plasma mucosal coagulation versus argon plasma mucosal coagulation alone for weight regain after gastric bypass: a systematic review and meta-analysis. Gastrointest Endosc. 2020;92(6):1164-75.e6. doi: 10.1016/j.gie.2020.07.013
27.	Johns DJ, Hartmann-Boyce J, Jebb SA, Aveyard P, the Behavioural Weight Management Review Group. Diet or exercise interventions vs combined behavioral weight management programs: a systematic review and meta-analysis of direct comparisons. J Acad Nutr Diet. 2014;114(10):1557-68. doi: 10.1016/j.jand.2014.07.005
28.	Jung SH, Yoon JH, Choi HS, Nam S-J, Kim KO, Kim DH, et al. Comparative efficacy of bariatric endoscopic procedures in the treatment of morbid obesity: a systematic review and network meta-analysis. Endoscopy. 2020;52(11):940-54. doi: 10.1055/a-1149-1862
29.	Kakazu MT, Soghier I, Afshar M, Brozek JL, Wilson KC, Masa JF, et al. Weight loss interventions as treatment of obesity hypoventilation syndrome. A systematic review. Ann Am Thorac Soc. 2020;17(4):492-502. doi: 10.1513/AnnalsATS.201907-554OC
30.	Kim H, Reece J, Kang M. Effects of accumulated short bouts of exercise on weight and obesity indices in adults: a meta-analysis. Am J Health Promot. 2020;34(1):96-104. doi: 10.1177/0890117119872863
31.	Lara M, Amigo H. [What kind of intervention has the best results to reduce the weight in overweighted or obese adults?]. Arch Latinoam Nutr. 2011;61(1):45-54.
32.	Larkey LK, James D, Belyea M, Jeong M, Smith LL. Body composition outcomes of Tai Chi and Qigong practice: a systematic review and meta-analysis of randomized controlled trials. Int J Behav Med. 2018;25(5):487-501. doi: 10.1007/s12529-018-9725-0
33.	Lee JE, Pope Z, Gao Z. The role of youth sports in promoting children's physical activity and preventing pediatric obesity: a systematic review. Behav Med. 2018;44(1):62-76. doi: 10.1080/08964289.2016.1193462
34.	Lee Y, Doumouras AG, Yu J, Aditya I, Gmora S, Anvari M, et al. Laparoscopic sleeve gastrectomy versus laparoscopic Roux-en-Y gastric bypass: a systematic review and meta-analysis of weight loss,

	comorbidities, and biochemical outcomes from randomized controlled trials. Ann Surg. 2021;273(1):66-74. doi: 10.1097/SLA.0000000000003671
35.	Lei XG, Ruan JQ, Lai C, Sun Z, Yang X, Lei X-G, et al. Efficacy and safety of phentermine/topiramate in adults with overweight or obesity: a systematic review and meta-analysis. Obesity. 2021;29(6):985-94. doi: 10.1002/oby.23152
36.	Li J, Lai D, Wu D. Laparoscopic Roux-en-Y gastric bypass versus laparoscopic sleeve gastrectomy to treat morbid obesity-related comorbidities: a systematic review and meta-analysis. Obes Surg. 2016;26(2):429-42. doi: 10.1007/s11695-015-1996-9
37.	Li J-F, Lai D-D, Ni B, Sun K-X. Comparison of laparoscopic Roux-en-Y gastric bypass with laparoscopic sleeve gastrectomy for morbid obesity or type 2 diabetes mellitus: a meta-analysis of randomized controlled trials. Can J Surg. 2013;56(6):E158-E64. doi: 10.1503/cjs.026912
38.	Liang JH, Zhao Y, Chen YC, Jiang N, Zhang SX, Huang S, et al. Face-to-face physical activity incorporated into dietary intervention for overweight/obesity in children and adolescents: a Bayesian network meta-analysis. BMC Med. 2022;20:325. doi: 10.1186/s12916-022-02462-6
39.	Madadi F, Jawad R, Mousati I, Plaeke P, Hubens G. Remission of type 2 diabetes and sleeve gastrectomy in morbid obesity: a comparative systematic review and meta-analysis. Obes Surg. 2019;29(12):4066-76. doi: 10.1007/s11695-019-04199-3
40.	Magouliotis DE, Tasiopoulou VS, Svokos KA, Svokos AA, Sioka E, Tzovaras G, et al. Banded vs. non-banded Roux-en-Y gastric bypass for morbid obesity: a systematic review and meta-analysis. Clin Obes. 2018;8(6):424-33. doi: 10.1111/cob.12274
41.	Magouliotis DE, Tasiopoulou VS, Tzovaras G. One anastomosis gastric bypass versus Roux-en-Y gastric bypass for morbid obesity: a meta-analysis. Clin Obes. 2018;8(3):159-69. doi: 10.1111/cob.12246
42.	Martin A, Saunders DH, Shenkin SD, Sproule J. Lifestyle intervention for improving school achievement in overweight or obese children and adolescents. Cochrane Database Syst Rev. 2014(3):CD009728. doi: 10.1002/14651858.CD009728.pub2
43.	Maruthur NM, Gudzune K, Hutfless S, Fawole OA, Wilson RF, Lau BD, et al. Avoiding weight gain in cardiometabolic disease: a systematic review. J Obes. 2014;2014. doi: 10.1155/2014/358919
44.	Masarwa R, Brunetti VC, Aloe S, Henderson M, Platt RW, Filion KB. Efficacy and safety of metformin for obesity: a systematic review. Pediatrics. 2021;147(3):e20201610. doi: 10.1542/peds.2020-1610
45.	Mastellos N, Gunn LH, Felix LM, Car J, Majeed A. Transtheoretical model stages of change for dietary and physical exercise modification in weight loss management for overweight and obese adults. Cochrane Database Syst Rev. 2014(2):CD008066. doi: 10.1002/14651858.CD008066.pub3
46.	McDonough DJ, Su X, Gao Z. Health wearable devices for weight and BMI reduction in individuals with overweight/obesity and chronic comorbidities: systematic review and network meta-analysis. Br J Sports Med. 2021;55(16):917-25. doi: 10.1136/bjsports-2020-103594
47.	McMullan M, Millar R, Woodside JV. A systematic review to assess the effectiveness of technology-based interventions to address obesity in children. BMC Pediatr. 2020;20:242. doi: 10.1186/s12887-020-02081-1
48.	Moeini B, Rezapur-Shahkolai F, Bashirian S, Doosti-Irani A, Afshari M, Geravandi A. Effect of interventions based on regular physical activity on weight management in adolescents: a systematic review and a meta-analysis. Syst Rev. 2021;10:52. doi: 10.1186/s13643-021-01602-y
49.	Monami M, Dicembrini I, Marchionni N, Rotella CM, Mannucci E. Effects of glucagon-like peptide-1 receptor agonists on body weight: a meta-analysis. Experimental Diabetes Research. 2012;2012:672658. doi: 10.1155/2012/672658
50.	Mühlig Y, Wabitsch M, Moss A, Hebebrand J. Weight loss in children and adolescents. Dtsch Arztebl Int. 2014;111(48):818-24. doi: 10.3238/arztebl.2014.0818
51.	Nordmann AJ, Suter-Zimmermann K, Bucher HC, Shai I, Tuttle KR, Estruch R, et al. Meta-analysis comparing Mediterranean to low-fat diets for modification of cardiovascular risk factors. Am J Med. 2011;124(9):841-51.E2. doi: 10.1016/j.amjmed.2011.04.024
52.	Ontario Health. Bariatric surgery for adults with class i obesity and difficult-to-manage type 2 diabetes: a health technology assessment. Ont Health Technol Assess Ser. 2023;23(8):1-151.
53.	Osland E, Yunus RM, Khan S, Memon B, Memon MA. Weight loss outcomes in laparoscopic vertical sleeve gastrectomy (LVSG) versus laparoscopic Roux-en-Y gastric bypass (LRYGB) procedures: a meta-

	analysis and systematic review of randomized controlled trials. Surg Laparosc Endosc Percutan Tech. 2017;27(1):8-18. doi: 10.1097/SLE.0000000000000374
54.	Osland EJ, Yunus RM, Khan S, Memon MA. Five-year weight loss outcomes in laparoscopic vertical sleeve gastrectomy (LVSG) versus laparoscopic Roux-en-Y gastric bypass (LRYGB) procedures: a systematic review and meta-analysis of randomized controlled trials. Surg Laparosc Endosc Percutan Tech. 2020;30(6):542-53. doi: 10.1097/SLE.0000000000000834
55.	Padwal R, Klarenbach S, Wiebe N, Birch D, Karmali S, Manns B, et al. Bariatric surgery: a systematic review and network meta-analysis of randomized trials. Obes Rev. 2011;12(8):602-21. doi: 10.1111/j.1467-789X.2011.00866.x
56.	Panunzi S, De Gaetano A, Carnicelli A, Mingrone G. Predictors of remission of diabetes mellitus in severely obese individuals undergoing bariatric surgery: do BMI or procedure choice matter? A meta-analysis. Ann Surg. 2015;261(3):459-67. doi: 10.1097/SLA.0000000000000863
57.	Parmar CD, Bryant C, Luque-de-Leon E, Peraglie C, Prasad A, Rheinwalt K, et al. One anastomosis gastric bypass in morbidly obese patients with BMI >= 50 kg/m2: a systematic review comparing it with Roux-En-Y gastric bypass and sleeve gastrectomy. Obes Surg. 2019;29(9):3039-46. doi: 10.1007/s11695-019-04034-9
58.	Peng L, Wang J, Li F. Weight reduction for non-alcoholic fatty liver disease. Cochrane Database Syst Rev. 2011(6):CD003619. doi: 10.1002/14651858.CD003619.pub3
59.	Penna M, Markar SR, Venkat-Raman V, Karthikesalingam A, Hashemi M. Linear-stapled versus circular-stapled laparoscopic gastrojejunal anastomosis in morbid obesity: meta-analysis. Surg Laparosc Endosc Percutan Tech. 2012;22(2):95-101. doi: 10.1097/SLE.0b013e3182470f38
60.	Perna S, Basharat SNM, Ali KF, Eid A, Gasparri C, Infantino V, et al. Effect of polyglucosamine on weight loss and metabolic parameters in overweight and obesity: a systematic review and meta-analysis. Nutrients. 2020;12(8):2365. doi: 10.3390/nu12082365
61.	Ribaric G, Buchwald JN, McGlennon TW. Diabetes and weight in comparative studies of bariatric surgery vs conventional medical therapy: a systematic review and meta-analysis. Obes Surg. 2014;24(3):437-55. doi: 10.1007/s11695-013-1160-3
62.	Ryan PM, Seltzer S, Hayward NE, Rodriguez DA, Sless RT, Hawkes CP, et al. Safety and Efficacy of Glucagon-Like Peptide-1 Receptor Agonists in Children and Adolescents with Obesity: A Meta-Analysis. Journal of Pediatrics. 2021;236:137-. doi: 10.1016/j.jpeds.2021.05.009
63.	Santesso N, Akl EA, Bianchi M, Mente A, Mustafa R, Heels-Ansdell D, et al. Effects of higher- versus lower-protein diets on health outcomes: a systematic review and meta-analysis. Eur J Clin Nutr. 2012;66(7):780-8. doi: 10.1038/ejcn.2012.37
64.	Sarma S, Palcu P. Weight loss between glucagon-like peptide-1 receptor agonists and bariatric surgery in adults with obesity: a systematic review and meta-analysis. Obesity. 2022;30(11):2111-21. doi: 10.1002/oby.23563
65.	Seral-Cortes M, De Miguel-Etayo P, Zapata P, Miguel-Berges ML, Moreno LA. Effectiveness and process evaluation in obesity and type 2 diabetes prevention programs in children: a systematic review and meta-analysis. BMC Public Health. 2021;21:348. doi: 10.1186/s12889-021-10297-8
66.	Sharma M, Beckley N, Nazareth I, Petersen I. Effectiveness of sitagliptin compared to sulfonylureas for type 2 diabetes mellitus inadequately controlled on metformin: a systematic review and meta-analysis. BMJ Open. 2017;7(10):e017260.
67.	Sharples AJ, Mahawar K. Systematic review and meta-analysis of randomised controlled trials comparing long-term outcomes of Roux-En-Y gastric bypass and sleeve gastrectomy. Obes Surg. 2020;30(2):664-72. doi: 10.1007/s11695-019-04235-2
68.	Shoar S, Saber AA. Long-term and midterm outcomes of laparoscopic sleeve gastrectomy versus Roux-en-Y gastric bypass: a systematic review and meta-analysis of comparative studies. Surg Obes Relat Dis. 2017;13(2):170-80. doi: 10.1016/j.soard.2016.08.011
69.	Swierz MJ, Storman D, Staskiewicz W, Gorecka M, Jasinska KW, Swierz AM, et al. Efficacy of probiotics in patients with morbid obesity undergoing bariatric surgery: a systematic review and meta-analysis. Surg Obes Relat Dis. 2020;16(12):2105-16. doi: 10.1016/j.soard.2020.08.038
70.	Talebpour M, Sadid D, Talebpour A, Sharifi A, Davari FV. Comparison of short-term effectiveness and postoperative complications: laparoscopic gastric plication vs laparoscopic sleeve gastrectomy. Obes Surg. 2018;28(4):996-1001. doi: 10.1007/s11695-017-2951-8

71.	Tan HC, Dampil OA, Marquez MM. Efficacy and Safety of Semaglutide for Weight Loss in Obesity Without Diabetes: A Systematic Review and Meta-Analysis. Journal of the Asean Federation of Endocrine Societies. 2022;37(2):65-72.
72.	Tian HL, Tian JH, Yang KH, Yi K, Li L. The effects of laparoscopic vs. open gastric bypass for morbid obesity: a systematic review and meta-analysis of randomized controlled trials. Obes Rev. 2011;12(4):254-60. doi: 10.1111/j.1467-789X.2010.00757.x
73.	Tuah NA, Amiel C, Qureshi S, Car J, Kaur B, Majeed A. Transtheoretical model for dietary and physical exercise modification in weight loss management for overweight and obese adults. Cochrane Database Syst Rev. 2011(10):CD008066. doi: 10.1002/14651858.CD008066.pub2
74.	Tutunchi H, Ostadrahimi A, Saghafi-Asl M. The effects of diets enriched in monounsaturated oleic acid on the management and prevention of obesity: a systematic review of human intervention studies. Adv Nutr. 2020;11(4):864-77. doi: 10.1093/advances/nmaa013
75.	Verhoeff K, Mocanu V, Zalasky A, Dang J, Kung JY, Switzer NJ, et al. Evaluation of metabolic outcomes following SADI-S: a systematic review and meta-analysis. Obes Surg. 2022;32(4):1049-63. doi: 10.1007/s11695-021-05824-w
76.	Viner RM, Hsia Y, Tomsic T, Wong ICK. Efficacy and safety of anti-obesity drugs in children and adolescents: systematic review and meta-analysis. Obes Rev. 2010;11(8):593-602. doi: 10.1111/j.1467-789X.2009.00651.x
77.	Wang L, Yao L, Yan P, Xie D, Han C, Liu R, et al. Robotic versus laparoscopic Roux-en-Y gastric bypass for morbid obesity: a systematic review and meta-analysis. Obes Surg. 2018;28(11):3691-700. doi: 10.1007/s11695-018-3458-7
78.	Weerasekara YK, Roberts SB, Kahn MA, LaVertu AE, Hoffman B, Das SK. Effectiveness of workplace weight management interventions: a systematic review. Curr Obes Rep. 2016;5(2):298-306. doi: 10.1007/s13679-016-0205-z
79.	Wu G-Z, Cai B, Yu F, Fang Z, Fu X-L, Zhou H-S, et al. Meta-analysis of bariatric surgery versus non-surgical treatment for type 2 diabetes mellitus. Oncotarget. 2016;7(52):87511-22. doi: 10.18632/oncotarget.11961
80.	Xue X, Ren Z, Zhang A, Yang Q, Zhang W, Liu F. Efficacy and safety of once-weekly glucagon-like peptide-1 receptor agonists compared with exenatide and liraglutide in type 2 diabetes: a systemic review of randomised controlled trials. International Journal of Clinical Practice. 2016;70(8):649-56.
81.	Yan Y, Sha Y, Yao G, Wang S, Kong F, Liu H, et al. Roux-en-Y gastric bypass versus medical treatment for type 2 diabetes mellitus in obese patients: a systematic review and meta-analysis of randomized controlled trials. Medicine. 2016;95(17):e3462. doi: 10.1097/MD.0000000000003462
82.	Yeh TL, Tsai MC, Tsai WH, Tu YK, Chien KL. Effect of glucagon-like peptide-1 receptor agonists on glycemic control, and weight reduction in adults: A multivariate meta-analysis. PLoS ONE [Electronic Resource]. 2023;18(1):e0278685.
83.	Zhang Y, Ju W, Sun X, Cao Z, Xinsheng X, Daquan L, et al. Laparoscopic sleeve gastrectomy versus laparoscopic Roux-en-Y gastric bypass for morbid obesity and related comorbidities: a meta-analysis of 21 studies. Obes Surg. 2015;25(1):19-26. doi: 10.1007/s11695-014-1385-9
84.	Zhao H, Jiao L. Comparative analysis for the effect of Roux-en-Y gastric bypass vs sleeve gastrectomy in patients with morbid obesity: evidence from 11 randomized clinical trials (meta-analysis). Int J Surg. 2019;72:216-23. doi: 10.1016/j.ijsu.2019.11.013

Table D8: Ineligible publication type (n=44)

Publication details	
1.	Astrup A, Carraro R, Finer N, Harper A, Kunesova M, Lean MEJ, et al. Safety, tolerability and sustained weight loss over 2 years with the once-daily human GLP-1 analog, liraglutide. International Journal of Obesity. 2012;36(6):843-54. doi: 10.1038/ijo.2011.158
2.	Barnett AW. Structured physical activity and dietary education program for obese adolescents: An evaluation of a quality improvement project at a rural primary care clinic: Walden University; 2017.
3.	Chen Y, Chen Z, Pan L, Ma ZM, Zhang H, Li XJ, et al. Effect of moderate and vigorous aerobic exercise on incident diabetes in adults with obesity: A 10-year follow-up of a randomized clinical trial. JAMA Internal Medicine. 2023;183(3):272-5. doi: 10.1001/jamainternmed.2022.6291

4.	Coutinho W, James WPT. Sibutramine: Balanced judgment or prejudice? Revista Brasileira de Psiquiatria. 2011;33(2):115-6. doi: 10.1590/S1516-44462011000200004
5.	Donnelly JE, Washburn RA, Smith BK, Sullivan DK, Gibson C, Honas JJ, et al. A randomized, controlled, supervised, exercise trial in young overweight men and women: The Midwest Exercise Trial II (MET2). Contemporary Clinical Trials. 2012;33(4):804-10. doi: 10.1016/j.cct.2012.03.016
6.	Fischer S, Meyer AH, Dremmel D, Schlup B, Munsch S. Short-term cognitive-behavioral therapy for binge eating disorder: Long-term efficacy and predictors of long-term treatment success. Behaviour Research and Therapy. 2014;58:36-42. doi: 10.1016/j.brat.2014.04.007
7.	Forman EM, Butryn ML, Juarascio AS. Comparison of acceptance-based versus standard behavioral treatment for obesity in adults. Journal of Clinical Outcomes Management. 2013;20(11):491-3.
8.	González-Ortiz M, Grover-Páez F, Díaz-Cruz C, de J Patiño-Laguna A, López-Murillo LD, Martínez-Abundis E. Dapagliflozin administration on visceral adiposity, blood pressure and aortic central pressure in overweight patients without type 2 diabetes. Minerva Med. 2017;108(4):384-6. doi: 10.23736/s0026-4806.17.05048-0
9.	Haas MC, Bodner EV, Brown CJ, Bryan D, Buys DR, Keita AD, et al. Calorie restriction in overweight seniors: Response of older adults to a dieting study: The CROSSROADS randomized controlled clinical trial. Journal of Nutrition in Gerontology and Geriatrics. 2014;33(4):376-400. doi: 10.1080/21551197.2014.965993
10.	Haywood C, Kolotkin RL, Smolarz G, Meincke HH, Bjorner JB. Improvement in SF-36-derived health utility score with liraglutide 3.0 mg versus placebo over 3 years in prediabetes. Obesity Research & Clinical Practice. 2019;13(1):88-9. doi: 10.1016/j.orcp.2016.10.242
11.	Holt RI, Hind D, Gossage-Worrall R, Bradburn MJ, Saxon D, McCrone P, et al. Structured lifestyle education to support weight loss for people with schizophrenia, schizoaffective disorder and first episode psychosis: the STEPWISE RCT. Health Technology Assessment. 2018;22(65). doi: 10.3310/hta22650
12.	Jolly K, Daley A, Adab P, Lewis A, Denley J, Beach J, et al. A randomised controlled trial to compare a range of commercial or primary care led weight reduction programmes with a minimal intervention control for weight loss in obesity: The Lighten Up trial. BMC Public Health. 2010;10(1):439-46. doi: 10.1186/1471-2458-10-439
13.	Kauffman RP. In overweight or obesity without diabetes, weekly semaglutide vs. daily liraglutide increased weight loss at 68 wk. Annals of Internal Medicine. 2022;175(5):JC56. doi: 10.7326/J22-0023
14.	King AC, Hekler EB, Castro CM, Buman MP, Marcus BH, Friedman RH, et al. Exercise advice by humans versus computers: Maintenance effects at 18 months. Health Psychology. 2014;33(2):192-6. doi: 10.1037/a0030646
15.	Koenig M. Semaglutide for weight loss; another competitor for the “biggest loser”. Evidence-Based Practice. 2023;26(2):7-8. doi: 10.1097/EBP.0000000000001596
16.	Larsen SC, Horgan G, Mikkelsen M-LK, Palmeira AL, Scott S, Duarte C, et al. Consistent sleep onset and maintenance of body weight after weight loss: An analysis of data from the NoHoW trial. PLoS Medicine. 2020;17(7):e1003168. doi: 10.1371/journal.pmed.1003168
17.	Lau D, Astrup A, Fujioka K, Greenway F, Roux CL, Gaal LA, et al. Reduction in the risk of developing type 2 diabetes (T2D) with liraglutide 3.0 mg in people with prediabetes from the SCALE obesity and prediabetes randomized, double-blind, placebo-controlled trial. Canadian Journal of Diabetes. 2016;40(5):S34. doi: 10.1016/j.jcjd.2016.08.100
18.	Lau DC, Greenway F, Fujioka K, Astrup A, Halpern A, Krempf M, et al. Additional analyses of the weight-lowering efficacy of liraglutide 3.0 mg in adults with overweight and obesity: The SCALE obesity and prediabetes randomized trial. Canadian Journal of Diabetes. 2015;39:S48. doi: 10.1016/j.jcjd.2015.01.182
19.	Lau DC, Krempf M, Astrup A, Le Roux CW, Fujioka K, Greenway F, et al. Liraglutide 3.0 mg reduces body weight and improves cardiometabolic risk factors in adults with overweight/obesity: The SCALE obesity and prediabetes randomised trial. Canadian Journal of Diabetes. 2015;39:S48-S9. doi: 10.1016/j.jcjd.2015.01.183
20.	Lee S. eHealth interventions to promote physical activity and well-being actions in adults with obesity: ProQuest Information & Learning; 2022.

21.	Liss DT, Finch EA, Gregory DL, Cooper A, Ackermann RT. Design and participant characteristics for a randomized effectiveness trial of an intensive lifestyle intervention to reduce cardiovascular risk in adults with type 2 diabetes: The I-D-HEALTH study. Contemporary Clinical Trials. 2016;46:114-21. doi: 10.1016/j.cct.2015.11.016
22.	Liutkus JF, Fujioka K, Astrup A, Greenway F, Halpern A, Krempf M, et al. Liraglutide 3.0 mg reduces body weight and improves health-related quality of life (HRQoL) in overweight or obese adults without diabetes: The SCALE obesity and prediabetes randomized, double-blind, placebo-controlled, 56-week trial. Canadian Journal of Diabetes. 2015;39:S36. doi: 10.1016/j.jcjd.2015.01.142
23.	Luque V, Feliu A, Escribano J, Ferré N, Flores G, Monné R, et al. The Obemat2.0 Study: A clinical trial of a motivational intervention for childhood obesity treatment. Nutrients. 2019;11(2):419. doi: 10.3390/nu11020419
24.	Madievsky R, Vu A, Cheng F, Chon J, Turk N, Krueger A, et al. A randomized controlled trial of a shared decision making intervention for diabetes prevention for women with a history of gestational diabetes mellitus: the Gestational diabetes Risk Attenuation for New Diabetes (GRAND study). Contemporary Clinical Trials. 2023;124:107007. doi: 10.1016/j.cct.2022.107007
25.	Markovic T, Astrup A, Greenway F, Krempf M, Le Roux CW, Vettor R, et al. Liraglutide 3.0 mg reduces body weight and improves cardiometabolic risk factors in adults with obesity or overweight, but without diabetes: The SCALE obesity and prediabetes randomised, double-blind, placebo-controlled 3-year trial. Obesity Research & Clinical Practice. 2019;13(1):56-7. doi: 10.1016/j.orcp.2016.10.079
26.	McRobbie H, Hajek P, Peerbux S, Kahan BC, Eldridge S, Trepel D, et al. Tackling obesity in areas of high social deprivation: Clinical effectiveness and cost-effectiveness of a task-based weight management group programme - a randomised controlled trial and economic evaluation. Health Technology Assessment. 2016;20(79):1-150. doi: 10.3310/hta20790
27.	O'Moore-Sullivan T, Roux CWL, Astrup A, Fujioka K, Greenway F, Lau DCW, et al. Reduction in the risk of developing type 2 diabetes (T2D) with liraglutide 3.0 mg in individuals with prediabetes and obesity or overweight from the SCALE obesity and prediabetes randomised, double-blind, placebo-controlled trial. Obesity Research & Clinical Practice. 2019;13(1):99. doi: 10.1016/j.orcp.2016.10.259
28.	Pedersen S, DeFronzo RA, Bergenstal R, Bode B, Kushner R, Lewin A, et al. Effects of liraglutide 3.0 mg and 1.8 mg on body weight and cardiometabolic risk factors in adults with overweight or obesity and type 2 diabetes (T2D): The SCALE diabetes randomized, double-blind, placebo-controlled, 56-week trial. Canadian Journal of Diabetes. 2015;39:S36. doi: 10.1016/j.jcjd.2015.01.141
29.	Pratt SI, Brunette MF, Wolfe R, Scherer EA, Xie H, Bartels S, et al. Incentivizing healthy lifestyle behaviors to reduce cardiovascular risk in people with serious mental illness: An equipoise randomized controlled trial of the wellness incentives program. Contemporary Clinical Trials. 2019;81:1-10. doi: 10.1016/j.cct.2019.04.005
30.	Proietto J, le Roux CW, Pi-Sunyer X, Astrup A, Fujioka K, Greenway F, et al. Efficacy and safety of liraglutide 3.0 mg for weight management in overweight and obese adults: The SCALE Obesity and Prediabetes, a randomised, double-blind and placebo-controlled trial. Obesity Research & Clinical Practice. 2014(8):117. doi: 10.1016/j.orcp.2014.10.210
31.	Proietto J, Pi-Sunyer X, van Gaal L, Wilding JP, Le Roux CW, Lilløre SK, et al. Liraglutide 3.0 mg in obese/overweight adults with or without prediabetes with baseline BMI< 35 vs≥ 35 kg/m2 in the SCALE Obesity and Prediabetes 56-week randomized, double-blind, placebo-controlled trial. Obesity Research & Clinical Practice. 2019;13(1):103. doi: 10.1016/j.orcp.2016.10.266
32.	Robertson W, Fleming J, Kamal A, Hamborg T, Khan KA, Griffiths F, et al. Randomised controlled trial evaluating the effectiveness and cost-effectiveness of 'Families for Health', a family-based childhood obesity treatment intervention delivered in a community setting for ages 6 to 11 years. Health Technology Assessment. 2017;21(1). doi: 10.3310/hta21010
33.	Rosas LG, Vasquez JJ, Naderi R, Jeffery N, Hedlin H, Qin F, et al. Development and evaluation of an enhanced diabetes prevention program with psychosocial support for urban American Indians and Alaska Natives: A randomized controlled trial. Contemporary Clinical Trials. 2016;50:28-36. doi: 10.1016/j.cct.2016.06.015
34.	Rosenkilde M, Nordby P, Stallknecht B. Maintenance of improvements in fitness and fatness 1 year after a 3-month lifestyle intervention in overweight men. European Journal of Clinical Nutrition. 2016;70(10):1212-4. doi: 10.1038/ejcn.2016.64

35.	Steurer J. Bariatrische chirurgie verbessert – Nach fünf jahren – Gewicht und blutzucker. Praxis. 2017;106(9):489-90. doi: 10.1024/1661-8157/a002667
36.	Szabo AN, Washburn RA, Sullivan DK, Honas JJ, Mayo MS, Goetz J, et al. The Midwest Exercise Trial for the Prevention of Weight Regain: MET POWeR. Contemporary Clinical Trials. 2013;36(2):470-8. doi: 10.1016/j.cct.2013.08.011
37.	Tapia-Ortiz E. Reduction of obesity associated breast cancer risk in a phase II clinical trial of metformin: The University of Arizona; 2020.
38.	Thompson WG. Adding wearable technology to a behavioral program resulted in less weight loss than adding web-based self-monitoring. Annals of Internal Medicine. 2017;166(2). doi: 10.7326/ACPJC-2017-166-2-004
39.	Vaccaro O, Masulli M, Bonora E, Del Prato S, Giorda CB, Maggioni AP, et al. Addition of either pioglitazone or a sulfonylurea in type 2 diabetic patients inadequately controlled with metformin alone: impact on cardiovascular events. A randomized controlled trial. Nutrition, Metabolism and Cardiovascular Diseases. 2012;22(11):997-1006. doi: 10.1016/j.numecd.2012.09.003
40.	Walji S, Garvey T, Batterham RL, Bhatta M, Buscemi S, Christensen LN, et al. Two-year effect of semaglutide 2.4 mg versus placebo in adults with overweight or obesity: STEP 5. Canadian Journal of Diabetes. 2022;46(7):S14. doi: 10.1016/j.jcjd.2022.09.038
41.	Wharton S, Kushner RF, Bode B, Lewin A, DeFronzo RA, Noctor M, et al. Weight loss with liraglutide 3.0 mg is associated with improved health-related quality of life (HRQoL) and treatment satisfaction in adults with overweight/obesity and type 2 diabetes (T2D): The SCALE diabetes randomized, double-blind, placebo-controlled. Canadian Journal of Diabetes. 2015;39:S35. doi: 10.1016/j.jcjd.2015.01.140
42.	Williamson MJ, Mateo KF. Can mindfulness components added to a diet-exercise program improve weight loss outcomes? Journal of Clinical Outcomes Management. 2016;23(7):298-300.
43.	Wittert G, le Roux CW, Astrup A, Fujioka K, Greenway F, Halpern A, et al. Liraglutide 3.0 mg improves body weight and cardiometabolic risk factors in overweight or obese adults without diabetes: the SCALE Obesity and Prediabetes randomised, double-blind, placebo-controlled 56-week trial. Obesity Research & Clinical Practice. 2014(8):118. doi: 10.1016/j.orcp.2014.10.211
44.	Yorgason JB, Sandberg JG, Weinstock RS, Trief PM, Fisher L, Hessler D. The importance of relationship processes for lowering BMI over time in women with type 2 diabetes in a randomized controlled trial. Obesity Research & Clinical Practice. 2019;13(6):599-601. doi: 10.1016/j.orcp.2019.08.003

Table D9: Ineligible intervention (drug withdrawn; n=25)

Publication details	
1.	Alfaris N, Wadden TA, Sarwer DB, Diwald L, Volger S, Hong P, et al. Effects of a 2-year behavioral weight loss intervention on sleep and mood in obese individuals treated in primary care practice. Obesity. 2015;23(3):558-64. doi: 10.1002/oby.20996
2.	Derosa G, Maffioli P, Ferrari I, Palumbo I, Randazzo S, D'Angelo A, et al. Variation of inflammatory parameters after sibutramine treatment compared to placebo in type 2 diabetic patients. Journal of Clinical Pharmacy and Therapeutics. 2011;36(5):592-601. doi: 10.1111/j.1365-2710.2010.01217.x
3.	Pi-Sunyer X, Shanahan W, Fain R, Ma T, Garvey WT. Impact of Lorcaserin on glycemic control in overweight and obese patients with type 2 diabetes: Analysis of week 52 responders and nonresponders. Postgraduate Medicine. 2016;128(6):591-7. doi: 10.1080/00325481.2016.1208618
4.	Shaw Tronieri J, Wadden TA, Berkowitz RI, Chao AM, Pearl RL, Alamuddin N, et al. A randomized trial of Lorcaserin and lifestyle counseling for maintaining weight loss achieved with a low-calorie diet. Obesity. 2018;26(2):299-309. doi: 10.1002/oby.22081
5.	Smith SR, Weissman NJ, Anderson CM, Sanchez M, Chuang E, Stubbe S, et al. Multicenter, placebo-controlled trial of Lorcaserin for weight management. The New England Journal of Medicine. 2010;363(3):245-56. doi: 10.1056/NEJMoa0909809
6.	Suplicy H, Boguszewski CL, dos Santos CMC, do Desterro de Figueiredo M, Cunha DR, Radominski R. A comparative study of five centrally acting drugs on the pharmacological treatment of obesity. International Journal of Obesity. 2014;38(8):1097-103. doi: 10.1038/ijo.2013.225

7.	Volger S, Wadden TA, Sarwer DB, Moore RH, Chittams J, Diewald LK, et al. Changes in eating, physical activity and related behaviors in a primary care-based weight loss intervention. International Journal of Obesity. 2013;37:S12-S8. doi: 10.1038/ijo.2013.91
8.	Wadden TA, Volger S, Sarwer DB, Vetter ML, Tsai AG, Berkowitz RI, et al. A two-year randomized trial of obesity treatment in primary care practice. The New England Journal of Medicine. 2011;365(21):1969-79. doi: 10.1056/NEJMoa1109220
9.	TODAY Study Group. Treatment effects on measures of body composition in the TODAY clinical trial. Diabetes Care. 2013;36(6):1742-8. doi: 10.2337/dc12-2534
10.	Blonde L, Stenlöf K, Fung A, Xie J, Canovatchel W, Meininger G. Effects of canagliflozin on body weight and body composition in patients with type 2 diabetes over 104 weeks. Postgraduate Medicine. 2016;128(4):371-80. doi: 10.1080/00325481.2016.1169894
11.	Chilton M, Dunkley A, Carter P, Davies MJ, Khunti K, Gray LJ. The effect of antiobesity drugs on waist circumference: a mixed treatment comparison. Diabetes, Obesity and Metabolism. 2014;16(3):237-47. doi: 10.1111/dom.12198
12.	Dhaliwal R, Shepherd JA, El Ghormli L, Copeland KC, Geffner ME, Higgins J, et al. Changes in visceral and subcutaneous fat in youth with type 2 diabetes in the TODAY Study. Diabetes Care. 2019;42(8):1549-59. doi: 10.2337/dc18-1935
13.	Fidler MC, Sanchez M, Raether B, Weissman NJ, Smith SR, Shanahan WR, et al. A one-year randomized trial of lorcaserin for weight loss in obese and overweight adults: the BLOSSOM trial. The Journal of Clinical Endocrinology & Metabolism. 2011;96(10):3067-77. doi: 10.1210/jc.2011-1256
14.	Fox CK, Clark JM, Rudser KD, Ryder JR, Gross Amy C, Nathan BM, et al. Exenatide for weight-loss maintenance in adolescents with severe obesity: a randomized, placebo-controlled trial. Obesity. 2022;30(5):1105-15. doi: 10.1002/oby.23395
15.	Kipnes MS, Hollander P, Fujioka K, Gantz I, Seck T, Erondu N, et al. A one-year study to assess the safety and efficacy of the CB1R inverse agonist taranabant in overweight and obese patients with type 2 diabetes. Diabetes, Obesity and Metabolism. 2010;12(6):517-31. doi: 10.1111/j.1463-1326.2009.01188.x
16.	Magkos F, Nikonova E, Fain R, Zhou S, Ma T, Shanahan W. Effect of lorcaserin on glycemic parameters in patients with type 2 diabetes mellitus. Obesity. 2017;25(5):842-9. doi: 10.1002/oby.21798
17.	Marcus MD, Wilfley DE, El Ghormli L, Zeitler P, Linder B, Hirst K, et al. Weight change in the management of youth-onset type 2 diabetes: the TODAY clinical trial experience. Pediatric Obesity. 2017;12(4):337-45. doi: 10.1111/ijpo.12148
18.	Nahra R, Wang T, Gadde KM, Oscarsson J, Stumvoll M, Jermutus L, et al. Effects of cotadutide on metabolic and hepatic parameters in adults with overweight or obesity and type 2 diabetes: a 54-week randomized phase 2b study. Diabetes Care. 2021;44(6):1433-42. doi: 10.2337/dc20-2151
19.	O'Neil PM, Smith SR, Weissman NJ, Fidler MC, Sanchez M, Zhang J, et al. Randomized placebo-controlled clinical trial of lorcaserin for weight loss in type 2 diabetes mellitus: the BLOOM-DM Study. Obesity. 2012;20(7):1426-36. doi: 10.1038/oby.2012.66
20.	Pantalone KM, Smolarz BG, Ramasamy A, Baz Hecht M, Harty BJ, Rogen B, et al. Effectiveness of combining antiobesity medication with an employer-based weight management program for treatment of obesity: a randomized clinical trial. JAMA Network Open. 2021;4(7):e2116595. doi: 10.1001/jamanetworkopen.2021.16595
21.	Ryan DH, Johnson WD, Myers VH, Prather TL, McGlone MM, Rood J, et al. Nonsurgical weight loss for extreme obesity in primary care settings: results of the Louisiana Obese Subjects Study. Archives of Internal Medicine. 2010;170(2):146-54. doi: 10.1001/archinternmed.2009.508
22.	Sari R, Eray E, Ozdem S, Akbas H, Coban E. Comparison of the effects of sibutramine versus sibutramine plus metformin in obese women. Clinical and Experimental Medicine. 2010;10(3):179-84. doi: 10.1007/s10238-009-0080-y
23.	Qi QYD, Playfair J, Brown WA, Burton P, O'Brien PE, Wentworth JM. Long-term impact of weight loss for people with overweight but not obesity, and with type 2 diabetes: 10-year outcomes of a randomized trial of gastric band surgery. Diabetes, Obesity and Metabolism. 2023;25(6):1464-72. doi: 10.1111/dom.14992
24.	Schernthaner G, Rosas-Guzmán J, Dotta F, Guerci B, Simó R, Festa A, et al. Treatment escalation options for patients with type 2 diabetes after failure of exenatide twice daily or glimepiride added to metformin:

	results from the prospective European Exenatide (EUREXA) study. Diabetes, Obesity and Metabolism. 2015;17(7):689-98. doi: 10.1111/dom.12471
25.	Siskind D, Russell A, Gamble C, Baker A, Cosgrove P, Burton L, et al. Metabolic measures 12 months after a randomised controlled trial of treatment of clozapine associated obesity and diabetes with exenatide (CODEX). Journal of Psychiatric Research. 2020;124:9-12. doi: 10.1016/j.jpsychires.2020.02.015

Table D10: Article retracted (n=3)

Publication details	
1.	Estruch R, Martinez-Gonzalez MA, Corella D, Salas-Salvado J, Fito M, Chiva-Blanch G, et al. Retracted: Effect of a high-fat Mediterranean diet on bodyweight and waist circumference: a prespecified secondary outcomes analysis of the PREDIMED randomised controlled trial. The Lancet Diabetes & Endocrinology. 2016;4(8):666-76. doi: 10.1016/S2213-8587(16)30085-7
2.	Ruiz-Tovar J, Carbajo MA, Jimenez JM, Castro MJ, Gonzalez G, Ortiz-de-Solorzano J, et al. Long-term follow-up after sleeve gastrectomy versus Roux-en-Y gastric bypass versus one-anastomosis gastric bypass: a prospective randomized comparative study of weight loss and remission of comorbidities. Surgical Endoscopy. 2019;33(2):401-10. doi: 10.1007/s00464-018-6307-9
3.	Shang E, Hasenberg T. Aerobic endurance training improves weight loss, body composition, and co-morbidities in patients after laparoscopic Roux-en-Y gastric bypass. Surgery for Obesity and Related Diseases. 2010;6(3):260-6. doi: 10.1016/j.soard.2010.01.006

Table D11: Full text embargoed at time of review (n=1)

Publication details	
1.	Kevat A, Bernard A, Harris MA, Heussler H, Black R, Cheng A, et al. Impact of adenotonsillectomy on growth trajectories in preschool children with mild-moderate obstructive sleep apnea. Journal of Clinical Sleep Medicine. 2023;19(1):55-62. doi: 10.5664/jcsm.10266

Table D12: No follow up at intervention end (n=1)

Publication details	
1.	Mashanskaya AV, Pogodina AV, Astakhova TA, Khramova EE, Kravtsova OV, Vlasenko AV, et al. [the modern methods for the rehabilitation of adolescents suffering obesity]. Vopr Kurortol Fizioter Lech Fiz Kult. 2018;95(4):24-30. doi: 10.17116/kurort20189504124

Table D13: Ineligible setting (n=1)

Publication details	
1.	Deussen AR, Louise J, Dodd JM. Childhood follow-up of the GRoW randomized trial: Metformin in addition to dietary and lifestyle advice for pregnant women with overweight or obesity. Pediatric Obesity. 2023;18(1):e12974. doi: 10.1111/ijpo.12974