FHI
Folkehelseinstituttet

RAPPORT

2021

KARTLEGGINGSOVERSIKT

Elementer i livsstilstiltak for vektreduksjon blant voksne personer med overvekt eller fedme

Utgitt av Folkehelseinstituttet
Område for helsetjenester
Tittel Elementer i livsstilstiltak for vektreduksjon blant voksne personer med overvekt eller fedme: en kartleggingsoversikt.
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Antall sider 33 (243 inklusiv vedlegg)
Oppdragsgiver Helsedirektoratet
Emneord(MeSH) Overweight; Lifestyle; Diet; Exercise; Health Behavior;
Sitering Holte HH, Denison E, Dahm KT, Hestevik CH, Hval G. Elementer i livsstilstiltak for vektreduksjon blant voksne personer med overvekt eller fedme: en kartleggingsoversikt. [Elements in lifestyle interventions for weight reduction among adults with overweight or obesity: a mapping review] . Oslo: Folkehelseinstituttet, 2021.

Innhold

Hovedbudskap

Vi utførte på oppdrag fra Helsedirektoratet en kartleggingsoversikt med hensikt å beskrive elementene i livsstilstiltak for å redusere vekt blant voksne med overvekt eller fedme.

- Vi inkluderte 218 publikasjoner (165 studier) publisert i 2010 eller senere.
- Halvparten av studiene omfattet færre enn 200 deltakere.
- Deltakerne var hovedsakelig voksne uten følgesykdommer eller andre sykdommer.
- Nesten halvparten av studiene omfattet både endring av kosthold, fysisk aktivitet og psykologisk veiledning. Under 20 prosent av studiene omfattet kun én av disse.
- Reduksjon av kaloriinntak var det vanligste tiltaket (137/165 studier). Reduksjon i kaloriinntak ble ofte kombinert med i) råd om matvarer (50 %), ii) en spesifikk fordeling mellom protein, fett og karbohydrater i kosten (25 %), eller iii) alene (25 %).
- Tiltak for økt fysisk aktivitet inngikk i 124 studier, 2/3 var trening på egenhånd, 1/3 var organisert trening.
- Endring av kosthold og økt fysisk aktivitet, med eller uten psykologisk veiledning, ble undersøkt i 115 studier. Råd om reduksjon i antall kalorier i kombinasjon med råd om matvarer sammen med fysisk aktivitet på egenhånd inngikk i 47 av dem.

Livsstilstiltakene i de 165 identifiserte studiene omfattet et stort antall elementer og disse har vært kombinert på mange måter. Fremtidig forskning må beskrive kombinasjoner av elementer presist.

Tittel:
Elementer i livsstilstiltak for vektreduksjon blant voksne personer med overvekt eller fedme; en kartleggingsoversikt.

Publikasjonstype:
Systematisk kartleggingsoversikt
En kartleggingsoversikt kartlegger og kategoriserer eksisterende forskning på et tematisk område og identifiserer forskningshull som kan lede til videre forskning

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Svarer ikke på alt:
Vi har ikke vurdert effekt av tiltak.

Hvem står bak denne publikasjonen?
Folkehelseinstituttet har gjennomført oppdraget etter forespørsel fra Helsedirektoratet.

Når ble litteratursøket utført?
Søk etter studier ble avsluttet januar i 2020.

Fagfeller:
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Sammendrag

Innledning

Andelen voksne med overvekt og fedme øker i den norske befolkningen. Ifølge helseundersøkelsen i Nord-Trøndelag 2017-18 er andelen med fedme anslått til å være 23 prosent for både kvinner og menn. Hovedstrategiene for å forebygge og behandle overvekt og fedme i primærhelsetjenesten er tiltak som kostholdsråd, anbefalinger om fysisk aktivitet, og tilbud om kirurgi i spesialisthelsetjenesten.

Helsedirektoratet ser behov for at behandlingstilbudet til personer med overvekt og fedme i primærhelsetjenesten styrkes. Dette vil være tiltak for endring av kosthold, økning av fysisk aktivitet eller psykologisk veiledning for å endre atferd og øke motivasjon for å gjennomføre endringer i levevaner og mestring av helseutfordringer. Selv om primærhelsetjenesten også har tilgang til medikamentell behandling, vil det ikke tas med i denne rapporten.

Vi utførte på oppdrag fra Helsedirektoratet en kartleggingsoversikt med hensikt å beskrive tilgjengelig forskning om livsstilstiltak (med minst ett års varighet) for å redusere vekt blant voksne med overvekt eller fedme, publisert i 2010 eller senere.

Metode

Vi søkte systematisk etter litteratur i de to største og mest relevante elektroniske databasene (Medline og PsychINFO). Én person gikk gjennom alle titler og sammendrag og tre andre personer gikk uavhengig av hverandre gjennom en tredjedel av titler og sammendrag hver. Forfatterne vurderte deretter studier som ble hentet inn i fulltekst opp mot inklusjons- og eksklusjonskriterier på tilsvarende måte. En person trakk ut data fra de inkluderte artiklene og tre andre personer verifiserte datauttrekkingen, cirka en tredjedel hver. Vi vurderte ikke kvaliteten på de inkluderte studiene. Vi presenterer studiene i tabeller med informasjon om hvem som gjennomførte studiene, hvilke profesjoner som ga tiltaket, kontekst, samt beskrivelse av deltakere i studiene, studienes varighet og utfallsmål, i tillegg til innhold i tiltakene. Innholdet i tiltakene omfatter både endring av kosthold, økning av fysisk aktivitet eller psykologisk veiledning for å endre atferd og øke motivasjon for å gjennomføre endringer i levevaner inngikk i studiene, men også hvilke elementer som inngikk i hver av disse.

Resultat

Fra de 17 533 referansene som ble funnet i litteratursøket inkluderte vi 218 fulltekstartikler som beskrev 165 ulike studier. Halvparten av studiene omfattet under 200 personer. Deltakerne var oftest friske voksne med overvekt og fedme uten følgesykdommer eller andre sykdommer. Tolv prosent av studiene rapporterte at de inkluderte voksne med pre-diabetes eller diabetes type 2. Halvparten av studiene målte resultatet av tiltaket ved avslutning etter ett år (52 %). Effekter av intervensjone ble målt etter ett til to år i 36 % av studiene og etter mer enn to år i 12 % av studiene.

Vi kategoriserte, etter forfatternes beskrivelser, tiltakene slik: kun tiltak for økning av fysisk aktivitet; tiltak for økning av fysisk aktivitet og psykologisk veiledning; tiltak for økning av fysisk aktivitet og endring av kosthold; kun tiltak for endring av kosthold; tiltak for endring kosthold og psykologisk veiledning; tiltak for endring av kosthold og fysisk aktivitet; tiltak for endring av kosthold og fysisk aktivitet og psykologisk veiledning; kun psykologisk veiledning. Omtrent halvparten av studiene (46 %) inneholdt tiltak hvor alle inngikk, både endring av kosthold, fysisk aktivitet og psykologisk veiledning. I 17 prosent av studiene ble endring i kun en av de overnevnte vurdert.

I 49 prosent av studiene som rapporterte hvilke profesjoner som var involvert var det kliniske ernæringsfysiologer i kombinasjon med andre profesjoner som for eksempel leger, sykepleiere, psykologer og fysioterapeuter som ga tiltaket. I 22 prosent av studiene var klinisk ernæringsfysiolig eneste profesjon oppgitt. Selv om studiene rapporterte at flere profesjoner deltok i tiltakene, kan vi ikke si noe om arbeidet var tverrfaglig.

Reduksjon av kaloriinntak var det vanligste tiltaket (137/165 studier). Reduksjon i antall kalorier ble ofte kombinert med i) råd om matvarer (50 %), ii) en spesifikk fordeling mellom protein, fett og karbohydrater i kosten (25 %), iii) kun reduksjon i antall kalorier inntatt daglig (25 %).

Tiltak for økt fysisk aktivitet inngikk i 124 studier. I 2/3 av disse studiene var dette tiltak i form av råd til deltakerne om å trene mer på egenhånd, og i 1/3 av studiene inkluderte organisert trening for deltakerne.

En kombinasjon av endring av kosthold og fysisk aktivitet, med eller uten psykologisk veiledning, ble studert i 115 studier. Råd om reduksjon i antall kalorier kombinert med råd om matvarer og fysisk aktivitet uten veiledning inngikk i den største andelen av disse studiene (47 studier).

Diskusjon

Studiene vi fant presenterer et svært bredt spekter av måter å arbeide med vektreduksjon blant voksne med overvekt og fedme. Dette er et område det er forsket mye og bredt på. Men på grunn av den omfattende problemstillingen har vi måttet avgrense søket og dette har medført at vi har mistet relevant litteratur. Denne kartleggingsoversikten sier allikevel noe om det mangfold, volum og egenskaper ved forskningen som foreligger per i dag. Vår rapport viser at det er mange måter å sette sammen livsstilstiltak,

og at det er stor variasjon av både av hvilke elementer som inngår i tiltakene som presenteres i den publiserte forskningen og hvordan de kombineres. Presentasjonen av endring av kosthold, fysisk aktivitet samt psykologisk veiledning, og elementene som har inngått i dem, er nyttig for å vise hvor viktig det er å definere tiltak presist på dette feltet. Utfordringen videre er å være presis i definisjonen av tiltak for å redusere vekt hos voksne med overvekt og fedme.

Behov for videre forskning

Planen var at vi skulle belyse livsstilstiltak som var studert sammen med bruk av vektreduserende legemidler, og hvorvidt tiltakene var gjennomført i primærhelsetjenesten. Vårt litteratursøk har ikke identifisert denne litteraturen på en adekvat måte. Hvert av områdene bør bli gjenstand for egne systematiske oppsummeringer. Antagelig er begrepsbruken ulik på disse to områdene, og litteratursøkene bør utformes i tråd med problemstillingen og ikke generelt, som i vårt søk.

Vi har ikke identifisert litteratur om følgesykdommer av overvekt og fedme på en god måte. De ulike følgesykdommene av fedme og overvekt bør også inngå i egne prosjekter. Muligens er fokuset i disse studiene sykdommene, og ikke at pasienten har fedme eller overvekt. Slike studier vil ikke være identifisert i vårt litteratursøk.

Mange studier har ulike faser. Det bør gjøres et prosjekt for å belyse betydningen av varigheten av de ulike fasene.

Gjennom dette arbeidet har vi savnet å kunne se tiltakene i sammenheng med faktorer som påvirker hvordan endring av kosthold og økt fysisk aktivitet kan opprettholdes over tid, også etter at tiltaket er avsluttet (adherence). Vi ser et behov for å skaffe en oversikt over studier som ser på dette samlet.

Konklusjon

Kartleggingen av livsstilstiltakene i de 165 inkluderte studiene, viste at antallet kombinasjoner av endring av kosthold, økning av fysisk aktivitet og psykologisk veiledning er stort. Antallet elementer som inngår i hvert enkelt livsstiltiltak og kombinasjonene av dem er også veldig stort. Fremtidig forskning må beskrive kombinasjoner av elementer presist .

Key messages

We carried out a systematic mapping review, commissioned by the Norwegian Directorate of Health. Our aim was to describe available research about interventions to reduce weight in adults with overweight or obesity.

- We included 218 publications (165 studies) published 2010 or later .
- Half of the studies had less than 200 participants
- The participants were mainly adults without overweight and obesity-related diseases.
- Nearly half of the studies comprised both changing of diet, increasing physical activity and psychological counselling. Less than 20% comprised only one of them.
- Calorie restriction was the most common element in the interventions (137/165 studies) combined with i) advice on food items (50%), ii) a specific proportion of protein, fat and carbohydrates (25%), iii) calorie restriction alone (25%).
- Interventions for increasing physical activitiy were part of 124 studies, 2/3 of these were training without guidance, 1/3 were with guidance.
- Changes in diet and increased physical activity, with or without psychological counselling, was studied in 115 studies. Advice on calorie restriction in combination with advice on food items together with advice on unorganised physical activity, was part of 47 of these studies.

Lifestyle interventions in the 165 identified studies consists of a large nuber of elements and there is a large variety in how these elements are combined. Future studies on this topic will need to define the elements precisely.

Title:
Elements in lifestyle interventions for weight reduction among adults with overweight or obesity: a mapping review

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Type of publication:
Mapping review
A systematic mapping review maps out and categorizes existing research on a topic, identifying research gaps that can guide future research

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Doesn't answer everything:
No evaluation of effects of interventions.

Publisher:
The Norwegian Institute of Public Health (NIPH)

Updated:
Last search for studies: January 2020.

Peer review:
Kjetil Gundro Brurberg, Dept. director, NIPH
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Executive summary (English)

Background

The proportion of adults with overweight and obesity is increasing in the Norwegian population. The propotion with obesity is now 23% for both women and men, according to the Nord-Trøndelag Health Study 2017-18. The main strategies to prevent and treat overweight and obesity in the primary health care services are advice regarding diet and physical activity, and offers of bariatric surgery within the specialist health care services.

The Norwegian Directorate of Health is aware of the need for the treatments available to persons with overweight and obesity in the primary health care services are strengthened. The interventions should be designed to promote changes in diet, physical activity, and psychological councelling including motivation to carry through lifestyle changes and manage health challenges. Even though the primary health care can give weight reducing medication, this is not part of our report.

Objective

We carried out a systematic mapping review, commissioned by the Norwegian Directorate of Health. Our aim was to describe available research about interventions (minimum one-year duration) to reduce weight given to adults with overweight or obesity, published 2010 or later.

Method

We searched systematically for literature in the two largest and most relevant electronic databases (Medline and PsychINFO). One author screened all titles and abstracts, and three other authors independently screened about a third each. They then assessed full text publications against inclusion- and exclusion criteria in the same manner. One author extracted data and the three other authors verified the data extraction, about a third each. We did not assess the methodological quality of the included studies. We present the studies in tables with information on who performed the study, which professions that took part, and setting, a description of the participants, the duration and outcomes of the interventions, in addition to the content of the interventions. The content comprises the elements that were part of the studies of change in diet, increased physical activity and psychological counselling to change behaviour and increase motivation to change habits.

Results

From the 17,533 references identified by the search, we included 218 full text publications reporting 165 studies. Half of the studies had less than 200 participants. The participants had overweight or obesity and most of them had no obesity-related or other diseases. Twelve per cent of the studies reported that they included adults with pre-diabetes or diabetes type 2. Half of the studies measured outcomes at the end of the intervention (52%), 36% of the studies at one to two years after the intervention and 12% of the studies more than two years after the intervention.

We categorized the interventions, based on the authors' descriptions, as follows: interventions to change level of physical activity only; interventions to change level of physical activity and psychological counselling; interventions of change of physical activity and change of diet; interventions to change diet only; interventions to change diet and psychological counselling; interventions to change diet, level of physical activity and psychological counselling; psychological counselling only. Approximately half of the studies (46%) comprised interventions to change diet and level of physical activity, and psychological counselling. In 17% of the studies only one of those mentioned above were included.

In 49% of the studies that reported which professions took part, nutritionists in combination with other professions, e.g. physicians, nurses, psychologists, and physiotherapists, gave the intervention. In 22% of the studies a nutritionist was the only profession mentioned. Even though we know that several professions took part in the study, we do not know how the work was organised.

Calorie restriction was the most common intervention (137/165 studies). Calorie restriction was often combined with i) advice on food items (50%), ii) a specific proportion of protein, fat and carbohydrates (25%), iii) calorie restriction only (25%).

Interventions for increasing physical activities were part of 124 studies, 2/3 of these were training without guidance, 1/3 were with guidance.

A combination of changing of diet and increased physical activity, with or without psychological counselling, was studied in 115 studies. Advice on calorie restriction in combination with advice on food items toghether with advice on unorganised physical activity, was part of 47 of these studies.

Discussion

The studies identified present a wide array of potential interventions to reduce weight among adults with overweight and obesity. This is an area with extensive research, Howver, because of the very broad question in this review, we had to limit the searches and this led to us losing relevant literature. Even so, this review underscores the variety, volume and complexity of this field of research as per today. This report shows that there are several ways of combining lifestyle interventions, and that the elements that are part of the interventions are many and can be combined in many ways. This presentation of the elements are useful to show the necessity of being precise when defining

the research question. This is an important challenge for the future research of overweight and obesity.

Needs for further research

The research question for this review comprised use of weight-reducing medicines and studies from primary care settings. Our search for literature has not identified these studies in an adequate way. Each of these topics should be addressed with narrower and more precise search terms in new systematic reviews.

We have not identified literature on overweight and obesity related diseases adequately. The various overweight and obesity related diseases should also be addressed in separate reviews.

Several of the studies have different phases. There should be a separate project addressing these phases, to identify the importance of the duration of the various phases.

While working on this mapping review we have not had the opportunity to see the interventions in relation to factors that may influence how change in diet and physical activity can be maintained after the intervention (i.e. adherence). It seems necessary to view these two elements together.

Conclusion

We found that lifestyle interventions in the 165 studies identified consists of a large nuber of different elements and that there was a large variety in how these elements were combined. Future studies on this topic will need to define the elements precisely.

Forord

Helsedirektoratet har bedt Folkehelseinstituttet om å lage en systematisk kartleggingsoversikt over elementene i livsstilstiltak for å behandle overvekt og fedme hos voksne.

En systematisk kartleggingsoversikt er relevant for beslutningstakere som ønsker å danne seg en oversikt over tilgjengelig forskning. For å få oversikt over forskning på livsstilsintervensjoner, vil en kartleggingsoversikt hvor elementene som inngår i forskning på endring av kosthold, økning av fysisk aktivitet og psykologisk veiledning for å endre atferd og øke motivasjon for å gjennomføre endringer i levevaner spesifiseres være nyttig. Det vil være mulig å vurdere hvilke livsstilstiltak som er aktuelle for norske forhold og som bør inngå i vurderingen til retningslinjer eller danne grunnlag for videre arbeid med spesifikke problemstillinger.

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Innledning

Norge har forpliktet seg til Verdens Helseorganisasjons (WHO) mål om å redusere prematur død (30-70 år) av ikke-smittsomme sykdommer med 25 prosent innen 2025 (1). Andelen voksne med overvekt og fedme øker i den norske befolkningen. I 1984-1986 var fedme registrert blant 13 prosent av kvinner og 8 prosent av menn i Nord-Trøndelag (2). I 2017-2018 var andelen økt til 23 prosent blant både kvinner og menn (2).

I dag er det et gap mellom primærforebyggende tiltak og tilbud om kirurgi i spesialisthelsetjenesten til voksne med overvekt (kroppsmasseindeks (KMI) ≥ 25) og fedme (KMI ≥30). Nasjonalt råd for kvalitet og prioritering i helsetjenesten skrev i mai 2015 at «Tilbud om ikke-kirurgisk behandling til voksne som trenger og ønsker individuell behandling for overvekt og fedme, må bygges opp og systematiseres, både i primær- og spesialisthelsetjenesten» (3).

Livsstilstiltak vil være ulike tiltak for å øke fysisk aktivitet og endre kosthold. Det innebærer også psykologisk veiledning for å endre atferd og øke motivasjon for å gjennomføre endringer i levevaner samt mestring av helseutfordringer. Et annet tiltak er bruk av vektreduserende legemidler (4), som ikke vil bli belyst i denne rapporten.

En kartlegging over livsstilstiltak som alternativ til kirurgi for voksne med overvekt eller fedme er tidligere utført i Danmark. Denne rapporten ble publisert i 2012 (5). Forfatterne sorterte tiltakene etter effekt, økonomi, organisering og pasienterfaringer. Forfatterne av den danske rapporten oppga at sammensatte tiltak som omfatter både kosthold og fysisk aktivitet så ut til å gi best resultat. Samtidig oppsummerte de at det mangler opplysninger om organisering av tiltakene, hvem som bør gjennomføre dem, hvor i helsetjenesten de bør gjennomføres og med hvilken modell.

I 2018 fikk Helsedirektoratet i oppdrag å foreslå ti tiltak for å redusere sykdomsbyrden og bedre folkehelsen basert på Folkehelseinstituttets (FHIs) notat om de største folkehelseutfordringene i Norge (6). Ett av tiltakene var overvektsbehandling i primærhelsetjenesten. En revisjon av de nasjonale faglige retningslinjene vil kunne inngå i dette arbeidet. Her vil Helsedirektoratet blant annet også vurdere hvordan National Institute of Health and Care (NICE) har arbeidet med tilsvarende problemstillinger. På sin hjemmeside har NICE en liste med 18 ulike ikke-kirurgiske tiltak mot overvekt og fedme fra sin oversikt i 2011 (7).

Avgrensning og problemstilling

Helsedirektoratet har i samarbeid med Folkehelseinstituttet igangsatt en egen prosess for å kunne få raskere tilgang på relevante og oppdaterte systematiske oversikter over effekt av tiltak med en tidsramme på seks måneder. Spørsmålene skal være spissede og spesifikke. Denne systematiske kartleggingsoversikten var et unntak med svært bred spørsmålsstilling, hvor vi skulle se på innholdet i tiltakene fremfor effekten av dem. I metodekapitlet og diskusjonskapitlet vil vi gjøre rede for behovet for å endre omfanget av den første bestillingen. For disse bestillingene har vi ikke lagt vekt på omfattende innledningskapittel, diskusjonskapittel eller definisjonslister.

Vi utførte en systematisk kartleggingsoversikt med hensikt å beskrive tilgjengelig forskning om vektreduserende livsstilstiltak (av minst ett års varighet) blant voksne med overvekt eller fedme.

Metode

Vi utførte en systematisk kartleggingsoversikt i henhold til håndboken Slik oppsummerer vi forskning (8, 9). Prosjektplanen er publisert på FHIs nettsider.

Endring av presentasjonen av identifisert forskning

På bakgrunn av tilbakemeldinger fra fagfeller og oppdragsgiver i august 2020 endres presentasjonen av temaet i rapporten. I første utkast hadde vi fokus på at det dreide seg om en kartleggingsoversikt av livsstilstiltak, men som dessverre viste seg å gi en forventning om en presentasjon av effekt av tiltakene. Allikevel var planen hele tiden at vi ikke skulle inkludere effekt i denne kartleggingsoversikten. Det har vært nødvendig å endre tittel og presentasjonen av forskningen slik at det ble tydeligere at det var elementene i livsstilstiltakene vi ville belyse. Tittelen for prosjektet ble dermed endret fra: Livsstilsintervensjon alene eller i kombinasjon med legemidler hos voksne personer med overvekt eller fedme, en kartleggingsoversikt, til: Elementer i livsstilstiltak for vektreduksjon blant voksne personer med overvekt eller fedme publisert 2010 eller senere; en kartleggingsoversikt. Vi har ikke endret problemstillingen, slik at det var ikke nødvendig å endre inklusjonskriterier eller gjennomføring av søket, kun uttrekk og presentasjon av data fra studiene. Se diskusjonskapitlet for utfyllende forklaring.

Inklusjonskriterier

Populasjon:	Voksne ≥ 18 år med KMI ≥25 både med og uten følgesykdommer (diabetes 2, hjerte- og karsykdommer, osteoartrose og kreft, også angst og depresjon vil inkluderes).
Tiltak:	Livsstilsrelaterte behandlingstilbud, slik som støtte til endring av kosthold og fysisk aktivitet hvor behandlingstilbudet har som formål å redusere vekt og har en varighet på minst ett år.
Utfall:	Vekt eller vekttap slik det er målt i studien, også relative mål, men også eventuelle mål som midjemål, midje-hofte ratio, midje-høyde ratio.
Språk:	Engelsk, norsk, svensk, dansk, tysk og fransk.
Publikasjonsår:	Studier publisert i 2010 eller senere.
Studiedesign:	Ingen begrensninger, men må spesifisere vektreduksjon.

Eksklusjonskriterier:

Publikasjonstyper:	Leserinnlegg, konferansesammendrag, drøftinger av oppdatering og utforming av retningslinjer, studieprotokoll.
Pasientgrupper:	Voksne med spiseforstyrrelser, voksne med andre typer lidelser f. eks. spina fida. Barn, ungdom, gravide kvinner.
Studier:	Studier uten tiltak, f. eks. studier som kun rapporterer prevalens, studier om diagnostisering av bl.a. følgesykdommene her, vektendring ved eller rett etter fødsel, kirurgiske tiltak, overvekt/fedme som risiko for andre sykdommer enn de inkluderte, studier om risikofaktorer for overvekt/fedme, studier av trening for normalvektige, forekomst av ulike elementer i blod, lymfe etc. hos voksne med overvekt/fedme, betydning av vitaminer, sporelementer etc. for næringsopptak.
Kontekst:	Skole (omfatter barn).

Litteratursøking

En bibliotekar (GH) utviklet søkestrategien med utgangspunkt i inklusjonskriteriene, og med innspill fra prosjektgruppen. Søkene ble utført i januar 2020 i følgende databaser:

- MEDLINE (Ovid)
- PsycINFO (Ovid)

En annen bibliotekar fagfellevurderte dette arbeidet. Endelig søkestrategi er presentert i Vedlegg 1. Søkestrategi.

Denne kartleggingsoversikten har en omfattende problemstilling, og det ble besluttet å begrense søket til de to basene som ble vurdert som meste relevante, Medline (Ovid) og PsycINFO (Ovid).

Artikkelutvelging

Alle titler og sammendrag fra søket ble lagt inn i verktøyet Rayyan (10). En forfatter (HHH) gikk gjennom alle titler og sammendrag og tre andre forfattere (KTD, ED, og CH) gikk uavhengig gjennom omtrent en tredjedel hver. Forfatterne ble deretter enige om hvilke studier som skulle hentes inn i fulltekst. De samme fire forfatterne vurderte fulltekstartikler med noenlunde samme fordeling mellom seg og uavhengig av hverandre opp mot inklusjons- og eksklusjonskriterier og tok avgjørelse om inkludering eller ekskludering av studier i konsensus. Uenighet ble løst ved rådføring med en femte forfatter (GV).

Vurdering av risiko for systematiske feil i studier

Vi utførte ikke vurdering av risiko for systematiske feil i de inkluderte studiene.

Dataekstraksjon

En forfatter (HHH) hentet ut data fra alle inkluderte studier. Tre andre forfattere (KTD, ED, og CH) verifiserte uavhengig av den første forfatteren dataekstraksjonen opp mot de inkluderte studiene, omtrent en tredjedel av studiene hver.

Med bakgrunn i prosjektlplanen ble følgende data hentet ut

- Design, førsteforfatter, publiseringsår, land
- Deltakerne (antall, kjønn, alder, KMI, komorbiditet, etnisitet)
- Lisvsstilsrelatert behandlingstilbud (type tiltak, intensitet, varighet)
- Utfallsmål (måletidspunkt(er), utfall)
- Kontekst
    - Hvem gjennomførte tiltaket
    - Hvor i helsevesenet ble det gjennomført
    - Hvordan organiseres det (f. eks. individuelt tiltak, gruppetiltak, web)

I utgangspunktet ble også opplysninger om vektreduserende legemidler (dose, varighet) innhentet. Men fordi søket ikke identifiserer den relevante litteraturen på dette området på en adekvat måte, er opplysningene tatt ut av rapporten.

Uenighet ble løst ved rådføring med en femte person (GV). Oppdragsgiver godkjente at vi ikke oversatte data som vi hentet ut av studiene. Våre begrunnelser for ikke å oversette var dels tidsbruk, men hovedsakelig for å unngå risiko for feilaktig gjengivelse/oversettelse av spesifikke termer i beskrivelser av tiltakene. Data i tabellene i Vedlegg 4, 5, 6, og 7 er på engelsk.

Begreper

Med et tema så omfattende som fedme og overvekt, har det vært utfordrende å finne en måte å beskrive tiltakene på. Vårt prosjekt har hatt fokus på livstilstiltak. Livstilstiltak har vært konkretisert til tre overordnede tiltak: endring av kosthold, økning av fysisk aktivitet og arbeid med motivasjon og andre faktorer for å oppnå atferdsendring. Videre i denne rapporten vil vi kalle disse tre overordnede tiltakene for komponenter.

Innenfor hver komponent er det igjen mange mulige tiltak, som å redusere kaloriinntak, øke mengden grønnsaker, gå en tur i lunsjpausen, delta i styrketrening hver uke. Disse har vi kalt elementer. Elementene i denne rapporten er de konkrete enkelttiltakene innenfor hver komponent som deltakerne i studiene skal gjennomføre.

Analyser

Vi har ikke gjengitt effektresultater i denne kartleggingsoversikten. Vi har ikke utført analyser som f. eks. metaanalyser.

Vi presenterer resultatene av kartleggingen i tekst og tabeller. Vi har heller ikke gjennomført tekstanalyser av innholdet i tabellene, kun opptelling av kombinasjoner av komponenter og elementene i dem. På grunn av svært stort antall studier har vi valgt å presentere grupper av kjennetegn ved studiene i ulike tabeller. For å kunne vise variasjonen mellom studiene har vi ikke presentert hver studie for seg, som ville gjort sammenligning vanskelig. Samtidig ville en presentasjon av alle kjennetegnene fra alle studiene i samme tabell, blitt svært omfattende og vanskelig å lese. Vi har derfor delt presentasjonen i fire tabeller.

En person (HHH) har gjort opptellingen av komponenter og elementer i resultatkapitlet. Tidsbegreninger stoppet mulighetene for å fordele det arbeidet mellom de andre forfatterne. En redegjørelse for hvilke referanser som er inkludert i de ulike rutene i tabellene i rapporten, er derfor utelatt.

Vurdering av kvaliteten på dokumentasjonen

Vi har ikke utført vurdering av kvaliteten på dokumentasjonen.

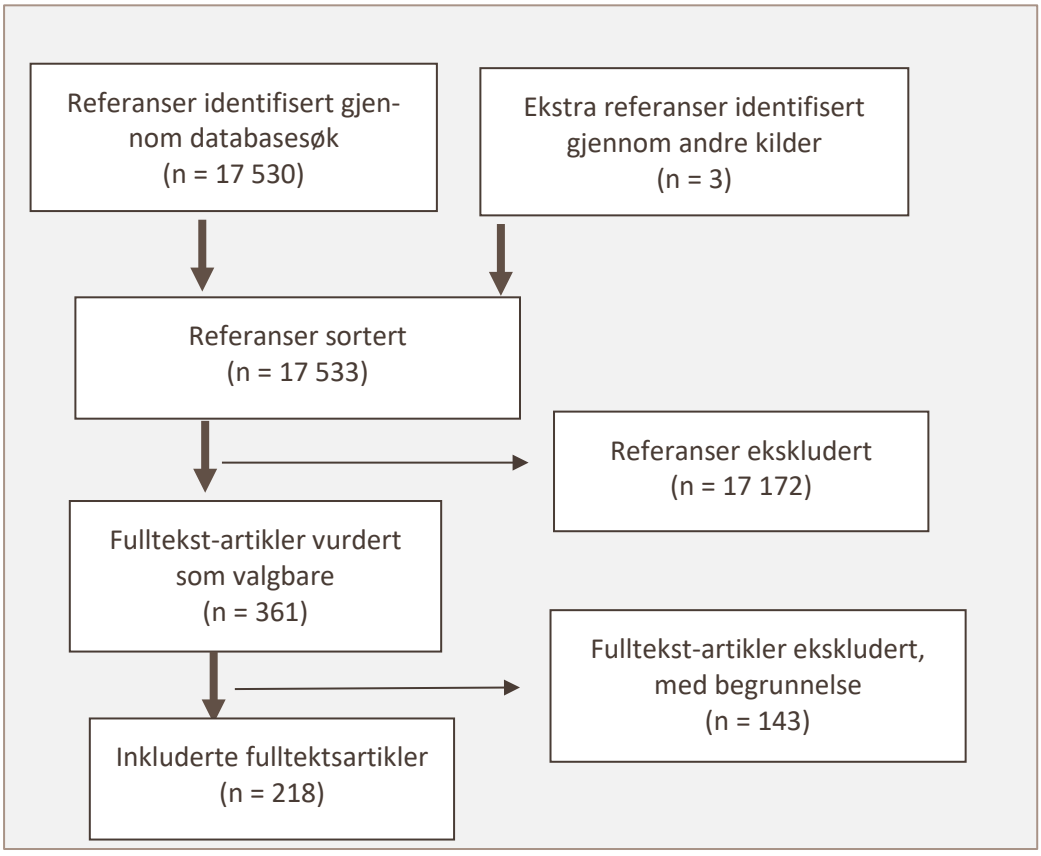
Etikk

Betraktninger om etiske problemstillinger er ikke en del av denne oversikten.

Resultater

Resultater av litteratursøket

Søket etter litteratur om livsstilstiltak for vektreduksjon i to elektroniske databaser ga 17 530 treff, og tre referanser som ble identifisert gjennom andre kilder. Søket er beskrevet i Vedlegg 1. Av disse identifiserte artiklene vurderte vi at 17 172 publikasjoner ikke var relevante. Vi hentet inn 361 publikasjoner i fulltekst og inkluderte 218, basert på inklusjonskriteriene.



Figur 1. Flytskjema over utvelging av studier.

Ekskluderte studier

Vanlige årsaker til at publikasjoner ble ekskludert var at det ikke var en empirisk primærstudie og at varigheten av tiltakene viste seg å være kortere enn 12 måneder. Oppfølgingstiden kunne være på 12 måneder eller mer, men ikke selve tiltaket. For en del studier var ikke utfallsmålet vekt, men kun f.eks. lipidnivåer eller faktorer som har vist

en sammenheng med vektreduksjon. En tabell med ekskluderte studier og grunner for eksklusjon vises i Vedlegg 2. Ekskluderte studier.

Inkluderte studier

Hovedoppgaven vår var å beskrive livsstilstiltakene for å redusere overvekt og fedme. På grunn av et svært stort antall studier har vi valgt å presentere grupper av kjennetegn ved studiene i ulike tabeller. I vedlegg 4 presenteres en oversikt over landet hvor studien er gjennomført, samt studiedesign, kontekst og profesjoner som deltok. I Vedlegg 5 presenteres deltakerne i studiene. I Vedlegg 6 presenteres studienes utfallsmål og varighet. I Vedlegg 7 har vi gitt en detaljert beskrivelse av komponentene i de ulike studiene, samt de ulike elementene som inngikk i disse, slik de ble beskrevet av forfatterne.

Vi inkluderte 218 fulltekstartikler som beskrev 165 ulike studier av livsstilstiltak som hadde som formål å redusere deltakernes vekt (Vedlegg 3. Inkluderte studier). Noen studier har mange publikasjoner. Dette gjelder særlig Look AHEAD-studien (The Action for Health in Diabetes study) hvor tiltaket ble gjennomført i tidsrommet 2001 fram til september 2012. I alt identifiserte vi 18 artikler fra dette datamaterialet. Ulike forskere har analysert grupper av deltakere med forskjellige kjennetegn, eller de har fulgt opp deltakerne på ulike tidspunkter. Tiltakene i denne studien ble bare beskrevet en gang i vedleggstabellene. For alle tiltak hvor det er publisert flere enn en artikkel er de ulike utfallene og målepunktene inkludert i opplysningene fra den eldste artikkelen fra studien.

Alle publikasjoner er listet i alfabetisk rekkefølge etter førsteforfatter i Vedlegg 4. Beskrivelse av studiene. I den samme tabellen er publikasjoner som har hatt et og samme datamateriale som utgangspunkt listet kronologisk sammen.

Av de i alt 165 studiene var 84 gjennomført i USA, 57 i Europa, 13 i Australia og 11 andre steder. I litteratursøket har vi ikke begrenset oss til et studiedesign, fordi vi ønsket å identifisere et så bredt spekter av livsstilstiltak som mulig. Allikevel er hovedmengden av studiene randomiserte kontrollerte studier (RCT; n=122). Vi identifiserte også andre typer studiedesign med kontrollgruppe (n=7), og observasjonsstudier uten kontrollgruppe (n=37).

I de følgende avsnittene oppsummerer vi studienes deltakere, varighet, samt utfall og oppfølgingstider.

Deltakere i studiene

Gjennomgående omfattet studiene relativt få deltakere. Studier med mer enn 1000 deltakere var ofte studier av tiltak i bedrifter, hvor man hadde iverksatt tiltak å få de ansatte til å gå ned i vekt. Tabell 1 viser antall deltakere i de inkluderte studiene. Tallene i Tabell 1 viser at det var 14 prosent av studiene som omfattet mer enn 500 deltakere, og halvparten av studiene omfattet under 200 deltakere.

Tabell 1. Antall studier etter deltakere.

Antall deltakere	Antall studier	Prosent
1-100	37	22
101-200	44	27
201-300	29	18
301-400	17	10
401-500	15	9
501-1000	10	6
1001-	13	8
Sum	165	100

I vårt mandat skulle vi se nærmere på deltakere med bestemte sykdommer: diabetes type 2, hjerte- og karsykdommer, osteoartrose, kreft, angst og depresjon. Vi ikke har begrenset søket i forhold til sykdom, og skulle dermed fange opp alle studier uansett hvilke sykdommer som ble studert. Allikevel er det få studier har rapportert sykdommer hos deltakerne, eller spesifikt undersøkt pasienter med en gitt diagnose. Det var ofte rapportert at deltakerne var friske voksne med overvekt og fedme uten følgesykdommer eller andre sykdommer. Av de 60 studiene som har oppgitt diagnose for deltakerne, var det oftest deltakere med diagnosene pre-diabetes og type-2 diabetes, henholdsvis seks og 13 studier. Se Vedlegg 5. Beskrivelse av deltakerne for ytterligere dataljer.

Utfall og varighet av studiene

Forutsetningen for inklusjon i denne kartleggingsoversikten var at forskerne hadde vekt som utfallsmål. Som Vedlegg 6. Beskrivelse av måletidspunkt og utfall viser, har en stor andel av studiene også målt faktorer som påvirker helse, som kolesterol og blodtrykk. Studier av livsstilstiltak for vektreduksjon hvor man kun hadde andre utfallsmål enn vekt, er ekskludert i henhold til prosjektplanen.

Siden man kan anta at deltakere i tiltak som varer lenge oftere vil kunne oppnå vektreduksjon som kan opprettholdes etter at tiltaket avsluttes, skulle vi kun inkludere studier hvor tiltaket varte i 12 måneder eller mer. Halvparten av studiene målte resultatet ved avslutning av tiltaket etter ett år (52 %). Effekter av intervensjonene ble målt etter ett til to år i 36% av studiene og mer enn to år i 12% av studiene.

Profesjoner som deltok i tiltakene

Hovedfokus for de fleste studiene var tiltak for endring av kostholdet. Dette gjenspeilet seg også i hvilke profesjoner som deltok i tiltakene. I Tabell 2 viser vi kombinasjoner av

profesjoner som var oppgitt i artiklene. I 70 prosent av studiene har kliniske ernæringsfysiologer deltatt. Selv om en stor andel av artiklene oppgir mange profesjoner, kan vi ikke si noe om hvorvidt tiltaket har inkludert tverrfaglig samarbeid. For noen av studiene, også de store studiene, var det ikke beskrevet hvilke profesjoner som deltok.

Tabell 2. Profesjoner som deltok i tiltakene.

Profesjoner	Antall studier	Prosent
Kun klinisk ernæringsfysiolog	26	22
Klinisk ernæringsfysiolog og fysioterapeut	8	7
Andre profesjoner og klinisk ernæringsfysiolog	50	42
Andre profesjoner, ikke klinisk ernæringsfysiolog	35	29
Sum	119	100

Beskrivelse av tiltak for å redusere vekt

Formålet med denne kartleggingsoversikten var å beskrive tiltak for å redusere vekt hos voksne med overvekt og fedme. Vi presenterer først de tre hovekomponentene innenfor tiltak for å fremme vektdreduksjon ved endring av livsstil: endring av kosthold, økning av fysisk aktivitet eller psykologisk veiledning for å endre atferd og øke motivasjon for å gjennomføre endringer i levevaner og kombinasjoner av dem. Deretter gir vi en oversikt over noen elementer i hver av disse komponentene.

Komponenter i tiltak for å fremme vektreduksjon ved endring av livsstil

Vi definerte i prosjektplanen at et livsstilstiltak for å oppnå vektreduksjon skal bestå av en eller flere av følgende komponenter: endring av kosthold, økning av fysisk aktivitet eller psykologisk veiledning. Tabell 3 viser i hvilken grad studiene har omfattet en eller flere av komponentene nevnt ovenfor. I Vedlegg 7. Beskrivelse av tiltakene presenterer vi de ulike tiltakene som er studert, slik de var beskrevet i artiklene. Tiltakene kan være noe forskjellig beskrevet i ulike artikler fra samme studie. I disse tilfellene har vi presentert kun en beskrivelse i vedleggstabellen.

Psykologisk veiedning har hatt som forutsetning at veiledningen skulle inneha komponenter rettet mot å endre deltakerens atferd. Kun råd om f. eks. kosthold, fysisk aktivitet, utdeling av forslag til meny, eller hvordan man teller kalorier, vil ikke bli beskrevet som psykologisk veiledning. Egne møter med noen av de som gjennomførte studien, individuelt eller i gruppe, hvor man diskuterte hva som trigget atferd forbundet med overspising vil bli beskrevet som psykologisk veiledning. Likeså hvordan man kunne kartlegge egne reaksjoner og omfang av inntak, eller hvordan man kunne bruke en oversikt over kaloriinntak. Hvis det angis en teoretisk retning studien er gjennomført i

henhold til, f eks motiverende samtale eller kognitiv atferdsterapi, vil dette inngå som psykologisk veiledning.

Tabell 3: Komponenter i tiltakene i de inkluderte studiene.

Komponent	Antall	Prosent
Kun tiltak for økning av fysisk aktivitet	1	0,5
Tiltak for økning av fysisk aktivitet, og psykologisk veiledning	3	2
Kun tiltak for endring av kosthold	19	12
Tiltak for endring av kosthold og fysisk aktivitet	47	29,5
Tiltak for endring av kosthold og fysisk aktivitet, og psykologisk veiledning	74	46
Tiltak for endring av kosthold, og psykologisk veiledning	9	5,5
Kun psykologisk veiledning	7	4,5
Sum	160	100

Tabell 3 viser at de identifiserte studiene med livsstilstiltak for vektreduksjon publisert i perioden 2010-2020 i stor grad omfatter en kombinasjon av de tre komponentene vi har definert som mulige livsstilstiltak. Kun 17 prosent av studiene har fokusert på en enkelt av komponentene. Nesten halvparten av de inkluderte studiene (46 %) omfattet tiltak bestående av alle tre komponenter. Selv med de begrensningene som ligger i vårt litteratursøk, viser denne kartleggingen at det har vært en omfattende forskning på flere ulike komponenter som kan påvirke vektreduksjon hos voksne.

Flere av disse studiene omfattet flere faser. For eksempel kunne man først ha en inklusjonsfase hvor det ble redegjort for tiltaket og forventninger ble avklart, etterfulgt av en mer aktiv fase hvor målet var vektreduksjon. Deretter kunne det være en fase hvor forskerne ønsket å stabilisere vekten etter oppnådd vektreduksjon, og til sist en fase hvor de ulike komponentene skulle overføres til deltakernes daglige liv. At alle disse fasene kan være ulike med hensyn på innhold og av ulik varighet, kompliserer bildet av tiltakene ytterligere.

Elementer i tiltak for endring i kosthold

Kompleksiteten i tiltakene for endring i deltakernes kosthold ble tydelig når vi forsøkte å se nærmere på hvilke elementer de ulike studiene hadde fokusert på. Noen studier fokuserte kun på å redusere kalorimengden deltakerne inntok. Ofte innebar dette at man anbefalte deltakeren å redusere kaloriinntaket med 500 kcal/dag, uten at det ble oppgitt at dette skulle knyttes til spesifikke matvarer. I andre studier fikk deltakerne råd om å redusere kaloriinntaket, i tillegg til råd om å endre sammensetningen av matva-

rene, f. eks. ved å introdusere mer frukt og grønnsaker, eller at forholdet mellom protein og fett i kosten skulle endres. Kun fire studier så nærmere på inntak av ulike matvarer, uten at det var begrensning i antallet kalorier deltakerne inntok.

Diettene som beskrives i studiene kunne variere i mengde protein (15-40%), fett (15-45%) og karbohydrater, tilskudd av fiber, mengde vegetabilske matvarer, og karbohydrater med ulik glykemisk indeks. Vedlegg 7, kolonnen kosthold, viser de konkrete valgene forskerne har gjort med diettene. I opptellingen i Tabell 4 nedenfor har vi ikke gått nærmere inn på hvilke elementer som var valgt, kun om det var et ønske fra forskernes side om å påvirke hvilke matvarer deltakerne spiste, ikke bare hvor mange kalorier. Hvis det var beskrevet at forskerne har anbefalt sunne matvarer, har de blitt kategorisert som endring av matvarer.

Elementer i tiltak for økning av fysisk aktivitet

Tilsvarende har vi sett på hvilke anbefalinger deltakerne fikk for å øke fysisk aktivitet. I mange studier var det en anbefaling om at deltakerne i løpet av intervensjonsperioden skulle nå 150 minutters gange i uka, for så muligens å opprettholde dette nivået videre, eller kanskje øke ytterligere til 180 minutter. Andre studier omfattet besøk på treningsstudio eller gjennomgang av tilpassede øvelser med en fysioterapeut. Vi har vurdert det som en viktig forskjell om deltakerne fikk tilbud om organisert trening eller om de kun ble anbefalt å være mer aktive i hverdagen, uten spesifikk tilpasning.

Tabell 4 nedenfor viser at det i langt flere studier ble gitt råd om økt fysisk aktivitet uten at intervensjonen inkluderte organisert trening. De rådene som oftest ble gitt var å øke daglig aktivitet, ved for eksempel å gå en tur i lunsjpausen, eller å sette mål om å oppnå et gitt antall skritt pr dag, eller en tidsramme per uke hvor man burde være fysisk aktiv, f. eks. ved å gå. I studiene som inkluderte organsiert trening vektla omtrent halvparten av studiene endring av kostholdet, ikke bare reduksjon i antallet kalorier, mens i studiene uten organisert trening vektla over 90 prosent endring av kosthold i tillegg.

Tabell 4. Elementer i kosthold og fysisk aktivitet

	Tiltak for økning av fysisk aktivitet, organisert eller på egenhånd			
Tiltak for endring av kosthold	Organisert trening	Trening på egenhånd	Ikke oppgitt	Sum
Kun reduksjon i kalorier	5	18	2	25
Reduksjon i kalorier i kombinasjon med råd om matvarer	24	47	15	86
Reduksjon i kalorier i kombinasjon med fordeling mellom protein, fett og karbohydrater	7	12	7	26
Ingen reduksjon i kalorier	1	1	3	5

Ikke oppgitt	4	5	14	23
Sum	41	83	41	165

Diskusjon

Hovedfunn

Hovedfunnene fra den systematiske kartleggingen

Antall studier og deltakere

Vi identifiserte 218 fulltekstartikler som beskrev 165 studier. Studiene presenterer et svært bredt spekter av mulige måter å arbeide med vektreduksjon blant voksne med overvekt og fedme. Halvparten av studiene omfattet under 200 deltakere.

Deltakere

Mange voksne med overvekt eller fedme får sykdommer som ofte omtales som følgesykdommer, diabetes type 2, hjerte- og karsykdommer, osteoartrose, kreft, angst og depresjon. Vi har hentet ut opplysninger fra studiene om hvilke sykdommer deltakerne har hatt, og ikke funnet at studiene har hatt fokus på slike sykdommer. Hovedmengden av studiene har ekskludert voksne med en lang rekke sykdommer, også de sykdommene som her er betegnet som fedmrerelaterte følgesykdommer. Populasjonen i studiene i denne kartleggingsoversikten fremstår dermed som friskere enn en gjennomsnittlig populasjon av personer med overvekt og fedme.

Kombinasjoner av komponenter

Publikasjonene omfattet studier hvor minst en av tre mulige komponenter i et livsstilstiltak for å redusere vekt hos deltakerne, var beskrevet. Komponentene var endret kosthold, økt fysisk aktivitet og psykologisk veiledning for å øke motivasjon og gjennomføring av endring av kosthold og fysisk aktivitet. I en liten andel av studiene, 17 prosent, inngikk kun en av komponentene. I hovedmengden av studiene, 46 prosent, inngikk alle de tre komponentene. Resten av studiene omfattet to av komponentene. Endring av kosthold inngikk i 93 prosent av studiene, enten alene, eller i ulike kombinasjoner med de to andre komponentene.

Profesjoner som deltok

At de gjennomførte studiene har hatt et spesielt fokus på tiltak for endring av kosthold, fremgikk også når vi så på hvilke profesjoner som ble nevnt. Kliniske ernæringsfysiologer inngikk, alene eller sammen med andre profesjoner, i to tredjedeler av studiene som rapporterte profesjon. Kompleksiteten i studiene ble understreket av det store spennet av profesjoner som deltok; allmennleger, indremedisinere, sykepleiere og psykologer, i tillegg til kliniske ernæringsfysiologer og fysioterapeuter. Under en tredjedel av studiene rapporterte ikke at en klinisk ernæringsfysiolog deltok i tiltaket, uten at vi

kan si at det betyr at de ikke har deltatt. Det er vanskelig å lese ut av publikasjonene hvilke profesjoner som har deltatt i både i utviklingen og i gjennomføringen av de ulike tiltakene. Selv om mange profesjoner deltok kan vi ikke slutte at de arbeidet tverrfaglig.

Elementer i de ulike komponentene

Hver komponent kunne bestå av et stort spekter av mulige elementer, som igjen ble kombinert på mange forskjellige måter. Innen kosthold var slike elementer ulike grader av kalorireduksjon, variasjon av mengde protein, fett og karbohydrater, men også anbefaling om spesifikke matvarer som økning av inntak av grønnsaker. Reduksjon av kaloriinntak var det vanligste elementet i tiltakene (137/165 studier). Reduksjon i antall kalorier ble kombinert med i) råd om matvarer (50 %), ii) en spesifikk fordeling mellom protein, fett og karbohydrater i kosten (25 %), iii) kun reduksjon i antall kalorier inntatt daglig (25 %).

Innenfor komponenten fysisk aktivitet kunne studiene ha med organisert trening eller anbefalinger om trening på egenhånd. Flere studier hadde kombinasjoner av styrketrening med utholdenhetstrening, eller økning av antall minutter man gikk hver uke. Tiltak for økt fysisk aktivitet inngikk i 124 studier, 2/3 av disse inkluderte anbefalinger om å trene på egenhånd, mens 1/3 inkluderte organisert trening for deltakerne.

Psykologisk veiledning kunne skje individuelt, i gruppe, i kombinasjon, og etter ulike teoretiske tilnærminger. En kombinasjon av endring av kosthold og økt fysisk aktivitet, med eller uten psykologisk veiledning ble studert i 115 studier. Råd om reduksjon i antall kalorier i kombinasjon med råd om matvarer sammen med fysisk aktivitet uten veiledning inngikk i 47 av disse studiene.

Vårt fokus har vært å beskrive elementene i livsstilstiltak som inngikk i studier publisert i 2010 eller senere. Kompleksiteten med mange kombinasjoner av komponenter og av mange mulige elementer i hver komponent, gjør feltet svært utfordrende.

Skjevheter i oppsummeringsprosessen

Presentasjon

Når antallet studier i en kartleggingsoversikt er så stort som i denne, er det også mange måter å presentere materialet på. Med de tidsrammene vi har hatt, har vi valgt en presentasjonsform med hovedvekt på presentasjon i tabeller.

Ved å presentere elementene i studiene i omfattende vedleggstabeller, har vi gjort det mulig for alle lesere å selv vurdere hvilke elementer i de gjennomførte studiene de ønsker å se nærmere på. Selv om vi har talt opp kombinasjoner av komponenter og elementer, er dette en svært kompleks vurdering. Antagelig ville andre personer vurdert enkelte elementer annerledes. Allikevel viser vår opptelling den store kompleksiteten og det enorme omfanget av feltet. Denne kartleggingsoversikten vil dermed kunne gi grunnlag for fremtidig beslutninger om forskning på vektreduksjon.

Identifisering av litteratur

På grunn av ressursbegrensninger i prosjektet og et omfattende forskningsområde, måtte vi ta noen valg for å få et håndterlig søkeresultat. Den brede problemstillingen førte til at vi valgte å søke bredt etter litteratur på et overordnet nivå. Etter diskusjon med oppdragsgiver og innad i prosjektgruppen valgte vi å søke kun i de to databasene som vi anså som mest relevante, selv om vi risikerte å miste studier på tiltak som kan være aktuelle.

På bakgrunn av et utkast til rapporten fra denne kartleggingsoversikten påpekte fagfellene utfordringer med problemstillingen. Men de påpekte også at det manglet litteratur som gjorde at problemstillingen om bruk av vektreduserende legemidler i kombinasjon med livsstilstiltak ikke ble belyst. Heller ikke litteratur som belyste tiltak i primærhelsetjenesten var tilfredsstillende identifisert. Begge temaene var inkludert i den opprinnelige bestillingen. Det alltid en fare for at vi har gått glipp av relevante studier uansett hvor mange kilder vi bruker og hvor omfattende litteratursøket vi har gjennomført er.

Når vi undersøkte hvorfor vi har mistet den konkrete litteraturen som fagfellene påpekte, viste det seg at disse studiene har brukt andre termer for fedme, overvekt og livsstilstiltak enn vi hadde gjort i vårt litteratursøk, som er dokumentert i vedlegg 1. I denne konkrete kartleggingsoversikten viste det seg at vi hadde gått glipp av relevant litteratur fordi vi manglet ytterligere begreper for å identifisere personer med overvekt og fedme, og livsstilstiltak. En del relevant litteratur bruker ikke begrepene overvekt og/eller fedme, men bruker den tekniske termen BMI ≥ x. I noe litteratur utelates begrepet helt fordi tiltaket kun gis til denne gruppen personer, og trenger derfor ikke beskrives.

Endring av presentasjonen av identifisert forskning

Bestillingen vi mottok fra Helsedirektoratet 1. oktober 2019 lød: «Effekt av helseatferd/ strukturert livsstilsintervensjon alene og i kombinasjon med medikamenter i helsetjenesten hos voksne personer med overvekt og/eller fedme, med og uten komorbiditet». Etter ytterligere klargjøring og avgrensinger sammen med oppdragsgiver pga utfordringer med over 60 000 identifiserte referanser, endret oppdragsgiver bestillingen til: "… et systematisk oversiktskart over livsstilsintervensjoner (inkludert samtidig bruk av vektreduserende legemidler) for å behandle overvekt og fedme. I tillegg ønskes det at vi beskriver hvordan samhandling omkring livsstilsintervensjonene mellom tjenester og nivåer er er utført i de identifiserte studiene».

Et utkast til denne kartleggingsoversikten ble sendt fire fagfeller i juni 2020 med frist 10. august 2020. Hovedinntrykket fra tilbakemeldingene fra både interne og eksterne fagfeller, var at tittel og presentasjon virket villledende, da rapporten ikke omfattet effekt av studiene. Prosjektene fra Helsedirektoratet har en tidsramme på 4-5 måneder. I dette prosjektet hadde vi allerede brukt mer enn avsatt tid og ressurser. Innenfor dette prosjektet var det derfor ikke aktuelt å gjennomføre nye litteratursøk for å identifisere

ytterligere litteratur. Vi har heller ikke hatt ressurser til å avklare hvor stor del av litteraturen vi har mistet, fordi å avklare hvor ofte de termene vi mangler er brukt, vil være en utfordrende oppgave.

I utgangspunktet ble også opplysninger om vektreduserende legemidler (dose, varighet) innhentet. Fagfellenes kommentarer viste at søket ikke har identifisert den relevante litteraturen på en adekvat måte, derfor er opplysningene tatt ut av rapporten.

Fagfellenes kommentarer gjør at vi avslutter dette prosjektet med denne rapporten som har fokus på å presentere det viktige arbeidet som er gjort med å identifisere elementer i de identifiserte studiene av livsstilstiltak for vektreduksjon blant voksne personer med fedme og overvekt. For selv om det antagelig finnes ytterligere elementer i de komponentene vi har inkludert, viser dette arbeidet den enorme variasjonen og antall kombinasjoner av elementer innenfor dette feltet.

Dermed endret vi presentasjonen av forskningen inkludert i rapporten i tråd med det som faktisk var mulig å gjennomføre innenfor rammene for prosjektet og som allikevel gir en viktig innsikt i forskningen på tiltak for reduksjon av vekt hos personer med overvekt og fedme. Den nye rapporttittelen ble dermed: «Elementer i livsstilstiltak for vektreduksjon blant voksne personer med overvekt eller fedme; en kartleggingsoversikt».

Videre arbeid med utgangspunkt i våre erfaringer

Utfordringene som har oppstått i utarbeidelsen av denne systematiske kartleggingsoversikter er utfordringer som sannsynligvis kan oppstå i arbeidet med andre omfattende forskningsområder. Med tanke på at det ofte også er et spørsmål om ressurser, synliggjør dette prosjektet at man ofte må ta beslutninger som gjør at man ikke identifiserer all litteratur som kan være aktuell for oppdragsgiver.

De utfordringene vi har identifisert i å gjennomføre selve litteratursøket på dette svært komplekse feltet tyder på at man på dette feltet ikke kan arbeide med generelle litteratursøk. Feltet fremstår som så stort og komplekst at problemstillingene må spesifiseres i forhold til de enkelte elementene i komponentene, og ikke i overordnede begreper som fedme, overvekt, diett, fysisk aktivitet eller livsstilstiltak.

Vårt arbeid har avdekket at innenfor noen felt av dette forskningsområdet bruker ikke forfatterne begrepene fedme eller overvekt, fordi det er kun denne gruppen personer som får tiltaket. Andre forfattere bruker en teknisk beskrivelse. Videre arbeid på dette feltet må spesifisere hvilke elementer man ønsker å undersøke videre.

Også i forhold til livsstilstiltak viste det seg å være en utfordring å identifisere alle. Mens vi ønsket å foksere på komponentene endring av kosthold, økning av fysisk aktivitet og psykologisk veiledning, bruker noen forfattere overordnede begreper som i større eller mindre grad omfatter et eller flere av begrepene vi inkluderte i livsstilstiltak.

Dessverre kan vi ikke belyse bruk av vektreduserende legemidler sammen med livsstilstiltak med vårt litteratursøk. Noen av de legemidlene som har vært brukt i de identifiserte studiene er ikke er godkjent for bruk i Norge. Det bør gjennomføres et prosjekt avgrenset til vektreduserende legemidler godkjent for bruk i Norge sammen med livsstilstiltak. Heller ikke hvilke tiltak som brukes i primærhelsetjenesten har vi kunnet belyse. Også for denne problemstillingen bør det gjennomføres et eget prosjekt.

En betydelig andel av voksne med overvekt og fedme har følgesykdommer eller andre sykdommer i tillegg. De er i liten grad dekket i studiene vi har identifisert. Igjen kan begrensningene i vårt litteratursøk gjøre at vi ikke har identifisert relevant litteratur. Det bør gjøres et spesifikt søk etter litteratur på en eller flere av disse diagnosene for å kunne belyse relevante problemstillinger. En mulig forklaring på hvorfor vi ikke har fanget opp denne litteraturen, er at man i studiene har fokusert på sykdommen. Da er det ikke sikkert man har oppgitt at dette var personer med fedme eller overvekt i tittel og sammendrag.

I denne kartleggingsoversikten har vi vist at studiene av komponentene, endring av kosthold, økning av fysisk aktivitet og psykologisk veiledning, er svært mange og varierte. Mange av studiene har faser av ulik lengde hvor det fokuseres på ulike komponenter. Et fremtidig prosjekt kan være å se spesifikt på ulik varighet av de forskjellige fasene, for å belyse tidsfaktorens betydning.

Gjennom dette arbeidet har vi savnet å kunne se tiltak i sammenheng med faktorer som påvirker hvordan endring av kosthold og fysisk aktivitet kan opprettholdes etter at tiltaket er avsluttet (adherence). Vi mener det er nødvendig å skaffe en oversikt over studier som ser på dette samlet.

Konklusjon

Livsstilstiltakene i de 165 identifiserte studiene omfattet et stort antall elementer og disse har vært kombinert på mange måter. Fremtidig forskning må beskrive kombinasjoner av elementer presist.

Referanser

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4. Felleskatalogen https://www.felleskatalogen.no/medisin/pasienter/pil-metformin-orifarm-orifarm-generics-587688

5. Martin HM, Nielsen A: Livsstilsbehandling af overvegt og fedme. En litteraturstudie. Dansk Sundhetsinstitutt. April 2012 ISBN 978-87-7488-714-0 file:///H:/Fedme,%20kartlegging/DK%20Helle%20Max%20Martin%20april%202012.pdf

6. FHI notat 10.08.2018 Ti store folkehelseutfordringer i Norge. Hva sier analyse av sykdomsbyrde? https://www.fhi.no/globalassets/dokumenterfiler/rapporter/2019/ti-store-folkehelseutfordringer-notat-2019.pdf

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8. Folkehelseinstituttet. Slik oppsummerer vi forskning. Håndbok for Folkehelseinstituttet. Oslo: Folkehelseinstituttet; 2015.

9. Arksey H, O'Malley L: Scoping studies: towards a methodological framework. Int J Soc Res Methodol. 2005:8;19-32.

10. https://rayyan.qcri.org/welcome

Vedlegg

1. Søkestrategi

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) <1946 to January 16, 2020>
Search date: 2020-01-17

1 exp Overweight/ (212228)
2 (obes* or overweight* or over-weight*).ti. (125956)
3 1 or 2 [OVERVEKT OR FEDME] (233007)
4 exp Lifestyle/ (90224)
5 Health Behavior/ (48647)
6 (life style* or lifestyle*).ti,ab,kf,kw. (106620)
7 exp Diet/ (272969)
8 exp Feeding Behavior/ (166109)
9 exp Food Habits/ (166109)
10 exp Diet Therapy/ (53266)
11 ((feeding or eating or health) adj2 behavio?r).ti,ab,kf,kw. (37451)
12 ((food or eating) adj2 (preference* or habit* or attitude*)).ti,ab,kf,kw. (13417)
13 diet*.ti,ab,kf,kw. (557106)
14 exp Exercise/ (188051)
15 exp Motor Activity/ (282223)
16 exp Running/ (19665)
17 exp Jogging/ (803)
18 exp Swimming/ (24068)
19 exp Walking/ (52260)
20 exp Physical Exertion/ (56125)
21 exp Physical Fitness/ (28782)
22 exp Exercise Therapy/ (48780)
23 exp Physical Endurance/ (32766)
24 ((physical or motor or aerobic) adj2 (capacity or perform* or activ* or training or exertion or endurance)).ti,ab,kf,kw. (174075)
25 (exercis* or running or jogging or swimming or walk* or dancing).ti,ab,kf,kw. (455153)
26 (exercis* or physical activ*).ti,ab,kf,kw. (372044)
27 dancing/ (2800)
28 (yoga or pilates or climbing or physical conditioning or motion therap* or strength program* or weight lifting or weight bearing or power lifting or muscle strengthening or gymnastics or aerobics or workout or work-out).ti,ab,kf,kw. (34652)
29 or/4-28 [LIVSSTIL] (1592868)
30 body weight changes/ or weight gain/ or weight loss/ (64037)
31 ((bodyweight or weight) adj3 (gain* or loss* or lose or losing or reduc* or chang* or increas* or decreas* or control*)).ti,ab,kf,kw. (236764)
32 or/30-31 [VEKTREDUKSJON] (254110)
33 3 and 29 and 32 (30820)

34 limit 33 to yr="2010 -Current" (18404)
35 Animals/ not (Animals/ and Humans/) (4632326)
36 34 not 35 (15088)

Database: PsycINFO <1806 to January Week 1 2020>
Search date: 2020-01-17
1 exp overweight/ (25145)
2 (obes* or overweight* or over-weight*).ti,ab. (42092)
3 1 or 2 [FEDME] (43496)
4 exp lifestyle/ (11521)
5 health behavior/ (27325)
6 (life style* or lifestyle* or health behavior or health behaviour).ti,ab. (37206)
7 exp diets/ (16629)
8 food intake/ (14368)
9 eating behavior/ (12528)
10 ((feeding or eating) adj2 behavio?r).ti,ab. (8439)
11 ((food or eating) adj2 (preference* or habit*)).ti,ab. (4370)
12 diet*.ti,ab. (41287)
13 exp exercise/ (25528)
14 running/ (1890)
15 swimming/ (1734)
16 walking/ (5269)
17 physical activity/ (18973)
18 physical fitness/ (4190)
19 dance/ (2216)
20 ((physical or motor or aerobic) adj2 (capacity or perform* or activ* or training or exertion or endurance)).ti,ab. (53922)
21 (exercis* or running or jogging or swimming or walk* or dancing or exercis* or (physical* adj2 activ*)).ti,ab. (131685)
22 exp physical endurance/ (2151)
23 (yoga or pilates or climbing or physical conditioning or motion therap* or strength program* or weight lifting or weight bearing or power lifting or muscle strengthening or gymnastics or aerobics or workout or work-out).ti,ab. (7073)
24 or/4-23 [LIVSSTIL] (261204)
25 weight loss/ (3617)
26 Weight Gain/ (3022)
27 weight control/ (4845)
28 ((weight or bodyweight) adj3 (gain* or loss* or lose or losing or reduc* or chang* or increas* or decreas*or control*)).ti,ab. (27654)
29 or/25-28 [VEKTREDUKSJON] (29596)
30 3 and 24 and 29 (7715)
31 limit 30 to yr="2010 - 2021" (4409)

2. Ekskluderte studier

Vedleggstabell 2. Ekskluderte studier

Referanse	Eksklusjons-grunn
Ahlgren C, Hammarstrom A, Sandberg S, Lindahl B, Olsson T, Larsson C, et al. Engagement in New Dietary Habits-Obese Women's Experiences from Participating in a 2-Year Diet Intervention. International Journal of Behavioral Medicine. 2016;23(1):84-93.	Måler ikke vekt
Annesi JJ. Exercise Predicts Long-Term Weight Loss in Women With Class 1 and Class 2 Obesity Through Effects on Emotional Eating and its Correlates. Journal of Physical Activity & Health. 2018;15(1):57-63.	Ikke 12 mnd
Annesi JJ. Moderation of psychological factors in the relationship of increased fruit and vegetable intake with reductions in other food groups and weight in obese women. Minerva Psichiatrica. 2018;59(1):1-9.	Annen grunn Ikke innhentet
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. [Review]. 2014;1(6):815-27.	Feil populasjon
Barte JC, Veldwijk J, Teixeira PJ, Sacks FM, Bemelmans WJ. Differences in weight loss across different BMI classes: a meta-analysis of the effects of interventions with diet and exercise. [Review]. 2014;1(5):784-93.	Ikke studie
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.	Ikke primærstudie
Batsis JA, Gill LE, Masutani RK, Adachi-Mejia AM, Blunt HB, Bagley PJ, et al. Weight Loss Interventions in Older Adults with Obesity: A Systematic Review of Randomized Controllled Trials Since 2005. Journal of the American Geriatrics Society. 2017;65(2):257-68.	Ikke studie
Belalcazar LM, Lang W, Haffner SM, Schwenke DC, Kriska A, Balasubramanyam A, et al. Improving Adiponectin Levels in Individuals With Diabetes and Obesity: Insights From Look AHEAD. Diabetes Care. 2015;38(8):1544-50.	Måler ikke vekt
Beleigoli AM, Andrade AQ, Cancado AG, Paulo MN, Diniz MFH, Ribeiro AL. Web-Based Digital Health Interventions for Weight Loss and Lifestyle Habit Changes in Overweight and Obese Adults: Systematic Review and Meta-Analysis. Journal of Medical Internet Research. 2019;21(1):e298.	Ikke studie

Bennett GG, Steinberg D, Askew S, Levine E, Foley P, Batch BC, et al. Effectiveness of an App and Provider Counseling for Obesity Treatment in Primary Care. American Journal of Preventive Medicine. 2018;55(6):777-86.	Ikke vektreduksjon
Booth HP, Prevost TA, Wright AJ, Gulliford MC. Effectiveness of behavioural weight loss interventions delivered in a primary care setting: A systematic review and meta-analysis. Family Practice. 2014;31(6):643-53.	Ikke studie
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. Applied Psychology: Health and Well-Being. 2018;10(1):62-86.	Ikke studie
Brautigam-Ewe M, Lydell M, Mansson J, Johansson G, Hildingh C. Dietary advice on prescription: experiences with a weight reduction programme. Journal of Clinical Nursing. 2017;26(5):795-804.	Måler ikke vekt
Brinkworth GD, Buckley JD, Noakes M, Clifton PM. Renal function following long-term weight loss in individuals with abdominal obesity on a very-low-carbohydrate diet vs high-carbohydrate diet. Journal of the American Dietetic Association. 2010;110(4):633-8.	Ikke studie, primær
Brockmeyer T, Hamze Sinno M, Skunde M, Wu M, Woehning A, Rudofsky G, et al. Inhibitory Control and Hedonic Response towards Food Interactively Predict Success in a Weight Loss Programme for Adults with Obesity. Obesity Facts. 2016;9(5):299-309.	Ikke vektreduksjon
Bueno NB, de Melo IS, de Oliveira SL, da Rocha Ataide T. Very-low-carbohydrate ketogenic diet v. low-fat diet for long-term weight loss: a meta-analysis of randomised controlled trials. British Journal of Nutrition. 2013;110(7):1178-87.	Ikke intervensjon
Cai X, Qiu SH, Yin H, Sun ZL, Ju CP, Zugel M, et al. Pedometer intervention and weight loss in overweight and obese adults with Type 2 diabetes: a meta-analysis. Diabetic Medicine. 2016;33(8):1035-44.	Ikke studie
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: An International Journal Devoted to Practice and Theory. 2012;54(1):50-4.	Måler ikke vekt
Carriere K, Khoury B, Gunak MM, Knauper B. Mindfulness-based interventions for weight loss: a systematic review and meta-analysis. Obesity Reviews. 2018;19(2):164-77.	Ikke studie
Chao AM, Wadden TA, Gorin AA, Shaw Tronieri J, Pearl RL, Bakizada ZM, et al. Binge eating and weight loss outcomes in individuals with type 2 diabetes: 4-year results from the Look AHEAD Study. Obesity. 2017;25(11):1830-7.	Feil populasjon

Cheng CC, Hsu CY, Liu JF. Effects of dietary and exercise intervention on weight loss and body composition in obese postmenopausal women: a systematic review and meta-analysis. Menopause. 2018;25(7):772-82.	Ikke studie
Clifton PM, Condo D, Keogh JB. Long term weight maintenance after advice to consume low carbohydrate, higher protein diets—a systematic review and meta analysis. Nutrition Metabolism & Cardiovascular Diseases. 2014;24(3):224-35.	Ikke studie
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.	Ikke studie
Coupe N, Peters S, Rhodes S, Cotterill S. The effect of commitment-making on weight loss and behaviour change in adults with obesity/overweight; a systematic review. BMC Public Health. 2019;19(1):816.	Ikke studie
Dandanell S, Skovborg C, Praest CB, Kristensen KB, Nielsen MG, Lionett S, et al. Maintaining a clinical weight loss after intensive lifestyle intervention is the key to cardiometabolic health. Obesity Research & Clinical Practice. 2017;11(4):489-98.	Ikke 12 mnd
De Feo P, Fatone C, Burani P, Piana N, Pazzagli C, Battistini D, et al. An innovative model for changing the lifestyles of persons with obesity and/or Type 2 diabetes mellitus. Journal of Endocrinological Investigation. 2011;34(10):e349-54.	Ikke studie
de Jonge L, Bray GA, Smith SR, Ryan DH, de Souza RJ, Loria CM, et al. Effect of diet composition and weight loss on resting energy expenditure in the POUNDS LOST study. Obesity. 2012;20(12):2384-9.	Måler ikke vekt
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. 2014;1(16):2522-34.	Feil diagnose
DiNatale E. Predicting treatment success: Assessing theoretically-driven constructs that impact the management of type 2 diabetes mellitus among African American women in a novel peer-delivered small changes treatment approach. Dissertation Abstracts International: Section B: The Sciences and Engineering. 2015;76(2):No Pagination Specified.	Annen grunn Ikke innhentet
Dombrowski SU, Sniehotta FF, Avenell A, Johnston M, MacLennan G, Araujo-Soares V. Identifying active ingredients in complex behavioural interventions for obese adults with obesity-related co-morbidities or additional risk factors for co-morbidities: A systematic review. Health Psychology Review. 2012;6(1):7-32.	Ikke studie
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.	Ikke studie

Drieling RL, Ma J, Stafford RS. Evaluating clinic and community-based lifestyle interventions for obesity reduction in a low-income Latino neighborhood: Vivamos Activos Fair Oaks Program. BMC Public Health. 2011;11:98.	Ikke studie
Duggan C, Tapsoba Jde D, Wang CY, 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.	Måler ikke vekt
Flodgren G, Goncalves-Bradley DC, Summerbell CD. Interventions to change the behaviour of health professionals and the organisation of care to promote weight reduction in children and adults with overweight or obesity. Cochrane Database of Systematic Reviews. 2017;11:CD000984.	Feil populasjon
Flores Mateo G, Granado-Font E, Ferre-Grau C, Montana-Carreras X. Mobile Phone Apps to Promote Weight Loss and Increase Physical Activity: A Systematic Review and Meta-Analysis. Journal of Medical Internet Research. 2015;17(11):e253.	Annen grunn Dublett
Foley P, Steinberg D, Levine E, Askew S, Batch BC, Puleo EM, et al. Track: A randomized controlled trial of a digital health obesity treatment intervention for medically vulnerable primary care patients. Contemporary Clinical Trials. 2016;48:12-20.	Måler ikke vekt
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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. 2014;1(5):363-74.	Ikke 12 mnd
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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.	Ikke studie
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Smink AJ, Dekker J, Vliet Vlieland TP, Swierstra BA, Kortland JH, Bijlsma JW, et al. Health care use of patients with osteoarthritis of the hip or knee after implementation of a stepped-care strategy: an observational study. 2014;1(6):817-27.	Ikke målt vekt
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Stephens J, Allen J. Mobile phone interventions to increase physical activity and reduce weight: a systematic review. Journal of Cardiovascular Nursing. 2013;28(4):320-9.	Ikke studie
Sterling SR, Bertrand B, Judd S, Carson TL, Chandler-Laney P, Baskin ML. Longitudinal Analysis of Nut-Inclusive Diets and Body Mass Index Among Overweight and Obese African American Women Living in Rural Alabama and Mississippi, 2011-2013. Preventing Chronic Disease. 2017;14:E82.	Ikke studie

Sturgiss EA, Elmitt N, Haesler E, van Weel C, Douglas K. Feasibility and acceptability of a physician-delivered weight management programme. Family Practice. 2017;34(1):43-8.	Feil populasjon
Sundfor TM, Svendsen M, Tonstad S. Effect of intermittent versus continuous energy restriction on weight loss, maintenance and cardiometabolic risk: A randomized 1-year trial. Nutrition Metabolism & Cardiovascular Diseases. 2018;28(7):698-706.	Ikke 12 mnd
Sunnhedsstyrelsen: Livsstilsintervensjoner ved svær overvekt. Anbefalinger for kommunale tilbud til børn og voksne: 21. oktober 2019	Ikke studie
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": Erratum. Obesity. 2016;24(2):536.	Ikke studie
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Tsaban G, Wolak A, Avni-Hassid H, Gepner Y, Shelef I, Henkin Y, et al. Dynamics of intrapericardial and extrapericardial fat tissues during long-term, dietary-induced, moderate weight loss. American Journal of Clinical Nutrition. 2017;106(4):984-95.	Måler ikke vekt
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Verheggen RJ, Maessen MF, Green DJ, Hermus AR, Hopman MT, Thijssen DH. A systematic review and meta-analysis on the effects of exercise training versus hypocaloric diet: distinct effects on body weight and visceral adipose tissue. Obesity Reviews. 2016;17(8):664-90.	Ikke studie

Wallace D, Myles P, Holt R, Nguyen Van-Tam J. Evaluation of the 'Live Life Better Service', a community-based weight management service, for morbidly obese patients. Journal of Public Health. 2016;38(2):e138-49.	Feil populasjon
Weimann A, Fischer M, Oberander N, Prodehl G, Weber N, Andra M, et al. Willing to go the extra mile: Prospective evaluation of an intensified non-surgical treatment for patients with morbid obesity. Clinical Nutrition. 2019;38(4):1773-81.	Operasjon
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. International Journal of Obesity. 2011;35(2):259-69.	Feil diagnose
Wieland LS, Falzon L, Sciamanna CN, Trudeau KJ, Brodney S, Schwartz JE, et al. Interactive computer-based interventions for weight loss or weight maintenance in overweight or obese people. Cochrane Database of Systematic Reviews. 2012(8):CD007675.	Ikke studie
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.	Ikke studie
Xu DF, Sun JQ, Chen M, Chen YQ, Xie H, Sun WJ, et al. Effects of lifestyle intervention and meal replacement on glycaemic and body-weight control in Chinese subjects with impaired glucose regulation: a 1-year randomised controlled trial. British Journal of Nutrition. 2013;109(3):487-92.	Feil sykdom
Yanek LR, Vaidya D, Kral BG, Kalyani RR, Moy TF, Stewart KJ, et al. Impact of self-preference community fitness interventions in high-risk African Americans. Family & Community Health: The Journal of Health Promotion & Maintenance. 2016;39(4):251-62.	Ikke intervensjon
Yoong SL, Carey M, Sanson-Fisher R, Grady A. A systematic review of behavioural weight-loss interventions involving primary-care physicians in overweight and obese primary-care patients (1999-2011). Public Health Nutrition. 2013;16(11):2083-99.	Ikke studie
Zafar MI, Mills KE, Zheng J, Peng MM, Ye X, Chen LL. Low glycaemic index diets as an intervention for obesity: a systematic review and meta-analysis. Obesity Reviews. 2019;20(2):290-315.	Ikke studie
Zomer E, Gurusamy K, Leach R, Trimmer C, Lobstein T, Morris S, et al. Interventions that cause weight loss and the impact on cardiovascular risk factors: a systematic review and meta-analysis. Obesity Reviews. 2016;17(10):1001-11.	Ikke studie

3. Inkluderte studier

Vedleggstabell 3. Inkluderte studier.

Forfatter, tittel og tidsskrift i de inkluderte studiene
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4. Beskrivelse av studiene

Vedleggstabell 4. Forfattere, publikasjonsår, land, studiedesign, kontekst og profesjon som deltar i de inkluderte studiene.

Forfattere, publikasjonsår	Land	Studiedesign	Kontekst	Profesjon som deltar
Aadland E, Andersen JR, Anderssen SA, Kvalheim OM. 2013 Aadland E, Jepsen R, Andersen JR, Anderssen SA. 2014 Jepsen R, Aadland E, Robertson L, Kolotkin RL, Andersen JR, Natvig GK. 2015	Norway	Prospective observational study	Red Cross Haugland Rehabilitation Center	Dietician, nurse, physician, physiotherapist and exercise specialist
Abed HS, Wittert GA, Leong DP, Shirazi MG, Bahrami B, Middeldorp ME, et al. 2013	Australia	RCT	Center for Heart Rhythm Disords, Dept of Cariology, Royal Adelaide Hospital	-
Akers JD, Cornett RA, Savla JS, Davy KP, Davy BM. 2012	US	RCT	James Madison University, Harrisonburg, VA	-
Aller EE, Larsen TM, Claus H, Lindroos AK, Kafatos A, Pfeiffer A, et al. 2014	Netherlands	RCT	Dept of Human Biology, NUTRIM School for Nutrition, Toxicolog and Metabolism, Masstrich University Medical Centre	Dietitians, investigators
Aller EE, van Baak MA. 2016	Netherlands	RCT	Local commercial obesity treatment center	-
Anderson AS, Craigie AM, Caswell S, Treweek S, Stead M, Macleod M, et al. 2014	UK	RCT	Centre for Research into Cancer Prevention and Screening, Cancer Division, Medical Research Institute, Ninewells Medical School, Dundee Four Scottish National Health Service health boards.	Trained lifestyle counsellor
Annesi JJ. 2019	US		YMCA of Metro Atlanta	Wellness instructors from community health promotion centers, with at least on national certification

				related to health promotion
Anton SD, LeBlanc E, Allen HR, Karabetian C, Sacks F, Bray G, et al. 2012 Liu G, Dhana K, Furtado JD, Rood J, Zong G, Liang L, et al. 2018	US	RCT	Dept of Aging and Geriatric Research, Institute on Aging, University of Florida, pounds lost	Dietitians, health psychologist, software developers
Appel LJ, Clark JM, Yeh HC, Wang NY, Coughlin JW, Daumit G, et al. 2011	US	RCT	Welch Center for Prevention, Epidemiology and Clinical Research, Johns Hopkins University	46 Primary care provider at six clinics in the Baltimore metropolitan area, health coaches
Ard JD, Gower B, Hunter G, Ritchie CS, Roth DL, Goss A, et al. 2017	US	RCT	Dept of Epidemiology and Prevention, Wake Forest University School of Medicine, Winston-Salem,	-
Ard JD, Lewis KH, Rothberg A, Auriemma A, Coburn SL, Cohen SS, et al. 2019	US	RCT	Dept of Epidemiology and Prevention, Wake Forest University School of Medicine, Winston-Salem,	Clinician, 9 participating centers The nine participating US centers included five private clinics and four academic medical centers.
Beavers DP, Beavers KM, Loeser RF, Walton NR, Lyles MF, Nicklas BJ, et al. 2014 Beavers KM, Beavers DP, Newman JJ, Anderson AM, Loeser RF, Jr., Nicklas BJ, et al. 2015 Loeser RF, Beavers DP, Bay-Jensen AC, Karsdal MA, Nicklas BJ, Guermazi A, et al. 2017 Miller GD, Beavers DP, Hamm D, Mihalko SL, Messier SP. 2017 Messier SP, Resnik AE, Beavers DP, Mihalko SL, Miller GD, Nicklas BJ, et al 2018	US	RCT	Wake Forest University School of Medicine, Winston-Salem,	-
Beavers KM, Ambrosius WT, Rejeski WJ, Burdette JH, Walkup MP, Sheedy JL, et al. 2017	US	RCT	Wake Forest University School of Medicine, Winston-Salem,	-

Beavers KM, Beavers DP, Nesbit BA, Ambrosius WT, Marsh AP, Nicklas BJ, et al. 2014	US	RCT	Wake Forest University School of Medicine, Winston-Salem,	-
Bischoff SC, Damms-Machado A, Betz C, Herpertz S, Legenbauer T, Low T, et al. 2012	Germany	Prospective observational study	Dept of Nutritional Medicine, University of Hohenheim	Psychologists, medical doctors, dietitians/nutritionist, physical therapists
Borel AL, Nazare JA, Smith J, Almeras N, Tremblay A, Bergeron J, et al. 2012 Nazare JA, Smith J, Borel AL, Almeras N, Tremblay A, Bergeron J, et al. 2013	Canada	Prospective observational study	Dept of Cariology, Centre de recherche de l'Institut universaire de cardiologi et de pneumologi de Quebec	Nutritionist, kinesiologist
Botha S, Forde L, MacNaughton S, Shearer R, Lindsay R, Sattar N, et al. 2018	Scotland/ South-Africa	Prospective observational study	Scottish Care Information Diabetes Collaboration in combination with data from NHS GGC Weight Management Service	Dietitian
Burke LE, Styn MA, Sereika SM, Conroy MB, Ye L, Glanz K, et al. 2012 Burke LE, Ewing LJ, Ye L, Styn M, Zheng Y, Music E, et al. 2015	US	RCT	University of Pittsburgh School of Nursing	-
Buscemi J, Pugach O, Springfield S, Jang J, Tussing-Humphreys L, Schiffer L, et al. 2018	US	RCT	DePaul University, College of Science and Health, Dept of Psychology, Chicago	-
Cai R, Chao J, Li D, Zhang M, Kong L, Wang Y. 2019	China	RCT	Community health service centers, Nanjing	Community clinician, dietitians
Call CC, Piers AD, Wyckoff EP, Lowe MR, Forman EM, Butryn ML. 2019	US	RCT	Dept of Psychology, Drexel Univeristy, Philadelphia	-
Campbell PT, Gross MD, Potter JD, Schmitz KH, Duggan C, McTiernan A, et al. 2010	US	RCT	Dept of Epidemiology, American Cancer Society, Atlanta	-

Christensen JR, Overgaard K, Carneiro IG, Holtermann A, Sogaard K. 2012	Denmark	RCT	Dept of Sport Science, Aarhus University	Randers municipality invited employed health care worker
Cicero AF, Benelli M, Brancaleoni M, Dainelli G, Merlini D, Negri R. 2015	Italy	Cross-section, Clinical Study	Medical and Surgical Sciences Dept, University of Bologna	General practitioner
Coles LT, Fletcher EA, Galbraith CE, Clifton PM.2014	Australia	RCT	Nutritional Interventions Lab, Baker IDI Heart % Diabetes Institute, Melbourne	Honours student, Nutrition PhD.No dietetic professionals were used.
Counterweight Project T. 2012 Morrison D, McLoone P, Brosnahan N, McCombie L, Smith A, Gordon J. 2013 McCombie L, Brosnahan N, Ross H, Bell-Higgs A, Govan L, Lean MEJ. 2019	Scotland	Observational	Mainly delivered in general practice, but one Health Board chose to do it with a pharmacy setting and another favoured community-based implementation.	Trained Counterweight Programme practitioner, dietitians from each Health Board specializing in weight management Community pharmacies
Coutinho SR, Rehfeld JF, Holst JJ, Kulseng B, Martins C. 2018	Norway	Prospective observational study	LHL-klinikkene, Røros	Dietitian, PA therapist, psychologist, nurse, medical doctor, social worker
Daiss SR, Wayment HA, Blackledge S. 2013	US	RCT	Dept of Psychology, Northern Arizona University, Flagstaff	Health Psychology graduate students
Dalle Grave R, Calugi S, Bosco G, Valerio L, Valenti C, El Ghoch M, et al. 2018	Italy	Prospective observational study	Italian National Health Service obesity clinic, Modena	Physician specialized in clinical nutrition, specialized in nursing
Dalle Grave R, Calugi S, Gavasso I, El Ghoch M, Marchesini G.2013	Italy	RCT	Dept of Eating Disorder and Obesity, Garda	Physicians, dieticians, psychologists, physical trainers
Davis NJ, Tomuta N, Isasi CR, Leung V, Wylie-Rosett J. 2012	US	RCT	Albert Einstein College of Medicine, New York	-
de Vos BC, Runhaar J, van Middelkoop M, Krul M, Bierma-Zeinstra SM.2016	Netherlands	RCT, PROOF	Dept General Prcatice and Othopeadics, Erasmus University Medical Centre Rotterdam	Dietitian, physiotherapist

Donini LM, Cuzzolaro M, Gnessi L, Lubrano C, Migliaccio S, Aversa A, et al. 2014	Italy	Prospective observational study	Dept of Experimental Medicine-Medical Physiopathology, Food Science and Endocrinology Section	Physician nutrition specialist
Donnelly JE, Goetz J, Gibson C, Sullivan DK, Lee R, Smith BK, et al. 2013 Ptomey LT, Willis EA, Goetz JR, Lee J, Szabo-Reed AN, Sullivan DK, et al. 2016	US	RCT	University of Kansas-Lawrence, University of Kansas Medical Center	
Drummen M, Dorenbos E, Vreugdenhil ACE, Raben A, Fogelholm M, Westerterp-Plantenga MS, et al.2018	Netherlands	Controlled	Dept of Nutrition and Movement Sciences, Masstricht University Medical Centre	-
Due A, Larsen TM, Mu H, Hermansen K, Stender S, Toubro S, et al. 2017	Denmark	RCT	Dept of Nutrition, Exercise and Sports, University of Copenhagen	-
Dutton GR, Nackers LM, Dubyak PJ, Rushing NC, Huynh TV, Tan F, et al. 2014	US	RCT	Members of a health maintenance organization in northern Florida	Licensed clinical psychologist, doctoral students in clinical and counseling psychology
Eaton CB, Hartman SJ, Perzanowski E, Pan G, Roberts MB, Risica PM, et al. 2016	US	RCT	From 24 primary care practices	Primary care physician, registered dietitian
Elhayany A, Lustman A, Abel R, Attal-Singer J, Vinker S. 2010	Israel	RCT	Meir Medicl Center	Dietician
Esposito K, Di Palo C, Maiorino MI, Petrizzo M, Bellastella G, Siniscalchi I, et al. 2010	Italy	RCT	Div of Metabolic Diseases, Second University of Naples	Nutritionist,
Estabrooks PA, Wilson KE, McGuire TJ, Harden SM, Ramalingam N, Schoepke L, et al.2017	US	Longitudinal pre-post	Kaiser Permanente Colorado	-
Fernandez-Ruiz VE, Armero-Barranco D, Paniagua-Urbano JA, Sole-Agusti M, Ruiz-Sanchez A, Gomez-Marin J. 2018	England	RCT	Basildon Hospital	Graduates in medicine, nursing, nutrition, psychology, physical activity and sport science

Fogari R, Zoppi A, Corradi L, Preti P, Mugellini A, Lazzari P, et al. 2010	Italy	Prospective observational study	Dept of Internal Medicine and Therapeutics, University of Pavia	Dietician
Foraker RE, Pennell M, Sprangers P, Vitolins MZ, DeGraffinreid C, Paskett ED. 2014	US	RCT	OSU General Clinical Research Center	Registered dietitians
Forman EM, Butryn ML, Manasse SM, Crosby RD, Goldstein SP, Wyckoff EP, et al. 2016	US	RCT	Dept of Psychology, Drexel Univeristy, Philadelphia	
Foster GD, Shantz KL, Vander Veur SS, Oliver TL, Lent MR, Virus A, et al. 2012	US	RCT	Center for Obesity Research and Education, Temple University, Philadelphia	-
Foster GD, Wyatt HR, Hill JO, Makris AP, Rosenbaum DL, Brill C, et al. 2010	US	RCT	University of Colorado, Denver, Washington University, St. Louis, University of Pennsylvania, Philadelphia	-
Foster-Schubert KE, Alfano CM, Duggan CR, Xiao L, Campbell KL, Kong A, et al. 2012 Duggan C, Tapsoba JD, Wang CY, Campbell KL, Foster-Schubert K, Gross MD, et al. 2016	US	RCT	Fred Hutchinson Cancer Research Center, Seattle	Dietitian, exercise physiologist
Gabriel KK, Conroy MB, Schmid KK, Storti KL, High RR, Underwood DA, et al. 2011 Kuller LH, Pettee Gabriel KK, Kinzel LS, Underwood DA, Conroy MB, Chang Y, et al. 2012	US	RCT	Div of Epidemiology, Human Genetics and Environmental Sciences, University of Texas	Nutritionist, exercise physiologists, behavioral psychologist
Gadde KM, Kopping MF, Wagner HR, 2nd, Yonish GM, Allison DB, Bray GA. 2012	US	RCT	Obesity Clinical Trials Program, Duke University Medical Center, Durham	Dietitian
Gagnon C, Brown C, Couture C, Kamga-Ngande CN, Hivert MF, Baillargeon JP, et al. 2011	Canada	RCT	Dept of medicine, Div of endocrinology, Unviersite de Sherbrook, Quebec	Nurse, dietitian, endocrinologist

Gjevestad E, Karlsen TI, Roislien J, Maehlum S, Hjelmesaeth J. 2013	Norway	RCT	Morbid Obesity Centre, Vestfold Hospital Trust, Tønsberg, outpatient clinic	Registered nurse, medical doctor, physical educators with backgrounds in nutrition, pedagogic and adapted physical activity
Gohner W, Schlatterer M, Seelig H, Frey I, Berg A, Fuchs R.2012	Germany	Q-EX	Catholic University of Applied Sciences Freiburg	Skilled trainers
Gomez-Huelgas R, Ruiz-Nava J, Santamaria-Fernandez S, Vargas-Candela A, Alarcon-Martin AV, Tinahones FJ, et al. 2019	Spain	Prospective observational study	Internal Medicine Dept, Regional University Hospital of Malaga	Doctor of internal medicine, a nurse, a nutritionist
Goodpaster BH, DeLany JP, Otto AD, Kuller L, Vockley J, South-Paul JE, et al. 2010	US	RCT	Div of Endocrinology and Metabolism School of Medicine University of Pittsburg	-
Gray CM, Wyke S, Zhang R, Anderson AS, Barry S, Boyer N, et al. 2018	Scotland	RCT	Football Fans in Training (FFIT)	Community coaching staff
Gussenhoven AH, van Wier MF, Bosmans JE, Dekkers JC, van Mechelen W. 2013	Netherlands	RCT	At workplace	Counsellor with a higher degree in nutrition of hman movement studies
Haas K, Hayoz S, Maurer-Wiesner S. 2019	Switzerland	Prospective observational study	Dept of Health, Bern University of Applied Sciences	Registered dietitians
Haire-Joshu D, Schwarz CD, Steger-May K, Lapka C, Schechtman K, Brownson RC, et al. 2018	US	RCT	Natonal home visiting organization, Washington University in St. Louis, St. Louis, Missouri	Parent educators
Hausmann J, Waechtershaeuser A, Behnken I, Aksan A, Blumenstein I, Brenner M, et al. 2019	Germany	Prospective observational study	1st Dept, Johann Wolfgang Goethe University Hospital, Frankfurt am Main	Physician, dietician/nutritionist, psychologist, physical therapist
Headland ML, Clifton PM, Keogh JB. 2019	Australia	RCT	Div of Health Sciences, School of Pharmacy and Medical Sciences, University of South Australia	Qualified dietition

Hersey JC, Khavjou O, Strange LB, Atkinson RL, Blair SN, Campbell S, et al. 2012	US	RCT	Two study centers in a community near a military base	The lifestyle coaches wer BA and Mater's level staff
Hintze LJ, Messier V, Lavoie M-E, Brochu M, Lavoie J-M, Prud'homme D, et al. 2018	Canada	RCT	School of Human Kinetics, Faculty of Health Sciences, University of Ottawa	Dietitian
Ho TP, Zhao X, Courville AB, Linderman JD, Smith S, Sebring N, et al. 2015	US	Prospective observational study	Div of Endocrinology and Metabolism, Virginia Commonwealth University	Dietitian
Holzapfel C, Merl M, Stecher L, Hauner H. 2016	Germany	Prospective observational study	Leichter Leben by almeda GmbH (Munich)	The coaches are health care or nutritional experts
Iqbal N, Vetter ML, Moore RH, Chittams JL, Dalton-Bakes CV, Dowd M, et al. 2010	US	RCT	Hospital of the University of Pennsylvania	-
Jakicic JM, Davis KK, Rogers RJ, King WC, Marcus MD, Helsel D, et al. 2016	US	RCT	Dept of Health and Physical Activity, University of Pittsburgh	-
Jakicic JM, Otto AD, Lang W, Semler L, Winters C, Polzien K, et al. 2011	US	RCT	Dept of Health and Physical Activity, University of Pittsburgh	-
Jakicic JM, Rickman AD, Lang W, Davis KK, Gibbs BB, Neiberg R, et al. 2015	US	RCT	Dept of Health and Physical Activity, University of Pittsburgh	Interventionist trained in health psychology, nutrition or exercise
Jakicic JM, Tate DF, Lang W, Davis KK, Polzien K, Rickman AD, et al. 2012 Jakicic JM, Tate DF, Lang W, Davis KK, Polzien K, Neiberg RH, et al. 2014	US	RCT	Dept of Health and Physical Activity, University of Pittsburgh	-
Jansson SP, Engfeldt P, Magnuson A, Pt GL, Liljegren G. 2013	Sweden	RCT	Primary care health center	Nurse, physiotherapist, traind by dietitian

Jebb SA, Ahern AL, Olson AD, Aston LM, Holzapfel C, Stoll J, et al. 2011 Gstettner A, Hol-zapfel C, Stoll J, Hauner H. 2013 Fuller NR, Williams K, Shrestha R, Ahern AL, Holzapfel C, Hauner H, et al. 2014 Holzapfel C, Cress-well L, Ahern A, Fuller N, Eberhard M, Stoll J, et al. 2014 Ambrosini GL, Solis-Trapala I, Ahern AL, Fuller NR, Holzapfel C, Hauner H, et al. 2018	Germany, UK, Australia	RCT	Primary care practices in Australia, Germany and the UK	Community based, open-group Weight Watchers, primary care provider, usually a practice nurse
Jennings A, Hughes CA, Kumaravel B, Bachmann MO, Steel N, Capehorn M, et al. 2014	UK	Prospective observational study	Primary care	GP, dietitian, OSNs (obesity specialist nurse), psychologicaltherapist, exercise professional, health trainer, consultant endocrinologist and public health consultant
Jiang X, Fan X, Wu R, Geng F, Hu C. 2017	China	RCT	Nursing dept, Cagzhou Central Hospital	-
Karlsen TI, Sohagen M, Hjelmesaeth J. 2013	Norway	Prospective observational study	Rehabilitation center	GP, registered dieticians, physiotherapists, mental-health nurses
Kempf K, Rohling M, Martin S, Schneider M. 2019	Germany	RCT	Workplace	Diabetic nurse
Keyserling TC, Samuel-Hodge CD, Pitts SJ, Garcia BA, Johnston LF, Gizlice Z, et al. 2016	US	RCT	Div of General Medicine and Clinical Epidemiology, University of North Carolin	Trained counselor
Knauper B, Carriere K, Frayn M, Ivanova E, Xu Z, Ames-Bull A, et al. 2018 Knauper B, Shireen H, Carrière K, Frayn M, Ivanova E, Xu Z, Lowensteyn I, Sadikaj G, Luszczynska A,	Canada	RCT	Dept of Psychology, MacGill University, Montreal	-

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Koohkan S, Schaffner D, Milliron BJ, Frey I, Konig D, Deibert P, et al. 2014	Germany	non-randomized, controlled trial	Dept of Nutrition, Institute fur Sport und Sportwissenschaft erh Universitat Freiburg	Sport physiologist, psychologist, dietician/nutritionist
Koster-Rasmussen R, Simonsen MK, Siersma V, Henriksen JE, Heitmann BL, de Fine Olivarius N. 2016	Denmark	Prospective observational study	Dept of Public Health, University of Copenhagen, primary care offices	General practitioner
Krishnaswami A, Ashok R, Sidney S, Okimura M, Kramer B, Hogan L, et al. 2018	US	Retrospective observational study	Kaiser Permanente Colorado	Trained educators
Krukowski RA, Hare ME, Talcott GW, Gladney LA, Johnson KC, Richey PA, et al. 2018	Austria	Prospective observational study	Insitute of Physiology and Immunology, Medical University Graz	Registered dietician
le Roux CW, Astrup A, Fujioka K, Greenway F, Lau DCW, Van Gaal L, et al.2017	27 countries	RCT	191 clinical research sites	-
Le T, Flatt SW, Natarajan L, Pakiz B, Quintana EL, Heath DD, et al. 2016	US	RCT	School of Medicine, University of California San diego	Dietetics, psychology, exercise physiology
Lih A, Pereira L, Bishay RH, Zang J, Omari A, Atlantis E, et al. 2015	Australia	Prospective observational study	Concord Repatriation General Hospital New South Wales Sydney	Endocrinologist, diabetes educator, psychologist, physiotherapist, exercise physiologist
Lindberg NM, Stevens VJ, Vega-Lopez S, Kauffman TL, Calderon MR, Cervantes MA. 2012	US	Prospective observational study	Kaiser Permanente Colorado	Experts on Mexican nutrition and diet
Look AHEAD Look ARG, Wing RR. 2010 Unick JL, Jakicic JM, Marcus BH. 2010	US	RCT	Wake Forest University School of Medicine Winston-Salem NC and several other US institutions	-

Albu JB, Heilbronn LK, Kelley DE, Smith SR, Azuma K, Berk ES, et al. 2010

Unick JL, Beavers D, Jakicic JM, Kitabchi AE, Knowler WC, Wadden TA, et al. 2011

Wadden TA, Neiberg RH, Wing RR, Clark JM, Delahanty LM, Hill JO, et al. 2011

Faulconbridge LF, Wadden TA, Rubin RR, Wing RR, Walkup MR, Fabricatore AN, et al. 2012

Gregg EW, Chen H, Wagenknecht LE, Clark JM, Delahanty LM, Bantle J, et al. 2012

Rejeski WJ, Ip EH, Bertoni AG, Bray GA, Evans G, Gregg EW, et al. 2012

Espeland MA, Rejeski WJ, West DS, Bray GA, Clark JM, Peters AL, et al. 2013

Jakicic JM, Egan CM, Fabricatore AN, Gaussoin SA, Glasser SP, Hesson LA, et al. 2013

Look ARG, Wing RR, Bolin P, Brancati FL, Bray GA, Clark JM, et al. 2013

Unick JL, Beavers D, Bond DS, Clark JM, Jakicic JM, Kitabchi AE, et al. 2013

Gallagher D, Heshka S, Kelley DE, Thornton J, Boxt L, Pi-Sunyer FX, et al. 2014

Kruschitz R, Wallner-Liebmann SJ, Lothaller H, Luger M, Schindler K, Hoppichler F, et al. 2014

Look ARG. 2014

Alonso A, Bahnson JL, Gaussoin SA, Bertoni AG, Johnson KC, Lewis CE, et al. 2015

Pownall HJ, Bray GA, Wagenknecht LE, Walkup MP, Heshka S, Hubbard VS, et al. 2015

Espeland MA, Carmichael O, Hayden K, Neiberg RH, Newman AB, Keller JN, et al. 2018				
Lowe MR, Butryn ML, Thomas JG, Coletta M. 2018	US	RCT	Drexel University, University of Pennsylvania	PhD holders or Candidates Weight Control Specialist (WCS). WCSs had graduate degrees in clinical psychology or nutrition.
Lowe MR, Butryn ML, Zhang F. 2014	US	RCT	Drexel University,	Weight Control Specialist, graduate in clinical psychology or nutrition
Ma J, Rosas LG, Lv N, Xiao L, Snowden MB, Venditti EM, et al. JAMA. 2019	US	RCT	Sutter Health's Palo Alto Medical Foundation	Registered dietitian, health coach, psychiatrist, primary care physician
MacLaughlin HL, Cook SA, Kariyawasam D, Roseke M, van Niekerk M, Macdougall IC. 2010	UK	CT	Dept of Nutrion and Dietetics, King's Collage	Renal specialist dieticians, exercise physiotherapist, consultant nephrologist, renal transplant coordinator, renal pharmacist
Masuo K, Rakugi H, Ogihara T, Esler MD, Lambert GW. 2011	Japan	Prospective observational study	Heart and Diabetes Institue, Melbourne	Trained nutritionist, experts in exercise counseling
McRobbie H, Hajek P, Peerbux S, Kahan BC, Eldridge S, Trepel D, et al. 2016	UK	RCT	Barkantine and Lawson Practice, NHS	Nurse, health research psychologist, hospital dietitian
McTigue KM, Bhargava T, Bryce CL, Conroy M, Fischer GS, Hess R, et al. 2011	US	Qualitative	Single internal medicine practice	Physician, lifestyle coach
Merrill RM, Aldana SG, Bowden DE. 2010	US	Prospective observational study	Employees	Registered dietitians, nutritionists, exercise physiologists, behavior health specialist.

Moin T, Damschroder LJ, AuYoung M, Maciejewski ML, Datta SK, Weinreb JE, et al. 2017	US	CT	Veterans Health Administration	
Moncrieft AE, Llabre MM, McCalla JR, Gutt M, Mendez AJ, Gellman MD, et al. 2016	US	RCT	Local community clinic	Trained therapists
Moreno B, Bellido D, Sajoux I, Goday A, Saavedra D, Crujeiras AB, et al. 2014	Spain	RCT	Obesity Unit, Hospital Greorio Maranon of Madrid	Physician, dietitian
Nackers LM, Middleton KR, Dubyak PJ, Daniels MJ, Anton SD, Perri MG. 2013	US	RCT	Dept of Clinical and Health Psychology, University of Florida	Master's level graduate students with experience in conducting behavioral weight-management groups., supervised by a licensed psychologist
Nakade M, Aiba N, Suda N, Morita A, Miyachi M, Sasaki S, et al. 2012 Tanaka NI, Murakami H, Aiba N, Morita A, Watanabe S, Miyachi M, et al. 2019	Japan	RCT	Nutritional Education Program, National Institute of Health and Nutrition, Japan	Registered dietitians, exercise instructors
Neve M, Morgan PJ, Collins CE. 2011	Australia	Prospective observational study	Commercial We-based weight loss program	-
Nurkkala M, Kaikkonen K, Vanhala ML, Karhunen L, Keranen A-M, Korpelainen R. 2015	Finland	RCT	Dept of Sports and Exercise Medicine, Oulu	Nutritionist, nurse
Pal S, Ho S, Gahler RJ, Wood S. 2016	Australia	RCT	School of Public Health, Curtin University, Perth	-
Paskett ED, Baltic RD, Young GS, Katz ML, Lesko SM, Webber KH, et al. 2018	US	RCT	Appalachian Church Members	.
Patrick K, Calfas KJ, Norman GJ, Rosenberg D, Zabinski MF, Sallis JF, et al. 2011	US	RCT	Dept of Family and Preventive Medicine University of California, San Diego	Experts in weight loss interventions for men and focus groups with men

Pavic E, Hadziabdic MO, Mucalo I, Martinis I, Romic Z, Bozikov V, et al. 2019	Croatia	RCT	Outpatient clinic. Dept of Nutrition and Dietetics, University Hospital Centre Zagreb	Clinical dietitian, physiotherapist, endocrinologists, clinical pharmacists, nurses
Pearl RL, Wadden TA, Tronieri JS, Berkowitz RI, Chao AM, Alamuddin N, et al. 2018	US	RCT	Center for Weight and Eating Disorder, Dept of Psychiatry, Perelman School of Medicine at the University of Pennsylvania	-
Pedersen E, Jesudason DR, Clifton PM. 2014	Australia	RCT	University of South Australia	-
Pedersen LR, Olsen RH, Anholm C, Astrup A, Eugen-Olsen J, Fenger M, et al. 2019	Denmark	RCT	Dept of Cardiology, Bispebjerg University Hospital, University of Copenhagen	Physiotherapist, dietiticians
Petrella RJ, Gill DP, Zou G, A DEC, Riggin B, Bartol C, et al. 2017	Canada	RCT	Hockey Fans	Coaches
Phillips EG, Wells MT, Winston G, Ramos R, Devine CM, Wethington E, et al. 2017	US	RCT	Div of General Internal Medicine, Weill Cornell Medicine	Community health workers
Pjanic, Muller R, Laimer M, Hagenbuch N, Laederach K, Stanga Z. 2017	Switzerland	Prospective observational study	Obesity Outpatient Clinic, Dept of Diabetes, Endocrinology, Clinical Nutrition and Metabolism, University Hospital of Bern	dieticians, psychologists, body awareness therapist, medical doctors
Poddar KH, Ames M, Hsin-Jen C, Feeney MJ, Wang Y, Cheskin LJ. 2013	US	RCT	Dept of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health, Baltimore	-
Powell LH, Appelhans BM, Ventrelle J, Karavolos K, March ML, Ong JC, et al. 2018	US	Prospective observational study	Dept of Preventive Medicine, Rush University Meical Center, Chicago	Dietician, health psychologist
Puhkala J, Kukkonen-Harjula K, Mansikkamaki K, Aittasalo M, Hublin C, Karmeniemi P, et al. 2015	Finland	RCT	UKK Institute for Health Promotion Research, Workplace intervention	Trained counselors

Puhkala J, Kukkonen-Harjula K, Aittasalo M, Mansikkamaki K, Partinen M, Hublin C, et al. 2016				
Raynor HA, Steeves EA, Hecht J, Fava JL, Wing RR. 2012 Gorin AA, Raynor HA, Fava J, Maguire K, Robichaud E, Trautvetter J, et al. 2013 Buscemi J, Murphy JG, Berlin KS, Raynor HA.2014 Vadiveloo M, Parker H, Raynor H. 2018	US	RCT	Dept of Nutrition, University of Tennesse, Knoxville	Experienced research interventionist with expertise in nutrition, exercise physiology, and behavior modification
Rejeski WJ, Ambrosius WT, Burdette JH, Walkup MP, Marsh AP. 2017 Rejeski WJ, Marsh AP, Fanning J, Ambrosius WT, Walkup MP, Nicklas BJ. 2019	US	RCT	Dept of Health and Exercise, Wake Forest University, Winston-Salem	YMCA staff
Rejeski WJ, Brubaker PH, Goff DC, Jr., Bearon LB, McClelland JW, Perri MG, et al. 2011	US	RCT	Dept of Health and Exercise, Wake Forest University, Winston-Salem	-
Rock CL, Flatt SW, Sherwood NE, Karanja N, Pakiz B, Thomson CA. 2010	US	RCT	Moores UCSD Cancer Center, La Jolla	-
Rodriguez-Cristobal JJ, Alonso-Villaverde C, Panisello JM, Trave-Mercade P, Rodriguez-Cortes F, Marsal JR, et al. 2017	Spain	Cluster randomized trial	Cardiovascular Research center Barcelona	Nurse, psychologist
Rolls BJ, Roe LS, James BL, Sanchez CE. 2017	US	RCT	Dept of Nutritional Sciences, The Pennsylvania State University	Dietitian, trained interventionist
Ross R, Lam M, Blair SN, Church TS, Godwin M, Hotz SB, et al. 2012	Canada	RCT	School of Kinesiology and Health Studies, Queens's University, Ingston	Physician, health educator
Rossen LM, Milsom VA, Middleton KR, Daniels MJ, Perri MG. 2013	US	RCT	Cooperative Extension Service offices	

Rudolph A, Hellbardt M, Baldofski S, de Zwaan M, Hilbert A. 2016	Germany	Prospective observational study	Integriertes Forschungs- und Behandlungszentrum AdipositasErkankungen Universitatsmedizin Leipig	Nutritional medicine, Psychologist, Dietitian, Physiotherapist
Ryan DH, Johnson WD, Myers VH, Prather TL, McGlone MM, Rood J, et al. 2010	US	RCT	Pennington Biomedical Research Center, Baton Rouge	Physician
Safavi R, Lih A, Kirkpatrick S, Haller S, Bailony MR. 2019	US	Retrospective observational study	University of California, Santa Cruz, Enara Health	Physician, dietician , fitness trainer
Salinardi TC, Batra P, Roberts SB, Urban LE, Robinson LM, Pittas AG, et al. 2013	US	RCT	Workplace, Human Nutrition Research Center on Aging, Tufts University	Nutritionist
Santanasto AJ, Newman AB, Strotmeyer ES, Boudreau RM, Goodpaster BH, Glynn NW. 2015	US	RCT	Center for Aging and Population Health, University of Pittburgh	Nutritionist
Saslow LR, Daubenmier JJ, Moskowitz JT, Kim S, Murphy EJ, Phinney SD, et al. 2017	US	RCT	University of Michigan, Ann Arbor	-
Sattin RW, Williams LB, Dias J, Garvin JT, Marion L, Joshua TV, et al. 2016	US	RCT	Dept of Emergency Medicine, Medical College of Georgia, Augusta, 20 local churches	-
Schroder H, Cardenas-Fuentes G, Martinez-Gonzalez MA, Corella D, Vioque J, Romaguera D, et al. 2018	Spain	RCT	Cardiovascular Risk and Nutrition Research Group, Hospital del mar, Barcelona	Dietitians
Schutte BA, Haveman-Nies A, Preller L. 2015	Netherlands	Prospective observational study	Div of Human Nutrition, Wageningen University	Life advisors, physiotherapist, dietician
Sepah S, Jiang L, Peters AL. 2014	US	Quasi-experiemtnal	Omada Health, San Francisco	Health coach
Shapiro JR, Koro T, Doran N, Thompson S, Sallis JF, Calfas K, et al. 2012	US	RCT	SanTech Inc, San Diego	-

Shea MK, Houston DK, Nicklas BJ, Messier SP, Davis CC, Miller ME, et al. 2010	US	RCT	Sticht Center on Aging, Wake Forest University, Winston-Salem	-
Silva MN, Vieira PN, Coutinho SR, Minderico CS, Matos MG, Sardinha LB, et al. 2010	Portugal	RCT	Faculty of Human Kinetics, Technical University of Lisbon	-
Simon GE, Rohde P, Ludman EJ, Jeffery RW, Linde JA, Operskalski BH, et al. 2010	US	RCT	Group Health Research Institute, Seattle	-
Spring B, Duncan JM, Janke EA, Kozak AT, McFadden HG, DeMott A, et al. 2013	US	RCT	Dept of Preventive Medicine, Northwestern University Feinberg School of Medicine, Chicago Veterans Affairs outpatient clinic	Dieticians, psychologists, physicians, paraprofessional coach
Stomby A, Simonyte K, Mellberg C, Ryberg M, Stimson RH, Larsson C, et al. 2015	Sweden	RCT	Dept of Public Health and Clinical Medicine, Umeå	Dietician
Svetkey LP, Batch BC, Lin P-H, Intille SS, Corsino L, Tyson CC, et al. 2015	US	RCT	Div of Nephrology, Dept of Medicine, Durham	Dietician
Swencionis C, Wylie-Rosett J, Lent MR, Ginsberg M, Cimino C, Wassertheil-Smoller S, et al. 2013	US	RCT	Ferkauf Graduate School of Psychology, Yeshiva University, Bronx	Registered dietician, cognitive-behavioral therapist
Tapsell LC, Batterham MJ, Thorne RL, O'Shea JE, Grafenauer SJ, Probst YC. 2014	Australia	RCT	School of Medicine, University of Wollongong	Dietitian
Tapsell LC, Lonergan M, Batterham MJ, Neale EP, Martin A, Thorne R, et al. 2017	Australia	RCT	School of Medicine, University of Wollongong	Physician, dietitians, exercise physiologist psychologist nurse
Tay, J, Luscombe-Marsh ND, Thompson CH, Noakes M, Buckley JD, Wittert GA, et al. 2015 Tay J, Thompson CH, Luscombe-Marsh ND, Wycherley TP, Noakes M, Buckley JD, et al. 2018	Australia	RCT	Commonwealth Scientific and Industrial Research Organisation, Food and Nutrition Flagship, Adelaide, South Australia	Dietitian

Teeriniemi AM, Salonurmi T, Jokelainen T, Vahanikkila H, Alahaivala T, Karppinen P, et al. 2018	Finland	RCT	Biocenter Oulu, University of Oulu	Clinical nutritionist
ter Bogt NC, Bemelmans WJ, Beltman FW, Broer J, Smit AJ, van der Meer K. 2011	Netherlands	RCT	General Practice, University Medical Center Groningen	Nurse, general practitioner
Thomas JG, Raynor HA, Bond DS, Luke AK, Cardoso CC, Foster GD, et al. 2017	US	RCT	Dept of Psychiatry and Human Behavior, Warren Alpert Medical School of Brown University, Rhode Island, Weight Watchers Online	-
Trepanowski JF, Kroeger CM, Barnosky A, Klempel MC, Bhutani S, Hoddy KK, et al.2017	US	RCT	Dept of Kinesiology and Nutrition, University of Illinois at Chicago	Dietitian
Tur JJ, Escudero AJ, Alos MM, Salinas R, Teres E, Soriano JB, et al. 2013	Spain	RCT	Unidad de Investigacion CAIBER, Palma de Mallorca	Registered nurse, Mater in nutrition, physiotherapist, sports medicine specialist.
Venn BJ, Perry T, Green TJ, Skeaff CM, Aitken W, Moore NJ, et al. 2010	New Zealand	RCT	Dept of Human Nutrition Christchurch School of Medicine and Health Sciences	Dietitian
Villareal DT, Chode S, Parimi N, Sinacore DR, Hilton T, Armamento-Villareal R, et al. 2011 Armamento-Villareal R, Sadler C, Napoli N, Shah K, Chode S, Sinacore DR, et al. 2012 Waters DL, Vawter R, Qualls C, Chode S, Armamento-Villareal R, Villareal DT. 2013 Bouchonville M, Armamento-Villareal R, Shah K, Napoli N, Sinacore DR, Qualls C, et al. 2014 Armamento-Villareal R, Aguirre LE, Qualls C, Villareal DT. 2016	US	RCT	Div of Geriatrics and Nutritional Science, Washington University School of Medicine, St. Louis	Dietitian, physiotherapist
Wadden TA, Foreyt JP, Foster GD, Hill JO, Klein S, O'Neil PM, et al. 2011	US	RCT	Dept of Psychiatry, University of Pennsylvania School of Medicine	Dieticians, behavioral psychologists, exercise specialists.

Wadden TA, Volger S, Sarwer DB, Vetter ML, Tsai AG, Berkowitz RI, et al. 2011 Sarwer DB, Moore RH, Diewald LK, Chittams J, Berkowitz RI, Vetter M, et al. 2013 Vetter ML, Wadden TA, Chittams J, Diewald LK, Panigrahi E, Volger S, et al. 2013 Volger S, Wadden TA, Sarwer DB, Moore RH, Chittams J, Diewald LK, et al. 2013	US	RCT	Dept of Psychiatry the Perelman School of Medicine at the University of Pennsylvania, Primary Care Practice	Primary care physician
Wadden TA, Walsh OA, Berkowitz RI, Chao AM, Alamuddin N, Gruber K, et al. 2019	US	RCT	Perelman School of Medicine at the University of Pennsylvania	-
Weinstock RS, Trief PM, Cibula D, Morin PC, Delahanty LM. 2013	US	RCT	SUNY Upstate Medical University, Syracuse	Primary care provider staff, dietitian
Welsh P, Cezard G, Gill JM, Wallia S, Douglas A, Sheikh A, et al. 2016	Scotland	RCT	British Heart Foundation Glasgow Cardiovascular Research Center, University of Glasgow	Dietitian
West DS, Harvey JR, Krukowski RA, Prewitt TE, Priest J, Ashikaga T. 2016	US	RCT	Arnold School of Public Health, Department of Exercise Science, 915 Greene Street, Suite 403, Columbia -	MI counselors were clinical psychologists, who had delivered MI for weight management in previous studies and/or in clinical practice
Williams AE, Stevens VJ, Albright CL, Nigg CR, Meenan RT, Vogt TM. 2014	US	RCT	Kaiser Permanente Center for Health Research, Honolulu, workplace	Trained nutritional counselors
Winkler JK, Schultz JH, Woehning A, Piel D, Gartner L, Hildebrand M, et al. 2013	Germany	Prospective observational study	Dept of Medicine and Clinical Chemistry, University of Heidelberg	Psychologist, physicians, nutritionist, physical therapist
Wycherley TP, Brinkworth GD, Keogh JB, Noakes M, Buckley JD, Clifton PM. 2010	Australia	RCT	Preventative Health Flagship, Adelaide Commonwealth Scientific and Industrial Research Organisation, Food	Qualified dietitian

Wycherley TP, Brinkworth GD, Clifton PM, Noakes M. 2012 Wycherley TP, Buckley JD, Noakes M, Clifton PM, Brinkworth GD. 2014 Brinkworth GD, Wycherley TP, Noakes M, Buckley JD, Clifton PM. 2016			and Nutririon Flagship, Adelaide, South Australia Sansom Institute for Health Research, University of South Australia	
Yaeger A, Cash NR, Parham T, Frankel DS, Deo R, Schaller RD, et al. 2018	US	Prospective observational study	Hospital of the University of Pennsylvania, Philadelphia	Nurse
Yeh MC, Heo M, Suchday S, Wong A, Poon E, Liu G, et al. 2016	US	RCT	Nutrition Program CUNY School of Public Health, New York	Trained lifestyle coach
Zinn C, Schofield GM, Hopkins WG. 2012	New Zealand	Prospective observational study	Center for Physical Activity and Nutrition, AUT University, Auckland, worksite	Dietitian, exercise phsiologist, psychologist
Zurlo F, Trevisan C, Vitturi N, Ravussin E, Salvo C, Carraro S, et al. 2019	Italy	Prospective observational study	University Hopsital Padua	Skilled nutritionist, certified trainer

5. Beskrivelse av deltakerne

Vedleggstabell 5. Beskrivelse av deltakerne.

Førsteforfatter, år	Antall deltakere	Kjønn	Alder	Etnisitet	KMI	Komorbiditet	Eksklusjonssykdom
Aadland E, Andersen JR, Anderssen SA, Kvalheim OM. 2013	26/49	26 W/38 W	43,6 ±10,2/42,8 (9,6)	-	43,0±6,3/42,0 (5,9)	-	Pregnancy, heart disease, drug or alcohol abuse, previous bariatric surgery, mental disorder, physical impairments the could reduce the subject's ability to comply with the programme
Abed HS, Wittert GA, Leong DP, Shirazi MG, Bahrami B, Middeldorp ME, et al. 2013	150	101 M 49 W	59,8 (9,5)	-	I: 32,8 (3,5) C: 33.8 (4.1)	symptomatic paroxysmal or persistent atrial fibrillation	participation in weight loss program within 2 months, unstable international normalized ratio (INR); diabetes necessitating insulin; significant cardiac vascular disease, inability to provide informed consent
Akers JD, Cornett RA, Savla JS, Davy KP, Davy BM. 2012	40		63±1	-	29,2±1,1	-	smoker, history of depression, eating disorders, diabetes, uncontrolled hypertension, heart/lung/kidney disease, cancer, use of medications known to alter food intake or body weight
Aller EE, Larsen TM, Claus H, Lindroos AK, Kafatos A, Pfeiffer A, et al. 2014	256	103 M 153 F	42±6	-	-	-	-
Aller EE, van Baak MA. 2016	426	35% M	45,3 (12,2)	-	40,0 (6,6)	-	-

Anderson AS, Craigie AM, Caswell S, Treweek S, Stead M, Macleod M, et al. 2014	329	74% M	63,6 (6,8)	99% white, 0,3 % asian, 0,3 % other	30,4(3,9)	Adenoma confirmed by histopathology following a positive fecal occult blood test result	Pregnancy, insulin dependent diabetes mellitus, any cancer diagnosis.
Annesi JJ. 2019	152	100% W	48,6	80% white, 15% Blak, 5% other	35,3	-	Free from psychotropic medication use, no present/soon-planned pregnancy
Anton SD, LeBlanc E, Allen HR, Karabetian C, Sacks F, Bray G, et al. 2012	811	Published 2009	30-70	-	25.0-39,9	-	-
Appel LJ, Clark JM, Yeh HC, Wang NY, Coughlin JW, Daumit G, et al. 2011	415	63,6% W	54±10.2	41,0% Black, 52,2% white, 1,4% Asian 2,2% Hispanic, 36% other	36,6	Hypertension, hypercholesterolemia, or diabetes	Taking medications that cause weight gain or prevent weight loss
Ard JD, Gower B, Hunter G, Ritchie CS, Roth DL, Goss A, et al. 2017	164	37,8% M	70,3±4,7	23,8% African American 0,6% Asian 75,6% European American	-	-	-

Ard JD, Lewis KH, Rothberg A, Auriemma A, Coburn SL, Cohen SS, et al. 2019	273	82% F	47,1 (11.2)	71% Caucasian, 22% African American, 2% Asian, 3% Hispanic	38,8 (5,9	-	recent weight loss or use of weight-loss medications, Smoker, previous bariatric surgery, organ failure, type 1 diabetes or hemoglobin A1c > 10%, cardiovascular disease event or mental health hospitalization in the past 6 months, alcohol or drug dependence, positive screening for potential eating disorder, poorly controlled depression
Beavers KM, Ambrosius WT, Rejeski WJ, Burdette JH, Walkup MP, Sheedy JL, et al. 2017	249	71,1% W	66,9 ±4,7	32,1% African American	34,4±3,7	Documented evidence of CVD or and ATP III diagnosis of MetS	Myocardial infarction or cardiovascular procedure in the past 3- months, a fast blood glucose >140 mg/dL, a diagnosis of type 1 diabetes or insulin dependent type 2 diabetes, or their primary care physician had concerns regarding their ability to safely participate.
Beavers KM, Beavers DP, Nesbit BA, Ambrosius WT, Marsh AP, Nicklas BJ, et al. 2014	288		67,0±4,8	-	32,8±3,8	-	
Beavers DP, Beavers KM, Loeser RF, Walton NR, Lyles MF, Nicklas BJ, et al. 2014	454	74%W	66,0±6,2	86% Caucasian	33,4±3,7	Knee Ostearthritis	-
Bischoff SC, Damms-Machado A, Betz C, Herpertz S, Legenbauer T, Low T, et al. 2012	8296	6111 F	42,4 (42,1-42,7)	-	40,8 (40,6-40,9)	Arterial hypertention, hypercholesterolemia, diabetes, other metabolic disorders	Bedridden, cardiac or pulmonial insufficiency class III/IV, cardiac arrhythmia, recent myocardial infarction, malignant disease, pregnancy or lactation, hypothyroidism, severe eating disorder, severe depression

Borel AL, Nazare JA, Smith J, Almeras N, Tremblay A, Bergeron J, et al. 2012	144	144 M	47,5 ±8,9	-	30,9 ±3,1	-	Type 2 diabetes, BMI <25 or >40, taking medication-targeting glucose, lipid metabolism, blood pressure management
Botha S, Forde L, MacNaughton S, Shearer R, Lindsay R, Sattar N, et al. 2018	1537	41,5% M	57,4±9,2	94,7 white, 5,3 other	40,2 (36,1-44,8)	-	-
Burke LE, Styn MA, Sereika SM, Conroy MB, Ye L, Glanz K, et al. 2012	210	84,8% W	46,8	78,1% white	33,15 (4,11)	-	Weight change, quality of life, adherence, self-efficacy
Buscemi J, Pugach O, Springfield S, Jang J, Tussing-Humphreys L, Schiffer L, et al. 2018	107	100% W	46 (8,4)	100% African American	39 (5,5)	-	-
Cai R, Chao J, Li D, Zhang M, Kong L, Wang Y. 2019	480	50% M	66,84 ±5,32		30,01±5,32	-	Cognitive defects, severe psychological disorders, mental illnesses the could affect adherence to the study, cancer, recent cardiovascular disease, other severe chronic diseases that could seriously reduce the ability to participate in the study
Call CC, Piers AD, Wyckoff EP, Lowe MR, Forman EM, Butryn ML. 2019	272	79% F	53,15 (9,69)	67,5% white	35,15 (4,94)	-	Recently changed medications that could impact appetite or body weight, had a medical or psychiatric condition that could pose risk for participation or interfere with adherence to

							treatment recommendations, were pregnant or planning to become pregnant
Campbell PT, Gross MD, Potter JD, Schmitz KH, Duggan C, McTiernan A, et al. 2010	173	100%W	60,7 (6,7)	2 American Indian, 7 African American, 9 Asian, 2 Hispanic, 149 White, 4 other	30 (2)	Postmenopausal	smoker, alcohol consumption fewer than 2 drinks per day, no history of cancer, diabetes or cardiovascular disease
Christensen JR, Overgaard K, Carneiro IG, Holtermann A, Sogaard K. 2012	98	100% f	-	-	30,6	-	-
Cicero AF, Benelli M, Brancaleoni M, Dainelli G, Merlini D, Negri R. 2015	377	78,8% W	48,3±10,9 M, 45,6±9.9 W	-	32.1±2,8 M, 31,2±3,1 W	-	Renal impairment, major depressive with eating disorders, serious hepatic impairment, insulin-dependent type 1 diabetes, oral anti-coagulant treatment, ongoing anti-cancer treatment, pregnant or breastfeeding
Coles LT, Fletcher EA, Galbraith CE, Clifton PM.2014	144	66 W	58,3±7,4	-	34,9±5,4	Type 2 Diabetes, prediabetes	Gastric surgery for weight loss, taking appetite-altering drugs,
Counterweight Project T. 2012	6715	74,30 %	53	-	37	-	-
	458/288	76 M-	47,5 (12,7)-	--	45,7 (10,1)-	99 with Type 2 diabetes-	--

Coutinho SR, Rehfeld JF, Holst JJ, Kulseng B, Martins C. 2018	35	-	39,5±8,2	-	42,5±5,0	-	Pregnancy, reduced physical functioning that could preclude the participation in regular PA, severe mental disability or psychiatric disorder, eating disorders, severe cardiovascular disease, diabetes or other endocrine diseases, previous bariatric surgery and/or medication know to affect appetite/metabolism or induce WL
Daiss SR, Wayment HA, Blackledge S. 2013	45	100% W	50,14 (12,16)	86,7% Caucasian, 6,7% Hispanic	33,30 /5,70)	-	Severe depression, current anorexia or bulimia, serious medical conditions if they obtained a medical release from their physician that their condition was under control.
Dalle Grave R, Calugi S, Bosco G, Valerio L, Valenti C, El Ghoch M, et al. 2018	67	51 F 16 M	45,8 ±11,1	-	39,8 ±5,8	-	Pregnancy, lactation, medications affecting body weight, medical comorbidities associated with weight loss, severe psychiatric disorders
Dalle Grave R, Calugi S, Gavasso I, El Ghoch M, Marchesini G.2013	88	58% F	46,7±11,1	-	45,6±6,7	At least one of type 2 diabetes, cardiovascular diseases, sleep apnea, severe joint disease	pregnant, lactating, took medications affecting body weight, had medical comorbidities associated with weight loss or had severe psychiatric disorders (e.g., acute psychotic states, bipolar disorder, bulimia nervosa)
Davis NJ, Tomuta N, Isasi CR, Leung V, Wylie-Rosett J. 2012	105	82% W, 74% W	54 (6), 53 (7)	62,66 % Black, 15,18% Hispanic, 15,14% white, 8,2% other	35±6, 37±6	Type 2 diabetes	Significant kidney, gallbladder, or heart disease.

de Vos BC, Runhaar J, van Middelkoop M, Krul M, Bierma-Zeinstra SM.2016	407	100% W	55,7	European/moth American 93%	32,4	-	Knee osteoarthritis, rheumatic diseases, use or oral glucosamine during past 6 months, current consultation with physician, physiotherapist or alternative health provider for knee pain
Donini LM, Cuzzolaro M, Gnessi L, Lubrano C, Migliaccio S, Aversa A, et al. 2014	161	136 W 25 M	47,6±12F, 45-±13M	-	33,6±6,61	-	Impaired clinical status preventing participation to the physical reconditioning program, compromised clinical status, i.e. heart failure, respiratory failure, severe osteoarthritis, or to the psychotherapy group, affected by eating disorders
Donnelly JE, Goetz J, Gibson C, Sullivan DK, Lee R, Smith BK, et al. 2013	295	34% M	43±10,2	39,8% non-caucasian	35,1±4,9	Chronic medical conditions if received clearance from their primary care physician	Pregnancy during the previous 6 months, lactating, planning a pregnancy during 18 months, type 1 diabetes, cancer, recent cardiac event, disordered eating symptomatology, extreme weight control behaviors, taking psychotropic medications, in active counseling, special diets.
Drummen M, Dorenbos E, Vreugdenhil ACE, Raben A, Fogelholm M, Westerterp-Plantenga MS, et al.2018	25	11F 13 M	56,0 (11,1)	-	31,1±3,5	-	-
Due A, Larsen TM, Mu H, Hermansen K, Stender S, Toubro S, et al. 2017	131	55 M 76 W	28,2±4,8	-	31,5±2,6	Described 2008	-

Dutton GR, Nackers LM, Dubyak PJ, Rushing NC, Huynh TV, Tan F, et al. 2014	66	86,4% W	50,2	47% African American	36,5 (5,7)	Answered if they had high blood pressure, heart attack, chest pain, type 2 diabetes, gestational diabetes, pre-diabetes, arthritis, sleep apnea, high cholesterol, dizziness/fainting, asthma or chronic lung disease, orthopedic problems. Total number of medical conditions was computed for each participant	Lost >5,4 kg last six months, had a medical condition likely to affect participation in physical activity
Eaton CB, Hartman SJ, Perzanowski E, Pan G, Roberts MB, Risica PM, et al. 2016	211	167 F	48,5 (11,9)	175 white, 9 hispanic 20 black, 7 other	37,7 (6,5)	-	Having a health condition that might make participation in a weight loss and exercise study unsafe
Elhayany A, Lustman A, Abel R, Attal-Singer J, Vinker S. 2010	259	86 F	55	-	31,4	Type 2 diabetes	Proliferative diabetic retinopathy, current insulin treatment, active oncologic or psychiatric disease, uncontrolled hypothyroidism or hyperthyroidism
Esposito K, Di Palo C, Maiorino MI, Petrizzo M, Bellastella G, Siniscalchi I, et al. 2010	192	192 M	> 18 years	-	>26	-	Diabetes mellitus, impaired renal function, hepatic disease, cardiovascular disease, psychiatric problems, a history of alcohol abuse, use of any medication.

Estabrooks PA, Wilson KE, McGuire TJ, Harden SM, Ramalingam N, Schoepke L, et al.2017	40308	31753 W, 7620 M	43,9 (13,1)	African American 3079, Asian 585, Caucasian 29278, Native American 663, other 3542, Hispanic 7740	32,4 (7,2)	-	-
Fernandez-Ruiz VE, Armero-Barranco D, Paniagua-Urbano JA, Sole-Agusti M, Ruiz-Sanchez A, Gomez-Marin J. 2018	74	37 F	59,4±9,1, 62,8 ± 8,9	32,4±3,8, 34,3±4,5	-	-	
Fogari R, Zoppi A, Corradi L, Preti P, Mugellini A, Lazzari P, et al. 2010	376	178 M 198 W	54,8±8,8	100% caucasion	27,7±1,3	Stage 1 hypertension	History of body weigh change > 3 kg within the previous 3 months, diabetes mellitus, secondary hypertension, myocardial infarction or stroke in the preceding months, unstable angina, congestive heart failure, significant thyroid, pulmonary, renal or hepatic disease, gastrointestinal disorders, pregnancy or nursing, significant neurological or psychiatric disturbances (including alcohol or drug abuse) or use of anorexiant agents, laxative, cyproheptadine, antidepressants, antiserotoninergics, phenothiazines, barbiturates, oral corticosteroids, antipsychotics or hormone replacement therapies.

Foraker RE, Pennell M, Sprangers P, Vitolins MZ, DeGraffinreid C, Paskett ED. 2014	79	100% F	41,4 (5,3)	25 non-white	30,3 (2,8)	-	Cancer, pregnant or planning to become, participating in a weight-loss program, had medical conditions that precluded dietary adherence, lacked management or control of existing medical problems
Forman EM, Butryn ML, Manasse SM, Crosby RD, Goldstein SP, Wyckoff EP, et al. 2016	190	82,1% F	51,64 ±.73	70,5% Caucasian, African American 24,7%, Other 4,8%	36,83± .42	-	Medical or psychiatric condition that limited their ability to comply with the behavioral recommendations of the program or posed a risk to the participant during weight loss, were unable to engage in the programs exercise plan, changed the dosage of weight-affecting medication within the past three months, were pregnant or planned to become pregnant, had lost more than 5% of their weight in the past 6 months, or met criteria for binge eating disorder.
Foster GD, Shantz KL, Vander Veur SS, Oliver TL, Lent MR, Virus A, et al. 2012	123	112 W 11 M	46,8	34 white, 21 black, 6 other	34	-	Uncontrolled hypertension, established cardiovascular disease, inflammatory condition, diabetes, use of antihyperglycemic medications, dyslipidemia requiring prescription drug therapy, any known allergy or sensitivity to nuts, use of medications known to affect body weight or a weight loss of more than 5 kg the preceding 6 mo.
Foster GD, Wyatt HR, Hill JO, Makris AP, Rosenbaum DL, Brill C, et al. 2010	307	99 M 208 F	45,4 (9,7)	70,5% white, 22,1% African American, 3% other	36,1 (3,5)	-	Serious medical illnesses, took lipid-lowering medications that affect body weight, blood pressures of 140/90 mm Hg or more

Foster-Schubert KE, Alfano CM, Duggan CR, Xiao L, Campbell KL, Kong A, et al. 2012	439	100% W	58,0±5,0	85% white	30,9±4.0	postmenopausal	Diagnosed diabetes, use of postmenopausal hormone therapy within the prior 3 months, history of breast cancer of other serious medical condition(s), alcohol intake in excess of 2 drinks/day or current smoker, contraindication to participating in the diet or exercise intervention for any reason, current or planned participation in another structured weight loss program, use of weight loss medications.
Gabriel KK, Conroy MB, Schmid KK, Storti KL, High RR, Underwood DA, et al. 2011	508	100% W	56,9 (2,94)	10,3% non-white	30,6 (3,8)	-	No diagnosed CVD, type 2 diabetes mellitus, psychotic disorder, blood pressure <= 140/90 mm HG with or without antihypertensive therapy, low density lipoprotein cholesterol level between 100-160 mg/dL without lipid lowering therapy.
Gadde KM, Kopping MF, Wagner HR, 2nd, Yonish GM, Allison DB, Bray GA. 2012	225	134 W, 91 M	43	142 white, 77 black, 6 other	37,6 (4,9)	-	Diabetes mellitus , serious of unstable medical illness, renal calculi history, current major depression, alcohol or drug abuse, psychosis or bipolar disorder or severe personality disorders, suicidality, antipsychotics or mood stabilizers, other psychotropic medications if taken for less than 3 months, taking zonisamide or other antiepileptic drugs.
Gagnon C, Brown C, Couture C, Kamga-Ngande CN, Hivert MF, Baillargeon JP, et al. 2011	48	26 F	54,8 ± 11.7	48 Caucasian	34,1 ± 4,3	Prediabetes	Unable to comply with the proposed intervention, had taken pharmacological treatment for obesity or any medications known to alter glucose tolerance (including metformin) within the last 3 months, had past or planned bariatric surgery, planning a pregnancy within a year, use a pacemaker.

Gjevestad E, Karlsen TI, Roislien J, Maehlum S, Hjelmesaeth J. 2013	372	255 W	42,8 (11,1)	-	42,9 (5,3)	-	Participated in weight loss programme during the previous 12 months, severe psychiatric disorder, not able to walk further than 100 m without the use of a walking aid.
Gohner W, Schlatterer M, Seelig H, Frey I, Berg A, Fuchs R.2012	316	77,5% F	50,6 (10,8)	-	34,7 (3,1)	At least one obesity-related risk factor	Contraindication for physical stress, type 1 diabetes, liver and kidney damage with an indication of protein restriction, psychiatric illnesses and eating disorder, intake of anorexigenic drugs, and the condition after a stomach stapling operation or a malignant tumor disease
Gomez-Huelgas R, Ruiz-Nava J, Santamaria-Fernandez S, Vargas-Candela A, Alarcon-Martin AV, Tinahones FJ, et al. 2019	67	67 W	43,7±3,4	-	35,5±3,6	-	-
Goodpaster BH, DeLany JP, Otto AD, Kuller L, Vockley J, South-Paul JE, et al. 2010	130	15 M	46,1 (6,5)	37% African American	43,5 (4,8)	Walk without assistance, commit to the schedule and obtain medical clearance for intervention	History of cancer within the past 5 years, had a history of or were receiving current treatment for coronary artery disease, had enrolled within the past year in a formal weight reduction program, had a history of bariatric surgery, had uncontrolled hypertension, diabetes, or pregnancy during the previous 6 months.
Gray CM, Wyke S, Zhang R, Anderson AS, Barry S, Boyer N, et al. 2018	488	488 M	-	-	35,4 (5,0)	-	-

Gussenhoven AH, van Wier MF, Bosmans JE, Dekkers JC, van Mechelen W. 2013	1386	929 M	43.3 (8,6)	-	29.0 3,5	-	Pregnancy, diagnosis or treatment of cancer, any other disorder that would make physical activity impossible
Haas K, Hayoz S, Maurer-Wiesner S. 2019	43	36 W	40,6	-	26-33	dyslipideia, insulin resistance, hypertension	pregnant or breastfeeding, were diagnosed with conditions other than dyslipidemia, hypertension, and insulin resistance requiring nutrition therapy, had serious disease requiring continuous drug therapy, were on a weight reduction diet during the last 6 months, took medication for weight loss in the past, or enrolled in another weight loss program
Haire-Joshu D, Schwarz CD, Steger-May K, Lapka C, Schechtman K, Brownson RC, et al. 2018	179	100% F	32	32% African American, 7% other	34,4 (5,2)	-	Pregnant or planning to become pregnant in the next 24 months, current enrollment in a weight loss program, undergoing treatment for diabetes or eating disorders, inability to engage in a walking program
Hausmann J, Waechtershaeuser A, Behnken I, Aksan A, Blumenstein I, Brenner M, et al. 2019	43	31 F	45,5±14,4	-	41,62±6.69	Hypertension, hyperlipidemia, Type 2 diabetes	Cardiac or pulmonal insufficiency class III/IV, cardiac arrhythmia, recent myocardial infarction, malignant disease, pregnancy or lactation, hypothyroidism, severe eating disorders or severe depression and being bedridden. Patients whom developed severe cardiopulmonary disease, malignant disease or pregnancy during participation.
Headland ML, Clifton PM, Keogh JB. 2019	332	83,1% F	49,3 (13,7)	-	33,5 (5,2)	-	Recent weight loss of greater than 5 kg with the past 6 months, weight loss surgery, pregnant, breast feeding, unwilling to reduce alcohol and takeaway consumption, unable to adhere to dietary protocol

Hersey JC, Khavjou O, Strange LB, Atkinson RL, Blair SN, Campbell S, et al. 2012	1755	74,0% W	46,7	83,6% white	33,6	-	Pregnancy, eating disorders, active cancer, provider approval if taking medication for diabetes or high blood pressure, had a heart condition or disability that limited their ability to be physically active.
Hintze LJ, Messier V, Lavoie M-E, Brochu M, Lavoie J-M, Prud'homme D, et al. 2018	54	100% w	-	-	31,6 (4,2)	postmenopausal	Known inflammatory disease, use of hormone replacement therapy
Ho TP, Zhao X, Courville AB, Linderman JD, Smith S, Sebring N, et al. 2015	28	15 F 13 M	39±5	-	33,2±4,6	14% impaired fast glucose, 46,4% metabolic syndrome	Diabetes mellitus, dyslipidemia, hypertension, renal insufficiency, liver, cardiovascular or thyroid disease, history of smoking or chronic use of prescription drugs.
Holzapfel C, Merl M, Stecher L, Hauner H. 2016	258	60% M	50,7±10,06	-	33,53±2,8	-	No serious psychological disorder, no participation in another health program
Iqbal N, Vetter ML, Moore RH, Chittams JL, Dalton-Bakes CV, Dowd M, et al. 2010	144	129 M	60,0±8,9	62 white, 77 African American 5 other	36,9±5,3	Diabetes (100%), hypertention (78%), hyperlipidemia (57/73%), Coronary artery disease (27/25%), Congestive heart failure /7/15%), Depression (44/43%9, sleep apnea (30/31%)	serum creatinine concentration > 1,5 mg/dl, urine lbumin-to-creatinine ration > 200 µg/mg, an HbA1c < 6,0% or > 12,0%, hypoglycemic or hyperglycemic episodes with the past month requiring external assistance, weight loss >5% in the past 3 months, participation in a weight-loss program, or the use of weight-loss medication.

Jakicic JM, Davis KK, Rogers RJ, King WC, Marcus MD, Helsel D, et al. 2016	470	334 W, 136 M	30,9	363 white, 107 nonwhite	31,2	Clearance from the participant's physician wa obtained.	Published in 2015
Jakicic JM, Otto AD, Lang W, Semler L, Winters C, Polzien K, et al. 2011	89	82 F	44,7±7,9	66 white, 13 black, 5 other	27,1±1,7	-	History of coronary heart disease, a medical condition that may affect body weight, taking medication that would affect body weight or blood pressure, recent weight loss of > 10 pounds over the prior 12 months.
Jakicic JM, Rickman AD, Lang W, Davis KK, Gibbs BB, Neiberg R, et al. 2015	195	43 M	43,2±8,6	129 white, 62 African American 4 other	33,0±3,4	-	History of cardiovascular disease, presence of metabolic condition that might affect body weight, presence of a medical condition that would preclude reducing energy intake of increasing physical activity, taking medication that would affect body weight or heart rate response to exercise, sustained weight loss of > 5% with the past 12 months, regular participation in physical activity >20 min/d on >=3 days/wk over the prior 6 months. pregnant in the past 6 months, currently pregnant, or planning on becoming pregnant in the subsequent 18 months.
Jakicic JM, Tate DF, Lang W, Davis KK, Polzien K, Rickman AD, et al. 2012	260	206 F	42,81 (8,95)	181 white, 60 black, 10 other	32,75 (3,53)	-	History of cardiovascular disease, presence of a metabolic condition that might affect weight, presence of a medical condition that would contraindicate diet and exercise, taking medication that would affect weight or heart rate response to exercise, sustained weight loss of 4,5 kg or greater in the past 6 months, regular participation in physical activity equivalent of 20 min/d or longer on 3 or more days per week over

							the prior 6 months, recent or current pregnancy or planned pregnancy within the subsequent 18 months.
Jansson SP, Engfeldt P, Magnuson A, Pt GL, Liljegren G. 2013	133	95 F	45	-	33,8	-	Type 2 diabetes, hypertension, CVD, coronary heart disease, dyslipidemia, gallstone, musculoskeletal disorder. Patients were not eligible if they were already taking part in another weight control program, understood the Swedish language poorly, were mentally ill, or had an alcohol or drug abuse problem. Neither were they eligible if they had a physical disability preventing intensified physical activity or were pregnant at study start.
Jebb SA, Ahern AL, Olson AD, Aston LM, Holzapfel C, Stoll J, et al. 2011	772	668 W	46,5 (13,5)	-	31,5 (2,6)	-	weight loss of 5 kg or more in the previous 3 months, history of a clinically diagnosed eating disorder, orthopedic limitation preventing participation in regular physical activity, untreated thyroid disease or more than one change in thyroid treatment in previous 6 months, receiving treatment with effect on weight or appetite, gastrointestinal disorder, previous surgical procedure for weight loss, major surgery for the previous 3 months, pregnancy or lactation, insulin-treated diabetes, diabetes diagnosis in the previous 6 moths, glycated hemoglobin of at least 75 mmol/mol, heart problems in the previous 3 months, uncontrolled hypertension, new prescription drug for a chronic disorder in the previous 3 months or change in dose in the previous 1 month, history or presence of cancer.
Jennings A, Hughes CA, Kumaravel B, Bachmann MO,	230	161 F	52,7 (13,6)	-	44,1 (7,8)	-	Pregnancy, severe eating disorder, poor motivation identified by a motivational questionnaire

Steel N, Capehorn M, et al. 2014							
Jiang X, Fan X, Wu R, Geng F, Hu C. 2017	119	65 M	56,3±5,2	-	32,6±2,4	Type 2 diabetes	Diabetic nephropathy and diabetic foot, diabetes other than type 2, other severe visceral organ disease
Karlsen TI, Sohagen M, Hjelmesaeth J. 2013	199	71% W	45,2 (11,1)	100% caucasian	42,0 (6,2)	-	-
Kempf K, Rohling M, Martin S, Schneider M. 2019	100	84 M	51 (6)	-	32 (7)	-	Severe illness with inpatient treatment during the last 3 months, weight reduction > 2 kg/week during the last month, smoking cessation during the last month, medication for active weight reduction, pregnancy and breastfeeding.
Keyserling TC, Samuel-Hodge CD, Pitts SJ, Garcia BA, Johnston LF, Gizlice Z, et al. 2016	339	260 F	56 (0,6)	219 African American, 117 white	36 (0,5)	-	Pregnant, had bariatric surgery, diagnosed with cancer, advanced kidney disease, dementia, psychosis
Knauper B, Carriere K, Frayn M, Ivanova E, Xu Z, Ames-Bull A, et al. 2018	172	138 F	49,43 (11,78)	156 Caucasian	28-45	-	Any limitation that would preclude full participation in the intervention or could have a confounding effect on the primary outcomes, including having been diagnose with diabetes, taking metformin, planning to become pregnant.

Koohkan S, Schaffner D, Milliron BJ, Frey I, Konig D, Deibert P, et al. 2014	380	100% F	51,4±7.0	100% Caucasian	35,5±3.00	-	Type 1 diabetes, liver and kidney damage with indication for restricted protein intake, psychiatric and eating disorder, intake of anti-obesity drugs, status after malignant disease with freedom from disease of less than five years.
Koster-Rasmussen R, Simonsen MK, Siersma V, Henriksen JE, Heitmann BL, de Fine Olivarius N. 2016	-761	212	58±9,6	-	32,6±4,7-	Type 2 diabetes	-
Krishnaswami A, Ashok R, Sidney S, Okimura M, Kramer B, Hogan L, et al. 2018	10693	72,8% W	51,1 (12,4)	72,0% white, 8,3% African American, 4,6% hisplaic, 6,0% Asian, 9,1 % other	39,7 (7,2)	-	Severe medical or mental illness, current malignancy, pregnancy or lactation, type 1 diabetes, active substance abuse
Krukowski RA, Hare ME, Talcott GW, Gladney LA, Johnson KC, Richey PA, et al. 2018	248	49% M	34,6±7,5	34% race minority	>=25	-	-
le Roux CW, Astrup A, Fujioka K, Greenway F, Lau DCW, Van Gaal L, et al.2017	2254	76% F	47,5 (11.7)	83% white, 10% african american, 7% other	38,8 (6,4)	Prediabetes, treated or untreated dyslipidaemia or hypertension, or both	Type 1 or 2 diabetes, medications causing significant weight gain or loss, bariatric surgery, history of pancreatitis, major depressive or other severe psychiatric disorder, family or personal history of multiple endocrine neoplasia type 2 or familial medullary thyroid carcinoma.

Le T, Flatt SW, Natarajan L, Pakiz B, Quintana EL, Heath DD, et al. 2016	245	100% w	50	181 white, 12 hispanic, 12 black, 10 other	33,5	-	allergy to nuts, inability to participate in physical activity due to severe disability, history or presence of a comorbid disease for which diet modification and increased physical activity may be contraindicated, pregnancy, breastfeeding, planning a pregnancy within the next year, current involvement in another diet intervention or weight loss program, history or presence of significant psychiatric disorder or any condition that would interfere with participation in the trial
Lih A, Pereira L, Bishay RH, Zang J, Omari A, Atlantis E, et al. 2015	80	42 F	63,3±8,5	-	37,5±5,3	Type 2 diabetes	Type 1 diabetes, pregnancy, previous bariatric surgery, eating disorder, major comorbidity limiting physical exercise, conditions associated with unintentional weight loss such as malignancy, HIV, dialysis or home oxygen.
Lindberg NM, Stevens VJ, Vega-Lopez S, Kauffman TL, Calderon MR, Cervantes MA. 2012	47	47 F	38	Mexican	38,7	-	-
Look ARG Wing 2010	2539+2528	60% W	59 (7)	63% white, 16% Black, 13% Hispanic 8% other	36,0 (5,8)	Non stated, but also Confirmed type 2 diabetes	Inability to walk two blocks, non-traumatic amputation of a lower limb, urine dipstich protein of 4+, serum creatinine exceeding 1,4 mg/de in women or 1,5 mg/dl i ment, or current treatment with dialysis. There were no exclusions based on other complications of diabetes.

							For some studies: Diabetes mellitus, being pregnant or lactating, cardiovascular disease, other medical conditions prohibiting weight loss, substance abuse, sever psychiatric illness, eating disorders Or: Individuals with inadequate diabetes control (i.e., HbA1c >11%), or with conditions likely to affect treatment adherence, safety, or retention, were excluded from the trial. Individuals diagnosed with psychosis or bipolar disorder, or who had been hospitalized for depression in the past 6 months, also were excluded
Lowe MR, Butryn ML, Thomas JG, Coletta M. 2018	262	211 F	47,7±12,57	165 white, 79 black, 7 other	27-45	-	Currently enrolled in another organized weight-loss program, lactose intolerance, taking medications that affect appetite, history of gastric bypass or other surgical weight-loss procedure, medical condition (cancer, substance abuse, psychotic disorder) that would limit participants' ability to comply or pose a risk to the participant, pregnancy or planning to become pregnant during the next 2 y, breastfeeding, consuming an amount of alcohol that would interfere with study completion
Lowe MR, Butryn ML, Zhang F. 2014	238	89% W	-	65,8 % African American	39,5	-	-
Ma J, Rosas LG, Lv N, Xiao L, Snowden MB, Venditti EM, et al. JAMA.	409	70% W	51 (12,1)	71% non-hispanic white	36,7 (6,4)	Depressive symptoms	Serious comorbidities

MacLaughlin HL, Cook SA, Kariyawasam D, Roseke M, van Niekerk M, Macdougall IC. 2010	64	39 M	49,1±11,3	32 white, 18 black, 9 other	35,7 ± 4,5	Chronic kidney disease	-
Masuo K, Rakugi H, Ogihara T, Esler MD, Lambert GW. 2011	154	100 % M	-	japanese	27,3±1,4	-	-
McRobbie H, Hajek P, Peerbux S, Kahan BC, Eldridge S, Trepel D, et al. 2016	330	72% W	45,1 (14,2)	169 white, 79 black,43 asian, 12 mixed 23 other	35,7 (4,3)	-	-
McTigue KM, Bhargava T, Bryce CL, Conroy M, Fischer GS, Hess R, et al. 2011	50	80 %	52,66 (10,94)	91,4% white, 5,7% black, 2,9% other	36,38 (7,09)	-	-
Merrill RM, Aldana SG, Bowden DE. 2010	5405	56% W	46,4 (10,2)	-	34,1 (7,2)	-	Pregnancy
Moin T, Damschroder LJ, AuYoung M, Maciejewski ML, Datta SK, Weinreb JE, et al. 2017	387	89 % M	58,9 (10,0)	19 hispanic 160 black, 167 non hispanic white, 40 other/missing	34,3 (4,9)	Prediabetes	-

Moncrieft AE, Llabre MM, McCalla JR, Gutt M, Mendez AJ, Gellman MD, et al. 2016	111	71,2 %9 W	54,81 (7,36)	Hispanic 97, Black 12, white 5	32,6 (4,7)	Type 2 diabetes	Any factors that would limit participant life span, affect the safety of the intervention, limit adherence to intervention or affect conduct of the trial including advance renal disease, blood pressure >160/100 mm Hg, inability to walk, severe mental illness.
Moreno B, Bellido D, Sajoux I, Goday A, Saavedra D, Crujeiras AB, et al. 2014	53	47 F	46,3±9.3	-	35,1±5,3	Prediabetes	Type 2 diabetes, insulin therapy, obesity induced by endocrine disorders or drugs, use of any weight loss diet or pills in the previous 6 months, severe depression or any other psychiatric disease, abuse of narcotics or alcohol, severe hepatic insufficiency, any type of renal insufficiency or gout episodes, neoplasia, previous events of cardiovascular or cerebrovascular disease, kidney Itiasis, uncontrolled hypertention, hydroelectrolytic alterations. Females with child-bearing potential, who were pregnant, breast feeding, intending to become pregnant or not using adequate contraceptive methods,
Nackers LM, Middleton KR, Dubyak PJ, Daniels MJ, Anton SD, Perri MG. 2013	125	100 % W	51,98 (10,85)	73,7 % Caucasian, 16,8% African American, 6,4% Other	37,84 (3,94)	-	Major psychiatric disorder, excessive alcohol intake,
Nakade M, Aiba N, Suda N, Morita A, Miyachi M, Sasaki S, et al. 2012	235	113 F	55,1±6,4-	japanese	30,9±3,0	-	Psychiatric conditions or physical conditions that would preclude full participation in the study

Neve M, Morgan PJ, Collins CE. 2011	2656	86% F	36,7	-	35,8	-	-
Nurkkala M, Kaikkonen K, Vanhala ML, Karhunen L, Keranen A-M, Korpelainen R. 2015	76	72 % F	46 (10)	-	34,3	-	Pregnancy, lactation, inability to take part in exercise or intensive counseling, drugs affecting heart rate, or current treatment for obesity at another clinic or group.
Pal S, Ho S, Gahler RJ, Wood S. 2016	159	54 M	49,9±1,7	-	31,7±0.5	-	Smoking, medication and other agents that may influence lipid metabolism, diabetes mellitus, hypo- and hyperthyroidism, cardiovascular events within the last 6 months, major systemic disease, gastrointestinal problems, weight fluctuations over the past 6 months.
Paskett ED, Baltic RD, Young GS, Katz ML, Lesko SM, Webber KH, et al.2018	663	70,7 F	55,7 (12,8)	97,9% white	33,2 (6,3)	-	Pregnant, breastfeeding, planning to become pregnant during study period
Patrick K, Calfas KJ, Norman GJ, Rosenberg D, Zabinski MF, Sallis JF, et al. 2011	441	100% M	43,9 (8,0)	71% white non-Hispanic	34,2 (4,2)	-	-
Pavic E, Hadziabdic MO, Mucalo I, Martinis I, Romic Z, Bozikov V, et al. 2019	124	74,2% W	47±12	-	41,6±8,32	67,7% diagnosed with metabolic syndrome	Newly diagnosed diabetes, hypertension, cardiovascular disease, change in antihypertensive and oral antidiabetic therapy in the period of 3 months prior to the commencement of the study, insulin use, abuse of alcohol or drugs, pregnancy or lactation, use of drugs affecting weight control

Pearl RL, Wadden TA, Tronieri JS, Berkowitz RI, Chao AM, Alamuddin N, et al. 2018	137	86,1% F	46,1±10,1	68,6% black, 24,1 % white, 2,9 Asia, 4,4% multiracial/other	40,8±5,9	-	Serious medical conditions and current major depression or use of anti-depressants
Pedersen E, Jesudason DR, Clifton PM. 2014	45	35 M	59,4±2.2	-	36,7	Type 2 diabetes, albuminuria	impared kidney function
Pedersen LR, Olsen RH, Anholm C, Astrup A, Eugen-Olsen J, Fenger M, et al. 2019	55	43 M	63,8 (6,7)	-	31,3	Coronary artery disease	Diabetes, other severe heart disease, severe comorbidity, participated in organised sports more than twice weekly or had experienced a significant weight loss or gain more than 3 months prior
Petrella RJ, Gill DP, Zou G, A DEC, Riggin B, Bartol C, et al. 2017	80	80 M	48,7 (9,0)	76 white	36,5 (6,0)	-	-
Phillips EG, Wells MT, Winston G, Ramos R, Devine CM, Wethington E, et al. 2017	405	89% W	48±14,2	52% Black, 42% Hispanic, 5% both	34,7	-	-
Pjanic, Muller R, Laimer M, Hagenbuch N, Laederach K, Stanga Z. 2017	238	80,2% F	41,4 (12,3)	-	39,6 (6,2)	-	-

Poddar KH, Ames M, Hsin-Jen C, Feeney MJ, Wang Y, Cheskin LJ. 2013	73	64 W 9 M	48,42±1.37	33 white, 38 African American, 2 Hispanic	33,89 ±0,63	-	Regular use of medications and/or supplements that could affect their weight, pregnant or nursing, allergic to mushrooms
Powell LH, Appelhans BM, Ventrelle J, Karavolos K, March ML, Ong JC, et al. 2018	26	77% F	53,3±7.2	65% ethnic minority	32,5 (7,3)	Metabolic Syndrome	-
Puhkala J, Kukkonen-Harjula K, Mansikkamaki K, Aittasalo M, Hublin C, Karmeniemi P, et al. 2015	113	100% M	47,6	-	32,9	-	-
Raynor HA, Steeves EA, Hecht J, Fava JL, Wing RR. 2012	202	57,8% W	51,3±9.5	92,2% white	34,9±4.3	-	Could not walk 2 blocks, heart condition, chest pain during periods of activity or rest, loss of consciousness on the Physical Activity Readiness Questionnaire, taking weight-loss medication had undergone bariatric surgery, were pregnant, lactating or < 6 mo postpartum or planned to become pregnant, were allergic to foods used in hedonic measures, were consuming <5 different types of NND-EDFs
Rejeski WJ, Ambrosius WT, Burdette JH, Walkup MP, Marsh AP. 2017	249	71,1% W	66,8±4,7	32,1% African American, 65,1% white 2,8% other	33,8±3,6	Either cardiovascular disease of metabolic syndrome	Severe heart disease, severe systematic disease, had a myocardial infarction or cardiovascular procedure in the past 3 months, a blood glucose >= 140 mg/dL, diagnosis of Type 1 diabetes or insulin-dependent Type II diabetes, severe psychiatric condition.

Rejeski WJ, Brubaker PH, Goff DC, Jr., Bearon LB, McClelland JW, Perri MG, et al. 2011	288		66,8±4,6	85,7% white 14,3% black	33,1 (4,1)	Either CVD or cardio metabolic dysfunction and evidence of self-reported limitations in mobility	BMI of 40 r higher, bipolar depression or schizophrenia, unstable angina, symptomatic congestive heart failure, exercise-induced complex ventricular arrhythmias, resting blood pressure greater than 160/100 mm Hg, diagnosis of systemic diseases that precluded participants from safely participating in the intervention; a fast blood glucose level higher than 140 mg/dL, type 1 diabetes mellitus or type 2 DM with insulin therapy, active treatment for cancer, clinically significant visual or hearing impairment, dementia, delirium, impaired cognitive function, having more than 21 alcoholic drinks per week, inability to walk unassisted
Rock CL, Flatt SW, Sherwood NE, Karanja N, Pakiz B, Thomson CA. 2010	442	100% W	44	326 non-hipsanic white, 60 hispanic 38 black, 18 other	33,8	-	Pregnant, breastfeeding or planning to become pregnant in the next 2 years, no eating disorders, food allergies or intolerances, BMI greater than 40
Rodriguez-Cristobal JJ, Alonso-Villaverde C, Panisello JM, Trave-Mercade P, Rodriguez-Cortes F, Marsal JR, et al. 2017	846	77,19% W	55,49±11,5	-	34.1±4,8	-	Severe clinical pathology, secondary obesity, severe sensorial disorder capable of interfering with the motivational intervention, serious psychiatric disorder
Rolls BJ, Roe LS, James BL, Sanchez CE. 2017	186	100% W	50,4 (9,6)	183 white 3 other	33,6 (4,2)	-	Blood pressure > 160/100 mm /Hg, weight change >4,5 kg in the past 3 months, medical condition that precluded participation or that limited physical activity, were following a special diet or weight loss program were pregnant or lactating,

							scared > 19 on the Eating Attitudes Test, scored > 25 on the Beck Depression Inventory
Ross R, Lam M, Blair SN, Church TS, Godwin M, Hotz SB, et al. 2012	396	146 M	51,3 (11.0)	-	32,6 (4,2)	-	Serious medical conditions that prevented participants from increasing daily physical activity.
Rossen LM, Milsom VA, Middleton KR, Daniels MJ, Perri MG. 2013	298	100% W	59,3±6,2	75,5 % Caucasian	36,8±5.0	-	Weight over 158,8 kg, had a history of heart attack or stroke, metabolic abnormalities, any musculoskeletal conditions that limited walking, any major psychiatric disorders, or experienced significant weight loss (>= 4,5 kg) in the 6 months prior to the study.
Rudolph A, Hellbardt M, Baldofski S, de Zwaan M, Hilbert A. 2016	190	130 F	44,9±11,4	-	44,08 (6,20(	-	-
Ryan DH, Johnson WD, Myers VH, Prather TL, McGlone MM, Rood J, et al. 2010	390	83% W	47	75% white	45,6 (7,9)	-	Pregnant, history of major depression, suicidal behavior or eating disorder, hospitalization for mental disorder or substance abuse in the previous year, active cancer, cardiovascular or cerebrovascular disease event in the past year, heart failure and current use of weight loss medication.
Safavi R, Lih A, Kirkpatrick S, Haller S, Bailony MR. 2019	129	67% F	45,±14,0	-	37,0±6,0	-	Pregnant

Salinardi TC, Batra P, Roberts SB, Urban LE, Robinson LM, Pittas AG, et al. 2013	466	78% W	47,9±1,1	-	33.2±0,7	-	Pregnant, having any medical condition that could influence nutrient absorption or restrict the intake of food.
Santanasto AJ, Newman AB, Strotmeyer ES, Boudreau RM, Goodpaster BH, Glynn NW. 2015	36	29 F	70,6±6,1	29 White 6 black	33,6 (3,3)	-	Unable to walk 400 m < 15 min without an assistive device, deemed by the study nurse practitioner to have severe medical condition(s) precluding safe participation in diet and/or exercise intervention, or had significant cognitive impairment.
Saslow LR, Daubenmier JJ, Moskowitz JT, Kim S, Murphy EJ, Phinney SD, et al. 2017	34	-	-	-	35,9	Current glycated hemoglobin level over 6,0%	Using insulin, taking more than three glucose-lowering agents
Sattin RW, Williams LB, Dias J, Garvin JT, Marion L, Joshua TV, et al. 2016	604	83% W	46,5	100% African American	35,7	-	Diabetic, medical contraindication to physical activity, no history of gastric weight-loss surgery or weight loss of more than 10% in the past three months for any reason other than child birth, no physical conditions of medications that might affect glucose metabolism, or behaviors that might interfere with participation, no illnesses that would limit life span, pregnancy of planned pregnancy with the study period.
Schroder H, Cardenas-Fuentes G, Martinez-Gonzalez MA, Corella D, Vioque J, Romaguera D, et al. 2018	6874	3117 M	65,0 (4,9)	-	32,5 (3,45)	Metabolic Syndrome	History of cardiovascular disease, any chronic medical condition, acute infectious processes, institutionalization, psychiatric disorders, any condition inhibiting PA, alcohol and drug abuse, use of specific medications, important weight loss within a short time-period, allergy to MedDiet food.

Schutte BA, Haveman-Nies A, Preller L. 2015	511	210 M	58,2 (10,9)	-	33	Comorbidity included hypertension, dyslipidaemia, diabetes mellitus, cardiovascular disease, osteoarthritis, and sleep apnea.	.
Sepah S, Jiang L, Peters AL. 2014	220	17,3% M	43,6±12.4	108 white, 63 black, 23 hispanic 21 other	36,6±7,6	Prediabetes	-
Shapiro JR, Koro T, Doran N, Thompson S, Sallis JF, Calfas K, et al. 2012	170	65% F	41,9 (11,8)	64% white	32,2 (4,1)	-	Currently or has the intention to become pregnant during the trial, current eating disorder
Shea MK, Houston DK, Nicklas BJ, Messier SP, Davis CC, Miller ME, et al. 2010	318	72% F	69±6	-	34±5	Knee OA	Cardiovascular disease, severe hypertension, chronic obstructive pulmonary disease, comorbidities that could limit mobility and participation in regular exercise.
Silva MN, Vieira PN, Coutinho SR, Minderico CS, Matos MG, Sardinha LB, et al. 2010	239	100% W	37,6±7,1	-	31,4±4,1	Premenopausal	Pregnant, major illnesses, not taking medication known to interfere with body weight regulation.

Simon GE, Rohde P, Ludman EJ, Jeffery RW, Linde JA, Operskalski BH, et al. 2010	203	100% W	50,1 (6,1)	-	38,3 (7,1)	PHQ depression score of 10 or greater	-
Spring B, Duncan JM, Janke EA, Kozak AT, McFadden HG, DeMott A, et al. 2013	69	59 M	57,7 (11,9)	52 white, 17 African American	36,3 (4,6	-	Recent psychiatric hospitalization, current substance abuse, binge eating disorder or sever mood disorder
Stomby A, Simonyte K, Mellberg C, Ryberg M, Stimson RH, Larsson C, et al. 2015	49	100% W	-	-	32,5 (3,9)	postmenopausal	-
Svetkey LP, Batch BC, Lin P-H, Intille SS, Corsino L, Tyson CC, et al. 2015	365	69,6% F	29,4 (4,3)	56,2 % white, 36,2 black, 7,7% other	35,2 (7,8)	-	-
Swencionis C, Wylie-Rosett J, Lent MR, Ginsberg M, Cimino C, Wassertheil-Smoller S, et al. 2013	588	82,3% F	52,2 (11,7)	488 white, 65 black 35 other	35,6 (6,54)	-	medical conditions that could interfere with participation,
Tapsell LC, Batterham MJ, Thorne RL, O'Shea JE, Grafenauer SJ, Probst YC. 2014	113	85 F 28 M	48,9+-9,3	-	29,98		Major illnesses, diabetes mellitus, thyroid abnormalities, heavy alcohol consumption, recent acute or chronic disease, changing medications affect weight, weight loss >5 kg in last 3 months, fluctuating exercise patterns, strenuous exercise > 1 h per day, pregnancy or lactation, dietary limitations, dislike of vegetables

Tapsell LC, Lonergan M, Batterham MJ, Neale EP, Martin A, Thorne R, et al. 2017	178	74% W	45	-	32	-	Severe medical conditions impairing the ability to participate or thought to limit survival to 1 year, having reported illegal drug use or regular alcohol intake associated with alcoholism, or other major impediments to participation.
Tay, J, Luscombe-Marsh ND, Thompson CH, Noakes M, Buckley JD, Wittert GA, et al. 2015	115	36 F 64 M	58±7	-	34,2±4,5	Type 2 diabetes	Type 1 diabetes, impaired renal function, proteinuria, abnormal liver function, any overt endocrinopathology, history of malignancy, respiratory disease, gastrointestinal disease, CVD, pregnancy or lactation, history of an eating disorder, smoking, having a current eating disorder or current smoking
Teeriniemi AM, Salonurmi T, Jokelainen T, Vahanikkila H, Alahaivala T, Karppinen P, et al. 2018	375	50,9% M	46,0+-9,9	100% Caucasian	30,5 (2,1)	-	No health-related restrictions to losing weight (pregnancy), no other ongoing treatment of obesity, abnormal laboratory values, clinically significant illness with contraindication for weight loss or physical activity. Exclusion criteria were uncontrolled health factors, such as abnormal laboratory values (thyroid, kidney and liver function tests) or clinically significant illness with contraindication for weight loss or physical activity. Volunteers were invited to a screening visit at the enrolment site of the Oulu University Hospital.
ter Bogt NC, Bemelmans WJ, Beltman FW, Broer J, Smit AJ, van der Meer K. 2011	457	52% F	56	-	29,5 (3,1)	Hypertension or dyslipidemia or both	Diabetes mellitus, hypothyroidism, pregnancy, liver or kidney disease, current treatment for malignant disease, severely shortened life expectancy, mental illness, addition to alcohol or drugs

Thomas JG, Raynor HA, Bond DS, Luke AK, Cardoso CC, Foster GD, et al. 2017	279	77% F	55,0 (11,5)	248 white, 16 black. 7 other	33,9 (3.7)	-	Contradiction for weight loss or unsupervised exercise, pregnancy, breastfeeding, plan to become pregnant with 12 months, use of a commercial weight loss program or weight loss of >5% within the previous 6 months, current use of prescription weight loss medication, previous bariatric surgery, chemotherapy or radiation for cancer within 6 months of enrollment, report of any lifetime eating disorder diagnosis, excluding binge eating disorder.
Trepanowski JF, Kroeger CM, Barnosky A, Klempel MC, Bhutani S, Hoddy KK, et al.2017	100	86 W	44 (11)	32 white, 63 black, 5 other	35 (4)	-	History of cardiovascular disease, type 1 or 2 diabetes, use of medications that could affect study outcomes, unstable weight for 3 months prior to the beginning of the study, perimenopause or otherwise irregular menstrual cycle, pregnancy and currently smoking.
Tur JJ, Escudero AJ, Alos MM, Salinas R, Teres E, Soriano JB, et al. 2013	143	31,4% M	46,5+-10,7	98,3 % Caucasian	45,79+-4,97	Arterial pressure < 160/100 mmHg, fasting triglycerides levels greater than 600 mg/dl and a <11% glycosylated hemoglobin (HbA1C) level	Pregnancy, enrolment in another obesity intervention, prior bariatric surgery, drug or alcohol abuse and mental disorders, and/or physical impairment, or any other which could interfere with the ability to comply with treatment.
Venn BJ, Perry T, Green TJ, Skeaff CM, Aitken W, Moore NJ, et al. 2010	108	93 W	42 (11,2)	-	36,1 (6,5)	-	No chronic disease, diabetes mellitus, cancer, coronary heart disease, pregnant or lactating

Villareal DT, Chode S, Parimi N, Sinacore DR, Hilton T, Armamento-Villareal R, et al. 2011	107	40 M	70+-4	91 white, 14 black, 2 other	37,2+-4.5	2,2+-1,4 chronic diseases	Weight fluctuated more than 2 kg previous year, medications changed 6 months before enrolment, severe cardiopulmonary disease, musculoskeletal or neuromuscular impairments the preclude exercise training, visual, hearing or cognitive impairments, history of cancer, receiving drugs that affect bone health and metabolism, current smokers
Wadden TA, Foreyt JP, Foster GD, Hill JO, Klein S, O'Neil PM, et al. 2011	793	89,3 % F	45,9 +- 10,4	68,5 white, 24,5 aftican-american, 6,9% other	36,3+-4,2	-	Type 1 or 2 diabetes, significant cerebrovascular, cardiovascular, hepatic, or renal disease, obesity of known endocrine origin, previous surgical intervention for obesity, loss or gain > 4 kg with the previous 3 months, use of medications known to affect body weight, a history of seizures, treatment with bupropion or naltrexone within the previous 12 months, a history of drug or alcohol abuse within the previous 12 months, those who had used tobacco or other nicotine products with 6 months before screening, serious psychiatric illness.
Wadden TA, Volger S, Sarwer DB, Vetter ML, Tsai AG, Berkowitz RI, et al. 2011	390	79,7% F	51,5+-11,5	230 white, 150 black, 10 other	38,5+-4,7	At least two of five components of the metabolic syndrome	Recent cardiovascular disease, other medical conditions contraindicating weight loss blood pressure of 160/100 mm Hg or higher, medications that substantially affect body weight, substance abuse, severe psychiatric illness bariatric surgery, loss of 5% or more previous 6 months, pregnancy or lactation

Wadden TA, Walsh OA, Berkowitz RI, Chao AM, Alamuddin N, Gruber K, et al. 2019	150	79,3%F	47,6+-11,8	67 black, 81 white, 2 other	38,4+-4.9	-	Personal or family history of medullary thyroid cancer or multiple endocrine neoplasia syndrome, types 1 or 2 diabetes, renal, hepatic, or recent cardiovascular disease, blood pressure >160/100 mm Hg, medications that substantially affect body weight, substance abuse, current major depression, suicidal ideation, history of suicide attempts, bariatric surgery, use of weight loss medications or products, as well as weight loss > 4,5 kg in past 3 months, pregnancy, lactation
Weinstock RS, Trief PM, Cibula D, Morin PC, Delahanty LM. 2013	257	75% F	52	85% white, 13% black	39	Metabolic Syndrome	Diagnosed diabetes, presence of severe medical problems that could interfere with participation
Welsh P, Cezard G, Gill JM, Wallia S, Douglas A, Sheikh A, et al. 2016	151	67 M	53	South Asians	30,5 (5,2)	-	Diabetes
West DS, Harvey JR, Krukowski RA, Prewitt TE, Priest J, Ashikaga T. 2016	398	89,7%	-48,4+-10.1	-24% african american	-36,0+-6,0		- Taking medications that might affect weight loss, reported substantial recent weight loss, had a history of bariatric surgery, were enrolled in another weight reduction program, had a condition for which weight loss was contraindicated.
Williams AE, Stevens VJ, Albright CL, Nigg CR, Meenan RT, Vogt TM. 2014	1208	583 M	46,00 (10,16)	5,69% white	29,38 (3,93)	-	-

Winkler JK, Schultz JH, Woehning A, Piel D, Gartner L, Hildebrand M, et al. 2013	217	142 F	44,7+-0,8	-	41,8+-0,5	47 had diabetes	-
Wycherley TP, Brinkworth GD, Keogh JB, Noakes M, Buckley JD, Clifton PM. 2010	120	120 M	50,0+-1,1	-	33,7+-0,6	-	History of liver, cardiovascular, peripheral vascular, respiratory or gastrointestinal disease, diabetes, pregnancy, a malignancy or smoking
Yaeger A, Cash NR, Parham T, Frankel DS, Deo R, Schaller RD, et al. 2018	162	72% M	62,6+-9,8	-	36,0+-5,8	Atrial fibrillation	-
Yeh MC, Heo M, Suchday S, Wong A, Poon E, Liu G, et al. 2016	60	34 W	56,8 (9,5)	Chinese	26,3 (2,4)	Prediabetes	No medical conditions for which the DPP lifestyle intervention would be contraindicated
Zinn C, Schofield GM, Hopkins WG. 2012	66	39 M	45+-11	European 40, maori 11, Pacific Islander 13, Ausian 1	35+-6	-	Pregnant, breastfeeding
Zurlo F, Trevisan C, Vitturi N, Ravussin E, Salvo C, Carraro S, et al. 2019	23	15 M	56,7+-7,5	Caucasian	34,7+-4,9	Type 2 diabetes	Recent acute diseases, severe infections, trauma or surgery, uncontrolled hypertension or hyperglycemia, evidence of advance cardiovascular, renal or hepatic diseases, contraindication to exercise, BW change of more than 3% within the past 6 months, medication changes within the last 3 months.

6. Beskrivelse av måletidspunkt og utfall

Vedleggstabell 6. Måletidspunkt og utfall

Førsteforfatter, år	Måletidspunkt	Utfall
Aadland E, Andersen JR, Anderssen SA, Kvalheim OM. 2013	Week 3, 6, 20, 23, 46, 50, 53, 2 years	Lipoproteins, body weight, fat mass, physical activity and quality of Life, BMI
Abed HS, Wittert GA, Leong DP, Shirazi MG, Bahrami B, Middeldorp ME, et al. 2013	0, 15 months	Atrial fibrillation symptom burden, 7-day Holter-derived atrial fibrillation episode and duration burden, echocardiographic left atrial area and left ventricular wall thickness, weight, waist circumference, BMI, glucose, insulin, triglycerides, cholesterol, blood pressure
Akers JD, Cornett RA, Savla JS, Davy KP, Davy BM. 2012	12 month	Body weight, waist circumference, blood pressure, body fat
Aller EE, Larsen TM, Claus H, Lindroos AK, Kafatos A, Pfeiffer A, et al. 2014	wk 4, 26, 52	Change in body weight, fat-free mass, fat mass, waist circumference, Hip circumference, sagittal diameter, blood pressure, cholesterol, glucose, insulin, urea, HOMA-IR index Matusuda index
Aller EE, van Baak MA. 2016	0, 6, 12, 18 months	Cholesterol, glucose, blood pressure, BMI, waist circumference, fat mass
Anderson AS, Craigie AM, Caswell S, Treweek S, Stead M, Macleod M, et al. 2014	0, 3, 12 months	Body weight, waist circumference, BMI, blood pressure, cholesterol, glucose, insulin,
Annesi JJ. 2019	0, 3, 6, 12, 24 months	Changes in emotional eating, negative mood, self-regulation, physical activity, BMI
Anton SD, LeBlanc E, Allen HR, Karabetian C, Sacks F, Bray G, et al. 2012	24 months	Weight loss
Appel LJ, Clark JM, Yeh HC, Wang NY, Coughlin JW, Daumit G, et al. 2011	6, 12, 24 months	Weight change, BMI<30, at or below baseline weight

Ard JD, Gower B, Hunter G, Ritchie CS, Roth DL, Goss A, et al. 2017	6, 12 months	Weight, body fat, lean mass, glucose, HDL cholesterol, physical performance, quality of life,
Ard JD, Lewis KH, Rothberg A, Auriemma A, Coburn SL, Cohen SS, et al. 2019	26, 52 wk	Body weight, waist circumference, total fat mass
Beavers KM, Ambrosius WT, Rejeski WJ, Burdette JH, Walkup MP, Sheedy JL, et al. 2017	18 months	-
Beavers KM, Beavers DP, Nesbit BA, Ambrosius WT, Marsh AP, Nicklas BJ, et al. 2014	18 months	Body mass, BMI, fat mass, lean mass, blood pressure, cholesterol, glucose, insulin
Beavers DP, Beavers KM, Loeser RF, Walton NR, Lyles MF, Nicklas BJ, et al. 2014	18 months	Weight loss, bone mineral density BMI, regional fat mass
Bischoff SC, Damms-Machado A, Betz C, Herpertz S, Legenbauer T, Low T, et al. 2012	52 weeks	Weight, BMI, Waist circumference, waist-to-height ratio, improvement of metabolic syndrome, hypertriglyceridemia, hypercholesterolemia, fatty liver disease, diabetes, renal failure
Borel AL, Nazare JA, Smith J, Almeras N, Tremblay A, Bergeron J, et al. 2012	1 year	Body weight, BMI, waist circumference, waist-to-hip ratio, blood pressure, heart rate, volume of adipose tissue, fat-free mass, fat mass, heart rate
Botha S, Forde L, MacNaughton S, Shearer R, Lindsay R, Sattar N, et al. 2018	1, 2, 3 years	Weight HbA1c, change in number of unique diabetes medications, change in insulin use
Burke LE, Styn MA, Sereika SM, Conroy MB, Ye L, Glanz K, et al. 2012	6, 12, 18 months	Percent weight change, adherence
Buscemi J, Pugach O, Springfield S, Jang J, Tussing-Humphreys L, Schiffer L, et al. 2018	6, 18 months	BMI, fiber
Cai R, Chao J, Li D, Zhang M, Kong L, Wang Y. 2019	0, 18, 24 months	Weight change, cardiometabolic risk factors, waist circumference, blood pressure, fasting blood sugar, cholesterol.

Call CC, Piers AD, Wyckoff EP, Lowe MR, Forman EM, Butryn ML. 2019	0, 12, 24 months	Weight
Campbell PT, Gross MD, Potter JD, Schmitz KH, Duggan C, McTiernan A, et al. 2010	0, 12 months	Change in aerobic fitness, in body fat, in weight, in waist circumference
Christensen JR, Overgaard K, Carneiro IG, Holtermann A, Sogaard K. 2012	0, 3, 12 months	Weight, BMI, fat percentage, blood pressure
Cicero AF, Benelli M, Brancaleoni M, Dainelli G, Merlini D, Negri R. 2015	0, 1, 3, 12 momths	Weight, SMI, waist circumference, body fat, lipid parameters, haemodynamic parameters
Coles LT, Fletcher EA, Galbraith CE, Clifton PM.2014	0, 1, 6, 12 months	HbA1c, Weight change, blood pressure, glucose cholesterol, medication change
Counterweight Project T. 2012	0, 3, 6, 12 months	Weight loss
Coutinho SR, Rehfeld JF, Holst JJ, Kulseng B, Martins C. 2018	4 weeks, 1, 2 year	Body weight, cardiovascular fitness
Daiss SR, Wayment HA, Blackledge S. 2013	0, 3, 6, 12 months	Body weight, BMI, Greene Climacteric Scores
Dalle Grave R, Calugi S, Bosco G, Valerio L, Valenti C, El Ghoch M, et al. 2018	0, 6, 18 months	Body weight, BMI cholesterol, glucose, insulin
Dalle Grave R, Calugi S, Gavasso I, El Ghoch M, Marchesini G.2013	3, 27 weeks, 1 year	Weight, BMI, blood pressure, cholesterol Glucose, insulin, uric acid, creatinine
Davis NJ, Tomuta N, Isasi CR, Leung V, Wylie-Rosett J. 2012	0, 6, 12 months	Weight loss, diabetes control, social burden, sexual function, energy and mobility
de Vos BC, Runhaar J, van Middelkoop M, Krul M, Bierma-Zeinstra SM.2016	6, 12, 18, 24, 30, 80 months	Weight, physical activity
Donini LM, Cuzzolaro M, Gnessi L, Lubrano C, Migliaccio S, Aversa A, et al. 2014	4 years	Dyslipidemia, weight change, BMI

Donnelly JE, Goetz J, Gibson C, Sullivan DK, Lee R, Smith BK, et al. 2013	0, 6, 18 months	Weight, BMI, Waist circumference
Drummen M, Dorenbos E, Vreugdenhil ACE, Raben A, Fogelholm M, Westerterp-Plantenga MS, et al.2018	0, 6 months, 2 years	Weight, BMI, body fat, insulin, glucose, cholesterol
Due A, Larsen TM, Mu H, Hermansen K, Stender S, Toubro S, et al. 2017	0, 18 months	Body weight, BMI, total fast mass, total lean mass, Colesterol,
Dutton GR, Nackers LM, Dubyak PJ, Rushing NC, Huynh TV, Tan F, et al. 2014	0, 6, 12 months	Weight loss
Eaton CB, Hartman SJ, Perzanowski E, Pan G, Roberts MB, Risica PM, et al. 2016	6, 12, 18, 24 months	Weight, physical activity
Elhayany A, Lustman A, Abel R, Attal-Singer J, Vinker S. 2010	12 months	Weight, BMI, waist circumference, fasting plasma glucose, HbA1c, cholesterol, insulin
Esposito K, Di Palo C, Maiorino MI, Petrizzo M, Bellastella G, Siniscalchi I, et al. 2010	2 years	Weight, glucose, insulin, cholesterol, blood pressure
Estabrooks PA, Wilson KE, McGuire TJ, Harden SM, Ramalingam N, Schoepke L, et al.2017	6, 12 months	Weight, BMI
Fernandez-Ruiz VE, Armero-Barranco D, Paniagua-Urbano JA, Sole-Agusti M, Ruiz-Sanchez A, Gomez-Marin J. 2018	0, 6, 12 months	Weight, BMI, blood pressure
Fogari R, Zoppi A, Corradi L, Preti P, Mugellini A, Lazzari P, et al. 2010	0, 6, 12 months	BMI, weight, blood pressure, heart rate, glucose, insulin
Foraker RE, Pennell M, Sprangers P, Vitolins MZ, DeGraffinreid C, Paskett ED. 2014	0, 34, 52 week	Blood pressure, cholesterol, body weight

Forman EM, Butryn ML, Manasse SM, Crosby RD, Goldstein SP, Wyckoff EP, et al. 2016	0, 6, 12 months	Weight loss
Foster GD, Shantz KL, Vander Veur SS, Oliver TL, Lent MR, Virus A, et al. 2012	6, 18 months	Weight, cholesterol, blood pressure, lean mass, fat mass
Foster GD, Wyatt HR, Hill JO, Makris AP, Rosenbaum DL, Brill C, et al. 2010	0, 3, 6, 12, 24 months	Weight, cholesterol, blood pressures, bone mineral density, lean mass, fat mass
Foster-Schubert KE, Alfano CM, Duggan CR, Xiao L, Campbell KL, Kong A, et al. 2012	12 months	BMI, waist circumference, body fat, weight
Gabriel KK, Conroy MB, Schmid KK, Storti KL, High RR, Underwood DA, et al. 2011	0, 6, 18, 30, 48 months	Body weight, BMI, waist circumference, fat mass, blood pressure, glucose, insulin
Gadde KM, Kopping MF, Wagner HR, 2nd, Yonish GM, Allison DB, Bray GA. 2012	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 months	Weight loss for all points, rest at 1 year waist circumference, blood pressure, cholesterol glucose, adverse events
Gagnon C, Brown C, Couture C, Kamga-Ngande CN, Hivert MF, Baillargeon JP, et al. 2011	0, 3, 6, 9, 12 months	Weight loss every three months, rest after 1 year Glucose, weight, BMI, waist circumference, fat body mass, lean body mass, blood pressure, lipid profile
Gjevestad E, Karlsen TI, Roislien J, Maehlum S, Hjelmesaeth J. 2013	1 year	Change in body weight, HRQL and PAL, waist circumference
Gohner W, Schlatterer M, Seelig H, Frey I, Berg A, Fuchs R.2012	12, 24 months	Weight loss
Gomez-Huelgas R, Ruiz-Nava J, Santamaria-Fernandez S, Vargas-Candela A, Alarcon-Martin AV, Tinahones FJ, et al. 2019	2 years	Weight loss, inflammatory markers, BMI, waist circumference, blood pressure, lipid profile, glycemic profile
Goodpaster BH, DeLany JP, Otto AD, Kuller L, Vockley J, South-Paul JE, et al. 2010	0, 6, 12 months	Body weight, body composition, metabolic parameters

Gray CM, Wyke S, Zhang R, Anderson AS, Barry S, Boyer N, et al. 2018	12 months, 3,5 years	Weight, waist, body fat, blood pressure, behavioral and psychological health
Gussenhoven AH, van Wier MF, Bosmans JE, Dekkers JC, van Mechelen W. 2013	12 months	Body weight, sick leave
Haas K, Hayoz S, Maurer-Wiesner S. 2019	0, 12 months	Weight change, BMI, waist circumference, body fat, glucose, insulin, cholesterol blood pressure
Haire-Joshu D, Schwarz CD, Steger-May K, Lapka C, Schechtman K, Brownson RC, et al. 2018	12, 24 months	Weight, BMI, waist circumference, blood pressure,
Hausmann J, Waechtershaeuser A, Behnken I, Aksan A, Blumenstein I, Brenner M, et al. 2019	0, 14, 26, 49 weeks	Body weight, BMI, fat mass, cholesterol, insulin, glucose, uric acid
Headland ML, Clifton PM, Keogh JB. 2019	12 months	Glucose, Cholesterol, weight, BMI, weight loss, fat mass, lean mass
Hersey JC, Khavjou O, Strange LB, Atkinson RL, Blair SN, Campbell S, et al. 2012	0, 6, 12, 18 months	Weight, blood pressure
Hintze LJ, Messier V, Lavoie M-E, Brochu M, Lavoie J-M, Prud'homme D, et al. 2018	6 months, 1 year	Weight loss, resting EE
Ho TP, Zhao X, Courville AB, Linderman JD, Smith S, Sebring N, et al. 2015	0, 6, 12 months	Weight, BMI, fat mass, waist circumference, Hip circumference, Body fat, glucose, metabolic syndrome, leptin, adiponectin, HOMA
Holzapfel C, Merl M, Stecher L, Hauner H. 2016	3, 6, 9, 12 months	Weight change, abdominal girth, blood pressure, cholesterol, glucose
Iqbal N, Vetter ML, Moore RH, Chittams JL, Dalton-Bakes CV, Dowd M, et al. 2010	0, 6, 12, 24 months	Glucose, cholesterol, blood pressure, weight loss

Jakicic JM, Davis KK, Rogers RJ, King WC, Marcus MD, Helsel D, et al. 2016	6, 12, 18, 24 months	Weight, blood pressure, adverse events physical activity, cardiorespiratory fitness
Jakicic JM, Otto AD, Lang W, Semler L, Winters C, Polzien K, et al. 2011	6, 12, 18 months	Body weight, BMI, waist, percent body fat
Jakicic JM, Rickman AD, Lang W, Davis KK, Gibbs BB, Neiberg R, et al. 2015	0, 6, 12, 18 months	Body weight, lean body mass, waist circumference, cardiorespiratory fitness
Jakicic JM, Tate DF, Lang W, Davis KK, Polzien K, Rickman AD, et al. 2012	6, 12, 18 months	Weight change, BMI, waist circumference, body fat resting heart rate, blood pressure
Jansson SP, Engfeldt P, Magnuson A, Pt GL, Liljegren G. 2013	12, 24 months	Weight change, symptoms
Jebb SA, Ahern AL, Olson AD, Aston LM, Holzapfel C, Stoll J, et al. 2011	12, 24 months	Weight, waist circumference, fat mass, blood pressure, insulin, glucose, cholesterol
Jennings A, Hughes CA, Kumaravel B, Bachmann MO, Steel N, Capehorn M, et al. 2014	0, 3, 6, 12, 18, months, 2 years	Weight, weight change, waist circumference, BMI, blood pressure, HbA1
Jiang X, Fan X, Wu R, Geng F, Hu C. 2017	0, 12 months	BMI, FPG, glucose aldose aductase, Hb"1c
Karlsen TI, Sohagen M, Hjelmesaeth J. 2013	0, 12 weeks, 1 year	Health related quality of life, weight, BMI, Percent body fat, waist circumference, Hip circumference, symptom distress
Kempf K, Rohling M, Martin S, Schneider M. 2019	0, 3, 6, 9, 12, 36 months	Weight loss
Keyserling TC, Samuel-Hodge CD, Pitts SJ, Garcia BA, Johnston LF, Gizlice Z, et al. 2016	0, 6, 12, 24 months	Weight, blood pressure, cholesterol
Knauper B, Carriere K, Frayn M, Ivanova E, Xu Z, Ames-Bull A, et al. 2018	3, 12, 24 months	Change in weigh, waist circumference hemoglobin, blood pressure, cholesterol, Physical activity

Koohkan S, Schaffner D, Milliron BJ, Frey I, Konig D, Deibert P, et al. 2014	0, 12 months	Weight, BMI, physical function body pain, general health, mental health quality of life
Koster-Rasmussen R, Simonsen MK, Siersma V, Henriksen JE, Heitmann BL, de Fine Olivarius N. 2016	13 years	Weight, BMI, glucose, blood pressure, cholestorol, mortality
Krishnaswami A, Ashok R, Sidney S, Okimura M, Kramer B, Hogan L, et al. 2018	4 months, 1, 2,3, 4, 5, years	Weight change
Krukowski RA, Hare ME, Talcott GW, Gladney LA, Johnson KC, Richey PA, et al. 2018	4, 12 months	Weight loss, muscle mass
le Roux CW, Astrup A, Fujioka K, Greenway F, Lau DCW, Van Gaal L, et al.2017	160 weeks	Change in bodyweight, glycemic control parameters, blood pressure, heart rate
Le T, Flatt SW, Natarajan L, Pakiz B, Quintana EL, Heath DD, et al. 2016	6 months,	Cholesterol, weight, BMI
Lih A, Pereira L, Bishay RH, Zang J, Omari A, Atlantis E, et al. 2015	12, 30 months	Weight, BMI, HbA1c, blood pressure, cholesterol
Lindberg NM, Stevens VJ, Vega-Lopez S, Kauffman TL, Calderon MR, Cervantes MA. 2012	6, 12 months	Weight change
Look AHEAD Look ARG 2010	1, 2, 3, 4, 5 years	Body weight, AT depots, glucose Weight change, cholesterol, blood pressure Cognitive assessments Remission type 2 diabetes, insulin sensitivity
Lowe MR, Butryn ML, Thomas JG, Coletta M. 2018	0, 6, 12, 18, 36 months	Percentage of weight loss
Lowe MR, Butryn ML, Zhang F. 2014	12, 24, 36 months	Weight loss, waist circumference, blood pressure, cholesterol

Ma J, Rosas LG, Lv N, Xiao L, Snowden MB, Venditti EM, et al. JAMA.	6, 12 months	BMI, 20-Item Depression Symptom Checklist, weight, depression treatment response, complete remission of depression symptoms, 7-item Generalized Anxiety Disorder
MacLaughlin HL, Cook SA, Kariyawasam D, Roseke M, van Niekerk M, Macdougall IC. 2010	6, 12, 18, 24 months	Weight, blood pressure
Masuo K, Rakugi H, Ogihara T, Esler MD, Lambert GW. 2011	12 months	BMI, fat mass, waist-to hip ratio, blood pressure, heart rate, plasma ne, BUN, creatinine, creatinine clearance
McRobbie H, Hajek P, Peerbux S, Kahan BC, Eldridge S, Trepel D, et al. 2016	1, 2, 6, 12 month	Weight, Waist circumference, blood pressure
McTigue KM, Bhargava T, Bryce CL, Conroy M, Fischer GS, Hess R, et al. 2011	1 year	Experiences with a lifestyle intervention
Merrill RM, Aldana SG, Bowden DE. 2010	0, 3, 6, 12 months	BMI, health status
Moin T, Damschroder LJ, AuYoung M, Maciejewski ML, Datta SK, Weinreb JE, et al. 2017	6, 12 months	Weicht change, HbA1c
Moncrieft AE, Llabre MM, McCalla JR, Gutt M, Mendez AJ, Gellman MD, et al. 2016	6, 12 months	Weight, HbA1c, BDI-II total, eGFR, ml/min
Moreno B, Bellido D, Sajoux I, Goday A, Saavedra D, Crujeiras AB, et al. 2014	0, 2, 4, 6, 8, 10, 12 months	BMI, weight loss, waist circumference, fat and lean body mass, cholesterol, HbA1c
Nackers LM, Middleton KR, Dubyak PJ, Daniels MJ, Anton SD, Perri MG. 2013	0, 6, 12 months	Weight
Nakade M, Aiba N, Suda N, Morita A, Miyachi M, Sasaki S, et al. 2012	0, 12, 24 months	Weight, BMI, Body fat, Waist circumference, visceral fat

Neve M, Morgan PJ, Collins CE. 2011	52 weeks	Weight change
Nurkkala M, Kaikkonen K, Vanhala ML, Karhunen L, Keranen A-M, Korpelainen R. 2015	0, 9, 24, 36 months	Weight, BMI, Cognitive restraint of eating scores, uncontrolled eating scores, emotional eating scores
Pal S, Ho S, Gahler RJ, Wood S. 2016	3, 6, 12 months	Change in body weight
Paskett ED, Baltic RD, Young GS, Katz ML, Lesko SM, Webber KH, et al.2018	0, 12 months	Weight, blood pressure, physical activity, diet
Patrick K, Calfas KJ, Norman GJ, Rosenberg D, Zabinski MF, Sallis JF, et al. 2011	0, 6, 12 months	BMI, Weight, Waist circumference
Pavic E, Hadziabdic MO, Mucalo I, Martinis I, Romic Z, Bozikov V, et al. 2019	0, 1, 12 months	Weight loss, waist circumference, lipid profile, blood pressure,, glucose level
Pearl RL, Wadden TA, Tronieri JS, Berkowitz RI, Chao AM, Alamuddin N, et al. 2018	14, 52 (66) weeks	Weight specific health-related quality of life
Pedersen E, Jesudason DR, Clifton PM. 2014	6, 12 months	Weight, renal function, glycaemic control, serum lipids, blood pressure
Pedersen LR, Olsen RH, Anholm C, Astrup A, Eugen-Olsen J, Fenger M, et al. 2019	12 and 52 weeks	Body weight, hip and waist circumference, fat mass, lipid profile
Petrella RJ, Gill DP, Zou G, A DEC, Riggin B, Bartol C, et al. 2017	12 weeks 12 months	BMI, waist circumference, blood pressure, psychological and health-related quality of life, self-reported PA and eating
Phillips EG, Wells MT, Winston G, Ramos R, Devine CM, Wethington E, et al. 2017	12 months	Weight loss
Pjanic, Muller R, Laimer M, Hagenbuch N, Laederach K, Stanga Z. 2017	0, 3, 12 months	Weight, BMI. wellbeing, handling of feelings

Poddar KH, Ames M, Hsin-Jen C, Feeney MJ, Wang Y, Cheskin LJ. 2013	6, 12 months	Body weight, BMI, waist circumference, percent total body fat
Powell LH, Appelhans BM, Ventrelle J, Karavolos K, March ML, Ong JC, et al. 2018	0, 6 months, 2,5 years	Weight, waist circumference, blood pressure, cholesterol, BMI
Puhkala J, Kukkonen-Harjula K, Aittasalo M, Mansikkamaki K, Partinen M, Hublin C, et al. 2016	12, 24 months	Weight, dietary pattern, habitual walking and sitting
Raynor HA, Steeves EA, Hecht J, Fava JL, Wing RR. 2012	0, 6, 12, 18 months	Weight loss, BMI, nutrient intake
Rejeski WJ, Ambrosius WT, Burdette JH, Walkup MP, Marsh AP. 2017	0, 6, 12, 18 months	400 m walk time, knee extensor strength, change in body mass
Rejeski WJ, Brubaker PH, Goff DC, Jr., Bearon LB, McClelland JW, Perri MG, et al. 2011	0, 6, 18 months	Body mass, adverse event, 400 m Walk Time
Rock CL, Flatt SW, Sherwood NE, Karanja N, Pakiz B, Thomson CA. 2010	6, 12, 24 months	Weight, BMI, waist, cardiopulmonary fitness, psychosocial measures
Rodriguez-Cristobal JJ, Alonso-Villaverde C, Panisello JM, Trave-Mercade P, Rodriguez-Cortes F, Marsal JR, et al. 2017	1, 2 year	Weight, cardiovascular risk factors
Rolls BJ, Roe LS, James BL, Sanchez CE. 2017	3, 6, 12 months	Cardiometabolic outcomes, weight change
Ross R, Lam M, Blair SN, Church TS, Godwin M, Hotz SB, et al. 2012	6, 12, 18, 24 months	Weight, BMI, body fat, triglyceride, HDL-C level, fasting glucose, blood pressure, cholesterol, metabolic syndrome
Rossen LM, Milsom VA, Middleton KR, Daniels MJ, Perri MG. 2013	0, 6, 18 months	Weight, blood pressure, metabolic profile

Rudolph A, Hellbardt M, Baldofski S, de Zwaan M, Hilbert A. 2016	0, 12, 24 months	Weight, blood pressure, moment
Ryan DH, Johnson WD, Myers VH, Prather TL, McGlone MM, Rood J, et al. 2010	1, 2 year	Weight loss, change in metabolic health outcomes
Safavi R, Lih A, Kirkpatrick S, Haller S, Bailony MR. 2019	24, 48, 72 week	Change in weight
Salinardi TC, Batra P, Roberts SB, Urban LE, Robinson LM, Pittas AG, et al. 2013	6 month weight loss + 6 month maintenance	Weight loss
Santanasto AJ, Newman AB, Strotmeyer ES, Boudreau RM, Goodpaster BH, Glynn NW. 2015	0, 12 months	Weight, BMI waist circumference, body fat,
Saslow LR, Daubenmier JJ, Moskowitz JT, Kim S, Murphy EJ, Phinney SD, et al. 2017	0, 6, 12 months	HbA1c, BMI, weight, cholesterol, insulin c-reactive protein, blood pressure
Sattin RW, Williams LB, Dias J, Garvin JT, Marion L, Joshua TV, et al. 2016	12 weeks, 12 months	Weight loss, fasting plasma glucose improvement
Schroder H, Cardenas-Fuentes G, Martinez-Gonzalez MA, Corella D, Vioque J, Romaguera D, et al. 2018	0, 6, 12 months	BMI, waist circumference, PA trend
Schutte BA, Haveman-Nies A, Preller L. 2015	1 year	Change in Weigh, BMI, waist circumference, blood glucose, blood pressure
Sepah S, Jiang L, Peters AL. 2014	16 weeks, 12 months	Weight, change in A1C
Shapiro JR, Koro T, Doran N, Thompson S, Sallis JF, Calfas K, et al. 2012	0, 6, 12 months	Weight change

Shea MK, Houston DK, Nicklas BJ, Messier SP, Davis CC, Miller ME, et al. 2010	1-10 years	weight loss, mortality
Silva MN, Vieira PN, Coutinho SR, Minderico CS, Matos MG, Sardinha LB, et al. 2010	0 ,4, 12 months	Weight change, changes in self-regulation for exercise
Simon GE, Rohde P, Ludman EJ, Jeffery RW, Linde JA, Operskalski BH, et al. 2010	6, 12, 24 months	Weight change, depression score
Spring B, Duncan JM, Janke EA, Kozak AT, McFadden HG, DeMott A, et al. 2013	3, 6, 9, 12 months	Weight change,
Stomby A, Simonyte K, Mellberg C, Ryberg M, Stimson RH, Larsson C, et al. 2015	0, 6, 24 months	BMI, weight, Waist circumeference, body fat, glucose, insulin, blood pressure, cholesterol
Svetkey LP, Batch BC, Lin P-H, Intille SS, Corsino L, Tyson CC, et al. 2015	6, 12, 24 months	Weight change, change in dietary pattern and physical activity
Swencionis C, Wylie-Rosett J, Lent MR, Ginsberg M, Cimino C, Wassertheil-Smoller S, et al. 2013	0, 6, 12 months	Psychological measures, weight change
Tapsell LC, Batterham MJ, Thorne RL, O'Shea JE, Grafenauer SJ, Probst YC. 2014	0, 1, 2, 3, 6, 9, 12 months	Body weight, insulin, glucose, blood lipids
Tapsell LC, Lonergan M, Batterham MJ, Neale EP, Martin A, Thorne R, et al. 2017	0, 3, 6, 9, 12 months	Body weight, blood pressure, blood lipids, urinary sodium
Tay, J, Luscombe-Marsh ND, Thompson CH, Noakes M, Buckley JD, Wittert GA, et al. 2015	0, 12, 36, 52 weeks 2 years	Changes in BMI, waist circumference, fat mass, glucose, blood pressure, cholesterol
Teeriniemi AM, Salonurmi T, Jokelainen T, Vahanikkila H, Alahaivala T, Karppinen P, et al. 2018	12, 24 months	Weight change

ter Bogt NC, Bemelmans WJ, Beltman FW, Broer J, Smit AJ, van der Meer K. 2011	0, 1, 3 years	Changes in body weight, BMI, waist circumference, cholesterol, glucose, Blood pressure
Thomas JG, Raynor HA, Bond DS, Luke AK, Cardoso CC, Foster GD, et al. 2017	3, 12 months	Change in body weight.
Trepanowski JF, Kroeger CM, Barnosky A, Klempel MC, Bhutani S, Hoddy KK, et al.2017	6, 12 months	Change body weight, fat mass, blood pressure, chloesterol, glucose, insulin
Tur JJ, Escudero AJ, Alos MM, Salinas R, Teres E, Soriano JB, et al. 2013	1 year	Weight, BMI, blood pressure, heart rate, glucose, cholesterol
Venn BJ, Perry T, Green TJ, Skeaff CM, Aitken W, Moore NJ, et al. 2010	0, 6, 18 months	Body weight, height and waist circumference, cholesterol
Villareal DT, Chode S, Parimi N, Sinacore DR, Hilton T, Armamento-Villareal R, et al. 2011	6, 12 months	Weight, fat mass, bone mineral density, strength, balance, frailty measures, PPT score Insulin sensitivity index, Glucose,
Wadden TA, Foreyt JP, Foster GD, Hill JO, Klein S, O'Neil PM, et al. 2011	Week 56	Body weight, waist circumference, cholesterol, glucose, insulin, quality of life, blood pressure, mood
Wadden TA, Volger S, Sarwer DB, Vetter ML, Tsai AG, Berkowitz RI, et al. 2011	6, 12, 18, 24 months	Change in body weight, change in BMI, changes in quality of life
Wadden TA, Walsh OA, Berkowitz RI, Chao AM, Alamuddin N, Gruber K, et al. 2019	24, 52 weeks	Change in weight, BMI, blood pressure, waist circumference, cholesterol, glucose, insulin
Weinstock RS, Trief PM, Cibula D, Morin PC, Delahanty LM. 2013	0, 6, 12, 24 months	Mean weight, BMI, waist circumference
Welsh P, Cezard G, Gill JM, Wallia S, Douglas A, Sheikh A, et al. 2016	0, 3 years	Weight, height, hip, waist circumferences, blood pressure, lipids

West DS, Harvey JR, Krukowski RA, Prewitt TE, Priest J, Ashikaga T. 2016	0, 6, 18 months	- Weight loss, Dietary intake, Physical Activity
Williams AE, Stevens VJ, Albright CL, Nigg CR, Meenan RT, Vogt TM. 2014	0, 12, 24 months	Height, weight, waist circumference
Winkler JK, Schultz JH, Woehning A, Piel D, Gartner L, Hildebrand M, et al. 2013	1 year	BMI, weight loss, cholesterol, glucose
Wycherley TP, Brinkworth GD, Keogh JB, Noakes M, Buckley JD, Clifton PM. 2010	0, 52 weeks	WL, Cholesterol, glucose, Body weight, fat mass, BMI, waist circumference, blood pressure, cholesterol, insulin, bone mineral content, bone mineral density, serum bone crosslaps, 24-h calcium excretion
Yaeger A, Cash NR, Parham T, Frankel DS, Deo R, Schaller RD, et al. 2018	6, 12 months	Weight change
Yeh MC, Heo M, Suchday S, Wong A, Poon E, Liu G, et al. 2016	6, 12 months	Weight, BMI, % body fat, waist circumference, hbA1c, Glucose, Cholesterol, blood pressure
Zinn C, Schofield GM, Hopkins WG. 2012	0, 12 weeks, 12 months	Weight change, cholesterol, glucose, waist circumference, blood pressure
Zurlo F, Trevisan C, Vitturi N, Ravussin E, Salvo C, Carraro S, et al. 2019	0, 3, 6, 12 months	Body weight, HbA1c, cholesterol, BMI

7. Beskrivelse av tiltakene

Vedleggstabell 7. Beskrivelse av tiltakene i de inkluderte studiene.

Førsteforfatter, år	Intervensjon, generelt	Kosthold	Fysisk aktivitet	Psykologisk veiledning	Vektreduserende legemiddel
Aadland E, Andersen JR, Anderssen SA, Kvalheim OM. 2013	Three intermittent in-patient periods, from baseline to 6 weeks, from week 23 to 23, from week 50 to 52. Three main components: diet, PA and cognitive behaviour therapy. Both theoretical and practical session were incorporated.	The main goal regarding diet was to introduce a healthy diet and eating pattern to provide each subject with tools to improve their diet quality. Each subject followed a high-fibre, low-fat, reduced-energy meal plan based on the Nordic Nutrition Recommendations that included three main meals and two to three snacks each day, and group lessons were taught on how to prepare healthy meals. As such, no specific diet or severely energy-restriction was applied.	Subjects participated in a supervised and structured exercise programme consisting of 20-30 min brisk walking before breakfast and two 45-60 min exercise sessions (e.g. swimming, aerobics, ball games, hiking or strength training) performed individually or in groups 5 days per week at the RCHRC. No specific target regarding intensity was specified In addition subject were encourage to perform PA on their own. Together with a team member, each subject developed a plan for PA to be performed at home. The subjects were not offered any systematic follow-up at home, but could contact the RCHRC or their general practitioner if required.	Three main components: diet, PA and cognitive behaviour therapy.	-

Abed HS, Wittert GA, Leong DP, Shirazi MG, Bahrami B, Middeldorp ME, et al. 2013	Two phases, weight loss and weight maintenance. Control group got written and verbal nutrition and exercise advice at enrollment. Fish oil (3 g/d) was prescribed except participants taking dual antiplatelet agents or oral anticoagulants.	Weight loss was induced over 8 weeks using a modified very-low-calorie diet (800-1200 kcal/d). Patients were prescribed very-low-calorie meal replacements sachets for 2 of their daily meals. The third meal consisted of calorie-controlled foods with high levels of animal and plan proteins and low glycemic index.	A written exercise plan prescribed low-intensity exercise (walking or cycling), initially for 20 minutes 3 times weekly and then increasing to 45 min 3 times weekly. Very low-calorie meals were gradually phased out and replaced with low-glycemic index meals, exercise intensity up titration, and behavioral modification for the following 13 months.	Goal-directed face-to-face clinic visits were scheduled every 3 months. Participants scheduled additional visits as required and were provided 24-hour e-mail and telephone support.	-
Akers JD, Cornett RA, Savla JS, Davy KP, Davy BM. 2012	12 month single blinded weight loss maintenance intervention following completion of a 12 week randomized controlled weigh loss intervention trial. During the program, participants were instructed to record their body weight, daily physical activity assessed by pedometer step count and fruit/vegetable intake using the self-monitoring tracking sheets. In addition intervention group was instructed to record daily water consumption	1200-1500 kcal hypocaloric diet + 16 fl oz water prior to each daily main meal or 1200-1500 kcal hypocaloric diet alone. Program goals were more than five fruit and vegetable servings per day	Program goal more than 10,000 steps per day	-	-
Aller EE, Larsen TM, Claus H, Lindroos AK, Kafatos A, Pfeiffer A, et al. 2014	DIOGENES trial: Subjects were randimiz3e into five diet groups:	(1) low protein, LGI (LP/LGI); (2) LP, high GI (LP/HPI); (3) high protein, LGI (HP/LGI) (4) HÅ, HGI; (5) a diet according to national healthy eating recommendations. All diets were low in fat (25-30% of energy from fat) and no energy restriction was imposed.	-	-	-

Aller EE, van Baak MA. 2016	The CO-EUR commercial obesity treatment program consisted of an 18-month multidisciplinary programme targeting lifestyle modification. The programme included a physical activity programme, psychological counselling based on cognitive behavioural therapy and nutritional advice to promote a healthy lifestyle.	Group meeting once a week initially with individual meetings every 2-4 weeks, depending on individual needs.	The physical activity consisted of one group sport session (Nordic walking, swimming or medical training therapy) per week and the subject were encouraged to implement two addition exercise sessions in their weekly routine.	The psychological and nutritional group meetings were scheduled once a week initially, with individual meetings every 2-4 weeks, depending on individual needs.	-
Anderson AS, Craigie AM, Caswell S, Treweek S, Stead M, Macleod M, et al. 2014	Either the diet and physical activity intervention (BeWEL) or usual care. The 12 month BeWEL programme was delivered in three, one hour, one to one visits during the first three months (including spouse or friend when possible), followed by nine, monthly, 15 min telephone consultation. Thus each participant ha a total of 5,25 hours contact over a 12 month period.	-	-	Motivational interviewing techniques were utilized to explore self-assessed confidence, ambivalence, and personal values concerning weight change.	-
Annesi JJ. 2019	Group 1, participants review 12 topics over 28 weeks derived from weight management manuals used in previous research and applications. Every two weeks, a wellness leader lead a conference phone call of 15-20 minutes that encouraged questions, comments, and practical aspects of the assigned content. The primary focus of the treatment for Group 1 was education related to the weight loss process. In Group 2, participants were administered six sessions (45 min/session) of one-on-one exercise support over 28 weeks that emphasized behavioral goal setting and contracting, setting	Beginning at Week 10, 24 structured nutrition change sessions (60 min/session) were administered in groups of 8-15 participants every two weeks	In Group 2, participants were administered six sessions (45 min/session) of one-on-one exercise support over 28 week	emphasized behavioral goal setting and contracting, setting graded tasks, self-monitoring of behaviors, performance feedback, barrier identification, identification of	-

	graded tasks, self-monitoring of behaviors, performance feedback, barrier identification, identification of prompts/cues, self-talk(cognitive restructuring, relapse prevention, stress management, and time management. After the initial eight weeks of structured, cognitive-behaviorally based exercise support, food/calorie tracking was added. Beginning at Week 10, 24 structured nutrition change sessions (60 min/session) were administered in groups of 8-15 participants every two weeks. In group 3, participants were administered with the same treatment methods as Group 2, with the addition of five conference phone calls (with the instructor and three to four participants on the call), each spaced by eight weeks. These 15-20 min calls that reinforced learned self-regulation skills were held after the group nutrition change sessions concluded at week 58.			prompts/cues, self-talk(cognitive restructuring, relapse prevention, stress management, and time management	
Anton SD, LeBlanc E, Allen HR, Karabetian C, Sacks F, Bray G, et al. 2012	The POUNDS LOST intervention involved a combination of regularly scheduled group and individual sessions with the goal of providing all participants with similar educational exposure to nutrition and behavioral self-management skills for weight loss. Following randomization to one of the four diets, each participant met individually with an interventionist (registered dietician). At each subsequent individual session, which occurred every 8 weeks following the start of the group-based intervention, counselors utilized the CTS to review adherence reports with the participants. Additionally, counselors were able to access the CTS in between sessions to review adherence levels to each of their assigned participants, as well as provide feedback regarding overall adherence or observed changes in adherence	Following randomization to one of the four diets, each participant met individually with an interventionist (registered dietician).	-	Additionally, counselors were able to access the CTS in between sessions to review adherence levels to each of their assigned participants, as well as provide feedback regarding overall adherence or observed changes in adherence	-

Appel LJ, Clark JM, Yeh HC, Wang NY, Coughlin JW, Daumit G, et al. 2011	Behavioral weight loss, without in-person contact, but by means of the telephone, the internet and e-mail. The other offered these remote sources of support but reflected common practice in efficacy trials by also providing face-to-face group and individual sessions conducted by health coaches. Participants in the control group received brief advice but n of the above resources.	-	-	Coaches focused on key weight-management behaviors (reduced calorie intake, increase exercise, regular log-in to the study web site) used motivational interviewing techniques, followed re-engagement procedures when participants did not log in to the study web-site,	-
Ard JD, Gower B, Hunter G, Ritchie CS, Roth DL, Goss A, et al. 2017	Participants were assigned to one of three groups: Exercise Only, Exercise + Diet + Weight Maintenance or Exercise + Diet + Weight loss. The basis was a behavioral lifestyle modification program that provided group-based counseling and healthy recommendation to improve physical activity in all groups, diet quality in the Maintenance group, and diet quality and body weight in the weight loss group, to reduce caloric intake by 500 kcal/d..	Increasing consumption of low-energy dense fruits, vegetables, lean protein, and whole grains	The recommendations included 90-150 min/wk of moderate to vigorous cardio-aerobic exercise such as walking. Participants also received a written program to guide participation in two sessions/week of resistance training using resistance bands focused on major muscle groups of the extremities.	All groups received behavioral group counseling weekly for the first 24 weeks, then every 2 weeks for the remainder of the 12-month intervention. Each session took place in our research facility lasted 60 minutes and included 30 minutes of group	-

				discussion related to a dietary, exercise, or behavioral topic, followed by 30 min of supervised exercise using resistance band exercises.	
Ard JD, Lewis KH, Rothberg A, Auriemma A, Coburn SL, Cohen SS, et al. 2019	Participants randomized to OPTIFAST program (OP) were provided all MR (meal replacement) at no cost. The FB program during active weight loss (0-26 weeks)	Participants with BMI < 45 were instructed to use five MRs per day (800 kcal total) with 40% of calorie as protein, 40% as carbohydrate and 20% as fat. Participants with BI of 45-49,9 six MRs and hose with BMI over 50 received six MRs plus one meal daily of lean protein and one non-starchy vegetable serving. Participants followed their prescription for 12-16 weeks based on provider discretion and patient preference, after which there was gradual reintroduction of food through week 26. After week 26, participants' calories were gradually increased to achieve weight stability. FB participants were prescribed a calorie-restricted diet emphasizing	Both groups received prescriptions for physical activity that included a graduated target of 150 to 180 min /wk of moderate to vigorous exercise.	Both treatment groups had weekly 45- to 60-minute group behavioral sessions for the duration of the intervention. Group sessions were facilitated by trained profession interventionists using a standardized intervention manual. OP program sessions used the OPTIFAST LIfestyle Education Series content, the FB program used the DPP's Group Lifestyle Balance Program	-

		lower fat intake (25-20%) of total calories.			
Beavers KM, Ambrosius WT, Rejeski WJ, Burdette JH, Walkup MP, Sheedy JL, et al. 2017	Participants were randomized to one of three treatment groups: caloric restriction induced weight loss alone (WL), weight loss plus aerobic training (WL+AT) or weight loss plus resistance training (WL+RT) for 18 months. The three study arms received the same behaviorally based WL intervention in three 6-months phases: intensive (months 1-6), transition (months 7-12) and maintenance (months 13-18) During the intensive phase, participants met at the YMCA for 3 group sessions and 1 individual session per month (all 60 min). Group sessions tapered off to 3 and then 1 per month for the subsequent phases, with individual sessions scheduled as needed.	20-25 % protein, 25-30% fat, and 45-55% carbohydrate	-	-	-
Beavers KM, Beavers DP, Nesbit BA, Ambrosius WT, Marsh AP, Nicklas BJ, et al. 2014	The PA+WL arm involved a PA intervention in conjunction with a dietary WL intervention. During the maintenance phase, frequency of contact was reduced (one group session of 90 minutes and one telephone contact per month), or group discussion focused on PA goals, specific plans of action to be implemented, and the reinforcement of self-regulatory skills. The active control arm met in groups, weekly for the first eight weeks, monthly through the sixth month, and bimonthly until the end of the study (18 sessions total). Sessions included health topics relevant to older adults such as how the body changes with ageing, prevention or delaying disease, eating for good health, positive attitudes toward aging, family relationships and care giving, and talking to health care providers.	The WL goal was a reduction in body mass of approximately 0,3 kg per week for the first six months, for a total loss in loss of 7-10% of initial body mass. During the weight maintenance phase, participants were encouraged to continue WL as long as their BMI was >20 kg/m2.	The PA program consisted of a combination of daily walking and interactive, group-mediated, behavioral focused sessions (48 total sessions over 18 months), with the primary goal of gradually increasing home-based, moderate intense activity to >|50 minutes/week. The PA intervention was divided into two phases: an intensive phase (first six months) and maintenance phase (6-18 months). During the intensive phase,	Individual sessions in the PA group included one-on-one interactions with staff based on the unique needs of the participant (including review of behavioral tools, execution of techniques or strategies for lifestyle change, brainstorm-	-

			participants attended weekly, supervised behavioral sessions, focused on increasing PA and reducing caloric intake.	ing or problem solving barriers to change, motivation, or simply to touch base with study staff on overall program progress).	
Beavers DP, Beavers KM, Loeser RF, Walton NR, Lyles MF, Nicklas BJ, et al. 2014	Both the D and D+E groups received the same dietary intervention. Both the E and D+E groups received the same exercise intervention.	The dietary plan was based on partial meal replacements, including p to two meal-replacement shakes per day with each shake providing 500 mg of calcium. For the third meal, participants followed a weekly menu plan and recipes that were low in fact, and high in vegetables and provided 500-750 kcals/day. , with 15-20 % of calories coming from protein <30% from fat, and 45-60% from carbohydrate. Group and individual nutrition education and behavioral sessions, as well as an individualized dietary prescription plan providing an energy-intake deficit of 800-1000 kcals/day to reach a study goal of 10% of baseline weight lost. The E-only	Aerobic waking (15 min), strength training (20 min), a second aerobic phase (15 min) and cool-down (20 min), three days per week . During the first 6 months, participation was center-based; afterward, participants could remain in the facility program, opt for a home-based program, or combine the two.	-	-

		group was not counseled to restrict caloric intake during the study intervention			
Bischoff SC, Damms-Machado A, Betz C, Herpertz S, Legenbauer T, Low T, et al. 2012	OP52 (OPTIFAST52) franchise holder Nestlé, Vevey, CH) consists of a five-phase lifestyle modification program designed for 52 weeks, including meal replacement for 12 weeks and based on four modules (psychology, medicine, dietetics and exercise). During the program, closed group of 8-15 persons meet weekly for about three and a half hours per session. The five program phases included () a 1-week-introduction time to check inclusion and exclusion criteria; (ii) a 12-week-period of low-calorie diet (800 kcal/day) during which participants consume formula diet exclusively, accompanied by 12 medical examinations, 12 exercise units, two behavior therapy lessons and two nutrition counselings; (iii) a 6 week-refeeding phase, during which solid food is reintroduced and formula diet is stepwise replaced by normal diet without change of total energy intake, accompanied by six medical examination, six exercise units, two behavior therapy lessons and six nutrition counseling; (iv) a 7-week-stabilization phase in which energy intake is stepwise, enhanced to an individual level that allows weight stabilization, accompanied by three medical examinations, four exercise units, four behavior therapy lessons ah three nutrition counseling, (v= 26 week maintenance phase in which nutritional education and behavior modification is intensified to learn coping strategies and to achieve long-term weight control, accompanied by six medical examinations, 13 exercise units, 22 behavior therapy lessons and five nutrition counsellings.	-	-	-	-

Borel AL, Nazare JA, Smith J, Almeras N, Tremblay A, Bergeron J, et al. 2012	Subjects were individually counseled once every 2 weeks during the first 4 months of management with subsequent monthly visits to improve their nutritional and physical activity/exercise habits. Each visit included an interactive session with a registered nutritionist followed by a meeting with a kinesiologist.	The nutritional counseling was adapted to elicit a 500 kcal daily energy deficit during the first year	The physical activity program aimed to reach 160 min/week of moderate intensity endurance exercise. Men received a personalized training program elaborated according to subjects history and preferences and based on results to a maximal treadmill test. Men had free access to on-site fitness center and were allowed to performed exercise on site or outside at their convenience. In order to help participants to be more active and to monitor themselves between exercise sessions, they were asked to wear a pedometer and to reach a target of 10000 daily steps..'	-	-
Botha S, Forde L, MacNaughton S, Shearer R, Lindsay R, Sattar N, et al. 2018	Time-limited structured educational lifestyle programme employing cognitive behavioural therapy technique alongside a 600 kcal deficit diet and physical activity advice. Phase 1 includes nine 90-minute sessions delivered fortnightly over a 16 week period in groups of up to 16 participants. It is delivered in a range of hospital and community venues. Upon completion of phase 1, patients can choose to enter phase 2, which consists of four 1-hour group sessions delivered at monthly intervals and includes a range of treatments options including further lifestyle advice or a prescribed structured low-calorie diet or pharmacotherapy (orlistat). At the end of Phase 2, or directly after the end of phase 1, dependent on patient choice,	Time-limited structured educational lifestyle programme employing cognitive behavioural therapy technique alongside a 600 kcal deficit diet and physical activity advice.	Time-limited structured educational lifestyle programme employing cognitive behavioural therapy technique alongside a 600 kcal deficit diet and physical activity advice.	-	-

	patients enter a weight maintenance programme (phase 3) comprising 12 1-hour group sessions delivered at monthly intervals. Overall the complete programme represents 43 hours of contact time with a dietician, delivered in groups of 12. Participants are regrouped at each phase to account for drop-outs and the programme therefore totals 3,6 hours of dietician contact time per participant.				
Burke LE, Styn MA, Sereika SM, Conroy MB, Ye L, Glanz K, et al. 2012	A slightly modified version of PREFER Trial, based on social cognitive theory and comprised four main components (2) group sessions (2) goal-setting and self-monitoring (3) daily dietary (energy and fat intake) goals (4) weekly exercise goals. The sole difference among the groups was the mode of self-monitoring that they were asked to used. Paper diary group participants were provided with standard paper diaries and a nutritional reference book; they were encouraged to calculated subtotals after each entry. PDA group participants were given a PDA with Dietmate Pro software for self-monitoring diet, which tallied consumed calories and fat grams and compared intake to goals. The PDA+FB group had feedback software that interacted with the self-monitoring software via a cosom algorithm to provide a daily message regarding intake.	1200-1800 calories, based on weight and gender, <=25% of total calories could be from fat	The weekly physical activity goal was 180 minutes by 6 months and increased by 30 minutes semi-annually.	Separate evening intervention sessions were held for each treatment group. Meetings were held weekly for Months 1-4, biweekly for Months 5-12, monthly for Months 13-18. Only one session was held during the final 6 months, this focused on weight loss maintenance.	-
Buscemi J, Pugach O, Springfield S, Jang J,	The weight loss intervention was conducted in a small group format and met twice weekly (60 min once per week and 90 min once per week) on the university campus. All participants were encouraged to adopt a low-fat, high fiber diet with increased fruit and vegetable	Dietary objectives included reducing dietary fat to less than 30% of total daily calories, increasing dietary fiber to a minimum of 25 grams per	-	In addition to group sessions, participants were encouraged to attend	-

Tussing-Humphreys L, Schiffer L, et al. 2018	consumption and to increase their physical activity. During maintenance period 6-18 months) the frequency of the meetings decreased and the focus of the sessions was on structuring one's lifestyle to support maintenance of health behaviors consistent with weight loss. During months -12 the group met twice weekly for 45-60 min, and each member received monthly MI sessions. During months 13-15 the group met once weekly for exercise class, and continued to receive MI sessions. From 16-18 months, there were no face to face group sessions, but women continued to received MI sessions. Throughout the maintenance period, women received newsletter every other month.	day, and increasing fruit and vegetable consumption to a minimum of five servings per dag.		monthly individual MI sessions with a trained interventionist. These sessions were conducted face-to-face or over the phone, lasting approximately 20-30 min. Each MI session addressed either diet or physical activity. The goal of the MI sessions was to assist individuals to work through their ambivalence about behavior change within a supportive climate where they felt comfortable expressing both the positive and negative aspects of their current behaviour.	
Cai R, Chao J, Li D, Zhang M, Kong L,	Participants in the control group received usual care, including a two-hour education session every two months to impart basic health knowledge, such as the dangers of obesity and the benefits	Participants met with dietitians who instructed the participants on how to modify their diet to achieve their weight loss goals. Individual advice	The physical activity intervention included two aspects: more moderate exercise and less sedentary behavior. A tailored exercise program	-	-

Wang Y. 2019	of lifestyle changes. The intervention group participated in a community-based behavioral lifestyle intervention program, which targeted weight loss through dietary changes and increased physical activity, with a combination mode of intervention deliver. The mixed delivery mode including group-based and individual-based interventions, was used to support weight loss. The group-based intervention provided classroom-style sessions for 2 h every two weeks in the first 12 months and every month from month 13 through month 24 to impart health knowledge by the clinicians in communities. These sessions included not only basic health knowledge, but also specific guidance regarding physical activity and diet. The individual-based intervention offered health evaluation, individualized counseling sessions with ongoing telephone support, and health promoting materials.	was given, which included intake of appropriate energy, reduction of pickled food, high-fat food and high-sugar foo; and inclusion of more cereal, vegetables and fruits.	based on an earlier evaluation was implemented to increase physical activity. Participants were instructed to perform moderate-intensity exercise for at least 150 min per week (walking, cycling. Community clinicians gave sessions to help participants recognize the hazards of prolonged sedentary behavior.		
Call CC, Piers AD, Wyckoff EP, Lowe MR, Forman EM, Butryn ML. 2019	Participants in the parent study were randomized to one of three group-based BWL conditions. Conditions were identical in terms of treatment contact (i.e. 26, 75-min sessions in groups of 10-15 participants) but varied in terms of the skills emphasized. One condition was a standard behavioral treatment condition, one condition emphasized making changes to the home food and exercise environment, and the third condition emphasized changing the home food and exercise environment using an acceptance-based framework. The interventions consisted of 6 moths of BWL treatment (4 months of weekly and 2 months of biweekly groups) immediately followed by 6 months of weight loss maintenance treatment (monthly groups). All conditions included core behavioral skills	the third condition emphasized changing the home food and exercise environment	the third condition emphasized changing the home food and exercise environment	-	-

	adapted from the Look AHEAD manual and the Diabetes Prevention Program.				
Campbell PT, Gross MD, Potter JD, Schmitz KH, Duggan C, McTiernan A, et al. 2010		All women were asked to not change their dietary habits for the duration of the trial.	The exercise intervention progressed to more than 45 min/d of moderate-intensity aerobic exercise, 5 d/wk, by the 8th week of the trial, where it was maintained to the end of the study. For months 1-3 the intervention participants attended 3 mandatory exercise sessions at a study facility and exercised twice per week at home. For months 4-12, the intervention group attended at least 1 session per week at a study facility and conducted the remaining sessions at home or at a study facility.	-	-
Christensen JR, Overgaard K, Carneiro IG, Holtermann A, Sogaard K. 2012	Phase 1 (0-3 months) focused on weight loss and included advice on dietary change based on the Danish Dietary recommendations, calorie counting, weight measurements, weight loss target, strengthening exercises and initiating leisure time fitness exercise. The second part (3-12 months) focused on weight loss maintenance through further intervention with physical exercise and cognitive behavioral training. The reference group was offered a monthly two-hour oral presentation during working hours. The twelve presentations were based on the Danish National Board of Health and the Ministry of Food, Agriculture and Fisheries public websites	Reduction of refined sugar, reduction of fat, especially saturated fat, carbohydrates from primarily fiber-rich sources and 600 gram of fruit and vegetables per day. The calorie reduction was set to 1.000-1.200 calories to achieve an optimal weight reduction rate of about 1 kg per week. If participants during the	During the first 6 months about 15 minutes physical exercise training was included in the weekly session at the workplace. Focus was on strength training, two legged squats, lunges walking forward and to each side, and exercises focused on general strength. Participants brought home a strength training program, picturing these exercises, and were	A specific DBT training tool based on Linton's model for coping with chronic pain were modified to weight loss and support a change to a more physically active lifestyle. The CBT tool was based	-

	and concerned the Danish Dietary recommendations and other health related topics.	first three months had problems quitting eating unhealthy food, they were advised to add smaller amounts of these products into their intake. If participants had problems with hunger, they were advised to eat larger and healthy meals.	encouraged to perform them twice a week at home. The dose of the instructed physical exercises in the sessions progressed in intensity throughout the intervention, by increasing weights and repetitions. In addition to the brief training sessions, participants were encouraged to initiate leisure time aerobic exercises for two hours weekly such as biking, walking, running, swimming or attending different sports in the local area. From the 6th to the 9th month a simple fitness gym was arrange with rubber bands, dumbbells, core-balls, skipping ropes and mattresses plus fitness machines for abdominal and back extension, leg curls and leg press. During the 9th to the 12th month physical exercises primary took place as different local sports activities. It was the aim that all participants should attend sports at least twice a week (minimum of two hours in total),	on group discussions and a specifically tailored guideline, containing exercises such as pro-and-con schemes and positive thinking strategies with home-work between each session. During the first three months, about 15 minutes of the weekly sessions was used on CBT, helping the participants to make realistic weight loss targets and find personal strategies to ease hunger. From the 3rd to the 9th month about 30 minutes were spent on CBT in the weekly sessions. Focus was to reflect on dysfunctional attitudes and coping behaviors with respect to the	

				weight loss, and discuss functional alternatives and train the implementation of these in everyday life. During the 9th to the 12th month about 15 minutes of each session were spent on how to continue healthy behaviors, cope with social context and situations involving alcohol, food etc.	
Cicero AF, Benelli M, Brancaleoni M, Dainelli G, Merlini D, Negri R. 2015	Our method is articulated in different stages, in the first step we provide a protein intake of 1,2-1,5 g/kg of ideal body weight, in association with low-glycemic index vegetables. Afterwards the formulations are replaced by natural protein foods and the diet is gradually completed with other aliments on the base of glycemic index following a multiphasic scheme.	The enrolled patients have been subjected to a diet based on the use of milk/egg/legumes origin (peas and NO OGM soybeans), 2-6 g carbohydrates, 3 g fats for a caloric intake of 100 kcal. Additionally, vegetables were allowed. Firstly patients were exclusively treated with formulations and vegetables. Then only one formulation was replaced by a protein aliment (meat, fish, eggs) and vegetables. Immediately after, another formulation was substituted	-	-	-

		with another protein food. Eventually, patients inserted, in sequential, fruit, dairy products, cereals and legumes. The last stage consisted in a re-education to the Mediterranean diet based on patient's expenditure of energy. However, from the very beginning an integration of calcium, magnesium, potassium, omega 3 fatty acids and olive oil is necessary.			
Coles LT, Fletcher EA, Galbraith CE, Clifton PM.2014	Those allocated to the Choice group could choose which of the three study diets they wanted to follow and were able to seek permission from the research team to switch between these diets at any time. Those in the No Choice group were placed on the CSIRO diet without any option to change diets.	The three diets were South Beach (SB), Mediterranean (MED) and The CSIRO Total Wellbeing Diet (CSIRO). The CSIRO and MED diets provided approximately 6000 kJ/day for both men and women, whilst the SB diet was ad libitum. The diets are described elsewhere.	At the commencement of the study, participants were provided with a basic pendulum pedometer and recommendation of at least 30 min of physical activity most days	-	-
Counterweight Project T. 2012	An 8-hour training program for Counterweight practitioners was provided. Their role was to deliver patient education on lifestyle change and transfer behaviour change skills and strategies. Patients were encouraged to attend every 2 weeks, over 3 months, then tree quarterly support visits, totaling nine appointments in 12 months. There are 18 patient education booklets for written support to complement the education provided at the appointments.	-	-	-	-

Coutinho SR, Rehfeld JF, Holst JJ, Kulseng B, Martins C. 2018	3-wk stays at LHL-clinics, five times over a 2-yr period: baseline, 6, 12, 18 and 24 mo. The focus of the intervention was on increased PA and a moderately restricted balanced diet (500 kcal/day energy deficit from estimated energy needs with 50% energy provided from carbohydrates, 30% from fat, and 20% from protein). Cognitive behavioral therapy was also used to help to achieve the expected changes in diet and physical activity levels over time. At each stay at the center, participants attended monitored and structured PH with a PA therapist, both individually (one session/day) and i groups (2 sessions/day). During the home stays, participants were advised to be physically active every day (at least 60 min on most, preferably every day) and aim for at least two to three sessions of resistance and endurance exercise per week. Moreover, they were advised to follow a similar diet as that used at the center. At the third stay (1-yr follow-up) participants received individual counseling and written advice from a dietician on a dietary intake that would be consistent with their estimated energy needs.	Participants took also part in a nutrition education program and received six meals a day (4 main meals and 2 snacks).	At the first stay, exercise focused mainly ((=%) on endurance exercise (walking, spinning, hydro gymnastics, and hiking), with resistance training being progressively introduced, so that the third sty it comprise approx 50% of the exercise training.	A main part of the treatment was group-based psychotherapy, focusing on how to use what they had learned at the center when they god home and how to change their lifestyle.	-
Daiss SR, Wayment HA, Blackledge S. 2013	From the Baseline assessment to the 3-month post-treatment assessment, the five groups met for ten weeks over a three-month period. From post-treatment through the end of the study, groups continued to meet bi-weekly, then every three weeks, then monthly until the end of the 12 month study. The overriding theme of the program included a "non-dieting" approach with participants making their own choices about the small changes they would make in eating and physical activity over time. Each session covered a specific topic related to weight loss. The format allowed for eductional and group discussion.	Weekly goals for daily calorie consumption and red and green food counts were set at the end of each session.	-	Cognitive behavioral techniques were used by the lifestyle coaches to promote weight loss and healthy lifestyles. Active problem solving and implementing coping strategies	-

				was also discussed during sessions.	
Dalle Grave R, Calugi S, Bosco G, Valerio L, Valenti C, El Ghoch M, et al. 2018	Phase 1: aimed at helping patients to achieve a healthy weight loss and to be satisfied with this weight. This Phase lasts 6 months and is delivered in 14 group sessions (months 1 and 2 once a week; months 3 and 4 once very 2 weeks, months 5 and 6 every 4 weeks. Phase 2, designed to help patients to develop a lifestyle and mindset conducive to keeping the weight off in the long term. It lasts 12 months and is delivered in 8 group sessions (months 7-9 every 4 weeks, months 10-18 every 8 weeks. Patients are encouraged to interrupt any attempt to lose more weight, and to work actively towards the long-term maintenance of the weight that they have achieved. The groups are closed and made up of 9-10 participants. Each group session lasts 90 min and is delivered by two therapists.	Dietary recommendations strategies i.e., a meal plan based on Mediterranean diet to produce a 500 kcal energy deficit per day	Gradually increasing the number of daily steps until the goal of 10,000-12,000 steps per day is reached	CBT-OB which integrates specific procedures design to personalize the treatment and to address the cognitive processes that our previous research has found to be associated with treatment outcome.	-
Dalle Grave R, Calugi S, Gavasso I, El Ghoch M, Marchesini G.2013	Two stages: Stage one (inpatient treatment, 3 weeks) Stage Two (outpatient treatment, 48 weeks). Participants started the assigned diet on the second inpatient day, and continued it during the whole Stage Two. Stage One included 15 CBT groups (five a week), 18 sessions of aerobic exercises and six sessions callisthenic. Education addressed energy balance, the food pyramid, size of portions and regular eating, calorie counting, shopping and food labels, physical activity. Stage Two included 12 sessions of 45 min each over 48 weeks with a CBT-trained dietitian. The first 4 sessions were carried out every 2 weeks, followed by 4 sessions every 4 weeks and then by 4 sessions every 6 weeks in the last 24 weeks. Every sessions had the following content: weighing the patient,	Both diets were energy-restricted (1,200 kcal/day for women and 1,500 kcal/day for men), with 20% energy from fats and daily multivitamin supplements. High protein diet derived 34% energy from proteins and 46% from carbohydrates, whereas high-carbohydrate diet had 17% energy from proteins and 63% from carbohydrates.	The sessions of aerobic exercises in stage one could include 30 in of tapis roulant or cyclette. Use of pedometer	All participants received a comprehensive manual-based CBT to enhance the adherence to lifestyle modification integrating education with cognitive behavioral procedures and strategies.	-

	checking home weight control, reviewing the self-monitoring record of food and drink intake and of number of daily steps assessed by a pedometer, setting the agenda collaboratively, working through agenda topics, agreeing on new homework assignments, summarizing the session.				
Davis NJ, Tomuta N, Isasi CR, Leung V, Wylie-Rosett J. 2012	-	Low-carbohydrate diet was initiated with a 2-week phase of carbohydrate restriction of 20 to25 grams daily, and carbohydrate intake was increased at 5 gram increments each week if weight loss was achieved. In the low-fat diet, participants were given a fat gram goal that was 25% of energy needed to achieve a 1- to 2- pound weight loss per week. Both dietary approaches were initiated using a 2-week menu plan.	-	-	-
de Vos BC, Runhaar J, van Middelkoop M, Krul M, Bierma-Zeinstra SM.2016	Mutual agreement goals were set through the use of motivational interview. These goals were individually tailored and concerned both diet and physical activity. The first 3 appointments were bi-weekly, after that the frequency of visits was determined by mutual agreement. These meeting were limited to a total duration of 4 h/calendar year.	Participants met with a dietitian.	Participants were invited to attend 20 weekly physical activity classes, supervised by a physiotherapist	Motivational interviewing.	-

Donini LM, Cuzzolaro M, Gnessi L, Lubrano C, Migliaccio S, Aversa A, et al. 2014	Patients were assigned to standard nutritional treatment or an integrated and multidisciplinary obesity treatment program according to their preference and time availability.	The SNT: individualized diet was prescribed in line with basal metabolic rate and protein intake: 0,8-1 g/kg/day, carbohydrates, primarily complex carbohydrates 60-65% of non-protein energy or 55-60% in case of type 2 diabetes, the remaining energy amount was represented by fat, of which <10% was saturated, sodium intake was lower than 3g/day in patients with hypertension. NPPRP group: subjects were divided into subgroups (8-10 individuals) in addition to the nutritional plan described above, the following program was prescribed: physical reconditioning aimed to improve the fat mass lean mass ration, recover joint mobility, reactivate hypotonic and hypotrophic muscle structures, improve cardio-circulatory and respiratory performance, and increase energy expenditure.	After a 10 min warm up, patients were involve in daily sessions (2 day/week) based on the combination of ergometer, treadmill and resistance training for a total duration of 90 min/da, preceded and followed by a 10-min warm-up and cool-down, respectively. The physical rehabilitation program consisted of a session of aerobic exercise and of a session of resistance training.	The NPPRP god group cognitive-behavioral psychotherapy by psychotherapist. GCBP was problem focused and action oriented. If faced dysfunctional emotions, maladaptive behaviors and cognitive processes and contents through a number of goal-oriented, explicit systematic procedure such as: self-monitoring of eating habits, coping strategies, assertive training, problem solving, functional analysis of critical situations, analysis of dysfunction thoughts, cognitive distortions and irrational thoughts, and cognitive re-	-

				structuring. Educational activities were carried out in periodic meetings and were aimed at the acquisition of a cultural basis necessary to stimulate correct behaviors in eating, physical activity and stress/anxiety management.	
Donnelly JE, Goetz J, Gibson C, Sullivan DK, Lee R, Smith BK, et al. 2013	The weight management clinics were based on Social Cognitive Theory. Behavioral clinic meetings for both groups were conducted weekly during the weight loss phase (months 0-6), and then gradually reduced during weight maintenance (months 7-18). Meetings were held twice per month during months 7-9, monthly during months 10-13, every other month for the remainder of the 18 months. The study was designed to provide equal attention to both FTF clinic and phone groups. Sixty minute FTF clinic followed a standard protocol that consisted of review and discussion of self-report data including physical activity and dietary compliance, a behaviorally-based lesson on a topic related to nutrition, physical activity and lifestyle modification, and group discussion, problem solving and assignment of activities to assist participants in developing and practicing behavioral strategies associated with successful weight management. The phone clinics followed at format identical	number of shakes, entrees, fruit and vegetables	minutes/steps via step counter	Strategies grounded in Social Cognitive Theory (SCT) to promote change in diet and physical activity. SCT is a triadic, dynamic model that indicates that an individuals behavior is uniquely determined by the reciprocal interaction of personal, behavioral, and environmental factors. Group discussions, in-class activities,	-

	to that of the FTF clinic, with slight modifications given to the logistics of no FTF contact.			and out of class assignments were used to facilitate behavior change.	
Drummen M, Dorenbos E, Vreugdenhil ACE, Raben A, Fogelholm M, Westerterp-Plantenga MS, et al.2018	PREVENT study. Phase 1: a 2-month period of rapid weight reduction using a low-energy diet, followed by a weight maintenance period with instructions to follow dietary guidelines in two groups: a moderate protein and a high-protein group.	The low-energy diet provided 3,4 MJ (35-40% of energy protein, 45-50% carbohydrate, 15-20% fat) per day with 4 sachets of the Cambridge Weight Plan. Additionally, energy-free drinks and <400 g per day of nonstarchy, low-carbohydrate vegetables. Weight maintenance period, both diets were consumed ad libitum with respect to energy but with the instruction to maintain the achieved body weight. Dietary intervention groups comprised of an Moderate protein group with 15 En% from protein, 55% En% carbohydrates, 30 En% fat. An High protein group with 25 En% from protein, 45 En% carbohydrates, and 30 En% fat. Participants were given examples of daily eating plans according to the macronutrient and GI requirement of the two intervention groups. Furthermore, they received cooking books that were created for their dietary		-	-

		groups. Participants were instructed about controlling portion sized of specific food types to achieve the macro-nutrient and GI prescriptions and in self-monitoring and adjustment of portion sizes in general			
Due A, Larsen TM, Mu H, Hermansen K, Stender S, Toubro S, et al. 2017		The three ad libitum diets were (1) Moderate fat (35-45 %) high in Mono Unsaturated Fatty Acid (2) Low Fat (20-30 E%) (3) 35 E% fat) with >15 E% saturated fatty acid. Protein was similar (15E%) in all three diets. (!) included more whole grain foods, nuts and legumes, whereas (3) included more added sugar than the other diets.	Subjects were instructed to maintain their habitual physical activity level throughout the study	-	-
Dutton GR, Nackers LM, Dubyak PJ, Rushing NC, Huynh TV, Tan F, et al. 2014	This study examined the effect of group size on weigh loss within a 12-month randomized behavioral weight loss intervention delivered in a managed care setting. Participants were randomized to receive treatment in either a small group of approx 12 members or large group, approx 30 members. The intervention was modeled after the lifestyle intervention of the Diabetes Prevention Program, grounded in social-cognitive theory. During months 0-6, participants attended 24 weekly 90-minte groups sessions. Prior to each session, participants were weight privately. Each session included presentation, discussion, and practice of skills related to nutrition, exercise and	Reduce caloric intake to 1,200 kcal/day for participants weighing < 250 pounds or 1,500 is more.	Participants were also encouraged to increase levels of moderate intensity physical activity to 180 minutes/week	Participants also received training in self-monitoring, problem-solving, stimulus control, cognitive restructuring and relapse prevention.	-

	other self-management strategies. Participants attended six monthly extended care sessions between Months 6-12.				
Eaton CB, Hartman SJ, Perzanowski E, Pan G, Roberts MB, Risica PM, et al. 2016	Both groups began with 12 months focused on weight loss and lifestyle changes under the guidance of registered dietitians trained as lifestyle counselors, followed by a 12-month maintenance intervention. All participants met with a lifestyle counselor at baseline and set a weight loss goal of 10% over 6 months.	They were given a structured meal plan dependent on their starting weight to support a 500 to 1000 kcal reduced-calorie diet based on the Diabetes Prevention Program guidelines.	Participants were encouraged to add 10 minutes of moderate-intensity activity most days of the week and work up to engaging in 300 minutes of moderate physical activity per week by 6 months.	All participants also met with their lifestyle counselor at 6 and 12 months to review progress and set new goals as needed.	
Elhayany A, Lustman A, Abel R, Attal-Singer J, Vinker S. 2010	Prior to randomization the eligible patients entered a 2 week maintenance period. Patients were followed up by the same dietitian every 2 weeks for 1 year. All dieticians followed a structured protocol for the 24 scheduled meetings and treated patients from each of the three diet groups.	ADA (50-55% carbohydrates, 30% fat, 20% protein), TM (50-55% LGI carbohydrates, 30% fats-high in monounsaturated fat content, 15-20% proteins), LCM (35% LGI carbohydrates, 45% fats-high in monounsaturated fat content, 15-20% proteins). Participants were counselled to eat 4-6 meals/day according to their lifestyle.	All patients were advised to engage in 30-45 min aerobic activity at least 3 days a week	-	-
Esposito K, Di Palo C, Maiorino MI, Petrizzo M, Bellastella	The intervention program was based on implementation of a Mediterranean dietary patter in the overweight group, combined with calorie restriction and increased physical activity in the obese group (lifestyle group). Both groups were compared with two matched control groups. Patients were in the program for 24 months and had monthly sessions with the nutritionist for the first year and bimonthly	The recommended composition of the dietary regimen was the following: carbohydrates 50% to 60%, proteins 15% to 20%, total fact <=30%, saturated fat < 10%; subjects were	Subjects in the lifestyle group also received guidance on increasing their level of physical activity, mainly walking for a minimum of 30 minutes per day, but also swimming or aerobic ball games.	The program involved education on reducing dietary calories, personal goal setting, and self-monitoring through a	-

G, Siniscalchi I, et al. 2010	sessions for the second year. Subjects in the advice groups were given general oral and written information about healthy food choices both at baseline and at subsequent visits, but no specific individualized programs were offered to them	also advised to increase consumption of fruits, vegetables, nuts and whole grains daily, and to increased the consumption of olive oil.		series of monthly small-group sessions.	
Estabrooks PA, Wilson KE, McGuire TJ, Harden SM, Ramalingam N, Schoepke L, et al.2017	The 12-month WAW (weigh and win) program includes a website, objective weight assessment, daily social cognitive theory-based email and text message support, online access to health coaches, and modest financial incentives intended to increased program reach and retention. Community-based kiosks with a scale and a camera to document the weight loss process were set up to community centers, local retailers, libraries, and other settings easily accessible to community residents . Participants were encouraged to weigh in at least once each quarter.	The intervention encouraged increased intake of fruit, vegetables, lean protein, and complex carbohydrates while monitoring portion sizes.	Physical activity recommendations were graduated from walking to combined strength and cardiovascular training, with approx 30 min of physical activity 5 to 6 days a week, beginning with a recommendation of 10 min of low-intensity activity 4 days per week.	-	-
Fernandez-Ruiz VE, Armero-Barranco D, Paniagua-Urbano JA, Sole-Agusti M, Ruiz-Sanchez A, Gomez-Marin J. 2018	The intervention were coordinated by nurses, they were responsible for establishing the targets of the intervention, selecting the interdisciplinary tem, and developing, along with them, the educational programme to be carried out during the intervention. The only activity that the research team performed on patients assigned to the control group was the anthropometric and clinical evaluation. Similarly, during the postintervention year, the research team had no contact with the participants.	The physician and nutritionist conducted the clinical and nutritional evaluation of the patient, to monitor drug-nutrient interactions and any imbalance or adverse reactions that may occur to the physical activity or the dietary management. Energy needs and nutritional assessments were calculated using the formula of Harris and Benedict, and both professional instructed on dietary management individually. The menus were produced from the ATP-III diet	4 weekly sessions of physical activity lasting 40 min; it began with stretching exercises (10 min) followed by 30 min of moderate aerobic work for all ages (20 min of fast treadmill walking or running at a slow pace) with a rest period at the end (208 total sessions). The sessions were conducted in 3 groups of 10 and a group of 7.	Psychologists conducted a monthly 60-min cognitive behavioral therapy session, based on psychoeducation techniques (motivation), cognitive restructuring, problem solving (self-efficacy), and skills training (12 sessions in total). The CBT component	-

		with a 300 kcal/day deficit, divided into 55% carbohydrates, less than 30% fat, 15% protein, and less than 150 mg/day cholesterol. Furthermore, the idea of consuming more vegetables and fruits was strengthened.		was created by the psychology team based on established theories and interventions, targeting the maintenance of the weight loss in the medium and long term. Sessions were individually targeted.	
Fogari R, Zoppi A, Corradi L, Preti P, Mugellini A, Lazzari P, et al. 2010	The energy content of the diet was calculated from the patient's estimated basal metabolic rate multiplied by 1.3 to estimate the total daily energy expenditure for subject with mild to moderate daily activity. From this, 600 kcal per day was subtracted to give a mildly hypocaloric diet. The minimum caloric intake to be prescribed was 1200 kcal/day. Patients were followed up for 12 months	The recommended dietary regimen was as follows: carbohydrates 50-60%, proteins 15-20% total fat, less than 30%, saturated fat less than 10%, cholesterol consumption less than 300 mg per day. Consume at least 250-300 g of fruits, 125-150 g of vegetables and 25-50 g of walnuts per day, and 400 g of whole grains and increase their consumption of olive oil.	-	Monthly sessions with the dietitian and/or specialist physician during the study. The patient food diaries was used for counseling.	-
Foraker RE, Pennell M, Sprangers P, Vitolins	Lifestyle Eating and Fitness (LEAF) participants met with the same registered dietitian throughout the study, once per week for the first month, then every 3 weeks through the fourth month then every 6 weeks through the remainder, except for the scheduled in-person clinic visits during weeks 34 and 52.	The low-fat diet recommended 20% of total calories from fat, 20% from protein, 60% from carbohydrates, the low-carbohydrate diet, 40% from carbohydrates, 30% from protein,	Each participant was advised to walk 10,000 steps per day	-	-

MZ, DeGraf-finreid C, Paskett ED. 2014		30% from fat. All women received counseling regarding their respective calorie-restricted diet			
Forman EM, Butryn ML, Manasse SM, Crosby RD, Goldstein SP, Wyckoff EP, et al. 2016	Participants attended 25 treatment groups in total. Treatments were manualized and groups were held weekly for 16 sessions, biweekly for 6 sessions, monthly for 2 sessions and bimonthly for 2 sessions. Treatment was delivered in 75-minute, small (10-14) closed-group sessions. Groups typically consisted of brief individual check-ins, skill presentation and skill building exercise.		Components of SBT not included in ABT were introduction of the tradition cognitive-behavioral model, which indicated that changing the content of one thought can produce behavior change, cognitive restructuring, building self-efficacy and positive self-esteem, and learning to cope with food cravings through distraction. The ABT materials emphasized the following principles: participants must choose goals that emanate from freely-chosen, personal live	-	

				values, participants must recognize that, in the context of the obesogenic environment, weight control behaviors will inevitably produce discomfort and participants will benefit from increased awareness of the how cues impact their eating and activity-related decision-making.	
Foster GD, Shantz KL, Vander Veur SS, Oliver TL, Lent MR, Virus A, et al. 2012	During the first week of treatment, all participants were instructed to maintain their usual eating and activity habits. Thereafter, all participants were prescribed and LCD providing 12-1500 kcal/day for women and 15-1800 kcal/d for men. Groups met weekly for 20 wk, biweekly for the next 20 wk, and every 6 wk for the remainder of 18 mo.	Participants were provided two 28-g packages of almonds to consume daily through the study, which were distributed at their group meetings. Over the first 5 wk of treatment, participants received whole, raw almonds only. At week 6, roasted almonds were introduced and, over time, a variety of isocaloric, flavored almonds were used. This group was instructed to abstain from alternative nut consumption. The nut free, low calorie diet subject were instructed	Beginning in week 4, participants in both groups were encouraged to walk for 20 min 4 time/wk, progressing to 50 min 4 times/wk by week 19.	-	-

		to abstain from the consumption of nuts.			
Foster GD, Wyatt HR, Hill JO, Makris AP, Rosenbaum DL, Brill C, et al. 2010	Groups sessions reviewed participants' completion of their eating and activity records, as well as other skill builders. Participants in both groups were instructed to take a daily multivitamin supplement.	Low-carbohydrate diet witch limited carbohydrate intake but allowed unrestricted consumption of fat and protein. During the first 12 weeks of treatment, participants were instructed to limit intake to 20 g/d in the form of low-glycemic index vegetables. After the first 12 weeks, participants gradually increased carbohydrate intake (5 g/d per week) by consuming more vegetables, a limited amount of fruits, and eventually small quantities of whole grains and dairy products, until a stable and desired weight was achieved. They followed guidelines described in Dr. Atkins' New Diet Revolution but were not provided with a copy of the book. Participants were instructed to focus on limiting carbohydrate intake and to eat foods rich in fat and protein until they were satisfied. The primary behavioral target was to limit carbohydrate intake. The Low-Fat diet limiting energy intake to 1200-1500 kcal/d for women and 1500-1800	All participants were prescribed the same level of physical activity (principally walking), beginning at week 4, with 4 sessions of 20 minutes each and progressing by week 19 to 4 sessions of 50 min each.	All participants received comprehensive, in-person group behavioral treatment weekly for 20 weeks, every other week for 20 weeks, and then every other month for the remainder of the 2-year period. Each treatment session lasted 75 to 90 minutes. Topics included self-monitoring, stimulus control, and relapse management.	-

		kcal/d for men, with approx 55% of calories from carbohydrate, 30% from fat, and 15% from protein. Participants were instructed to limit calorie intake, with a focus on decreasing fat intake. However, limiting overall energy intake (kcal/d) was the primary behavior target.			
Foster-Schubert KE, Alfano CM, Duggan CR, Xiao L, Campbell KL, Kong A, et al. 2012	NEW trial 1) dietary weight loss 2) moderate-to-vigorous intensity aerobic exercise 3) both 1) and 2), 4) no-lifestyle-change control. Women met individually with a study dietitian for personalized goal-setting on at least two occasions, followed by weekly meetings in group of approx 5-10 women, through the first 6 months. Thereafter (months 7-12) dietitians had contact with participants twice a month, including on fact-to-face contact (individual or group session) and one additional contact via phone or email. Participants were permitted addition in-person sessions, phone, or email contacts beyond the 32 expected, if they or the dietician felt these would help achieve intervention goals. Women in the control group were requested not to change their diet or exercise habits for the duration of the trial. At the end of 12 months, participants in the control group were offered four group nutrition classes and 8 weeks of facility exercise training with individualized guidance from an exercise physiologist.	Modification of DOO and Look AHEAD; total daily energy intake of 1200-2000 kcal/d based on baseline weight, less than 30% energy intake from fat. Participants had at least two individual meetings with a dietician, followed by weekly group meetings for 6 months; thereafter, they attended monthly, with biweekly phone/e-mail contact.	The goal of the NEW exercise intervention was >= 45 min of moderate-to-vigorous intensity exercise, 5 day/week (225 minutes /week) for 12 months. Participants attended at least three sessions/week at our study facility where they were supervised by an exercise physiologist, and exercised for the remain sessions at home. The exercise training program began with a 15 minute session at 60-70% maximal heart rate and progressed to the target 70-85% maximal heart rate for 45 minutes go the 7th week where it was maintained for the remainder of the study. Facility based exercise consisted of treadmill walking, stationary bicycling, use of other aero-	-	-

			bic machines, a variety of home exercises were encouraged including walking, aerobics, bicycling. A small amount of resistance training to strengthen joints and limit injury was recommended, though not required.		
Gabriel KK, Conroy MB, Schmid KK, Storti KL, High RR, Underwood DA, et al. 2011	The WOMAN study, health education group received a core educational series of six lectures offered in year 1 and then quarterly thereafter. The lifestyle change group , group-based and facilitated by a multidisciplinary team through dietary and physical activity changes. Participant contact was extensive and included 40 group visits during the first year and a minimum of 12 monthly visits in years 2 and 3. The lifestyle intervention was stopped at approx 36 months due to lock of continued funding. Accordingly, results from baseline to 48 months post-randomization include a period of approx 12 months where there was little or no intervention.	non-pharmacological lifestyle approx as in Diabetes prevention Program	See diet	See diet	-
Gadde KM, Kopping MF, Wagner HR, 2nd, Yonish GM, Allison DB, Bray GA. 2012	Eligible patients were randomly assign to receive one-daily treatment with placebo, 200 mg of zonisamide or 400 mg of zonisamide for 1. year. In addition, all patients received diet and lifestyle counseling.	Individualized diet plan to reduce daily energy intake by 500 kcal from the energy requirement calculated using the Mifflin-St Jeor resting metabolic rate equation. Diet compositions were consistent with US Dept of Agriculture guidelines and patients were advised to consume 50% of their calories from carbohydrates, 20% from protein and 30% for fat.	All patients in the study were encouraged to exercise, and although a specific exercise program was not prescribed, the dietitian discussed strategies for increasing physical activity, such as walking at lunch breaks, wearing a pedometer to track steps, setting weekly physical activity goals.	Other areas covered were decision making, managing social situations, barriers to healthy eating, coping strategies and relapse prevention	Zonisamide

		Complex carbohydrates, whole grains, dietary fiber and lean proteins were emphasized and participants were also taught to minimize consumption of saturated and trans fats.			
Gagnon C, Brown C, Couture C, Kamga-Ngande CN, Hivert MF, Baillargeon JP, et al. 2011	1) individual interdisciplinary approach group, participants were invited to return to the clinic every 6 weeks for 12 months. At each visit the participant individually met with three member of our interdisciplinary team (15 min each). Participants were also invited to attend a series of 25 group seminars of 45 min duration covering diet, exercise, behavioural modification and general information about obesity and lifestyle modification. Upon request by the team, individual consultation with a psychologist or a kinesiologist were also offered, taken by < 10% of participants. Subjects enrolled in the group approach were only invited to participate in group seminars every 2 weeks for 1 year.	The dietitian evaluated the participant's food intake and helped to choose two or three nutritional goals such as portion size, vegetable and wholegrain consumption, fat content, snacks and caloric beverages	The endocrinologist, responsible for coaching the participant to progressively increase levels of physical activity (long-term object of 60 min/day of moderate activity)	The nurse responsible of assessing the psychosocial context and providing support, reviewing progress and identifying any barriers to change and strategies to overcome them	-
Gjevestad E, Karlsen TI, Roislien J, Maehlum S, Hjelmesaeth J. 2013	The ILI included both dietary and physical interventions. The first year was divided into two stages, the first 12 weeks included the most intensive treatment period with treatment sessions 3 d a week. Each treatment day lasted 6 h, with patients participating in two supervised training sessions for 60-90 min. This was followed by lectures on nutrition physical activity and motivation. During weeks 13-52 patients received monthly follow-up, alternating between group-based and individual sessions every other month. During the group-based sessions patients performed various water-	Patients received a dietary plan with an energy restriction of 1000 kcal/d of the calculated total energy expenditures. This was otherwise compiled according to Norwegian nutrional guidelines.	The first exercise session each day included weight-bearing activities such as walking, Nordic walking, running, ball games, resistance training an various other exercises. The second exercise session consisted of water aerobics, swimming and various other physical water-based activities. The main part of	-	-

	based endurance exercises for the first hour, followed for the next 2 h by a lifestyle modification intervention including nutritional and physical activity lectures. The MLI included outpatient treatment 1 d a week for 10 consecutive weeks, for 3 h each day. The specific treatment goal was a long-term weight loss through energy restriction and increased physical activity. Participants were encouraged to attend at least 8 of 10 treatment sessions.		the physical training was aerobic endurance training of moderate to high intensity. The resistance training consisted of 10-15 repetitions and 2-3 sets per exercise. Study participants had individual sessions with qualified personnel who used a lifestyle modification intervention to invoke behavioural change in the participants. The MLI treatment day included one session of supervised physical exercise such as aerobics, treadmill walking, step machines, indoor cycling and resistance training. The intensity was moderate to high. The resistance training was performed with 10-15 repetitions and 2-3 sets per exercise. After the first 10 weeks, participants had to participate in three additional trainings sessions within the following 6 months.		
Gohner W, Schlatterer M, Seelig H, Frey I, Berg	MOBILIS is a standardized and theory-driven interdisciplinary training program, in addition to an exercise program and dietary advice, the program offer medical supervision and comprehensive psychological support by skilled trainers. Phase 1: Weeks 1-7, 1 exercise unit/wee, 1 session of dietary practice, 6 group sessions, 1 introduction, 1 physical activity recommendations, 1 dietary facts and	Dietary advice	exercise origran	The psychological support is based on the theoretical concept for the MoVo (motivation volition) and serves both to	-

A, Fuchs R.2012	recommendations, 3 MoVo group meeting, Phase II weeks 8-24: 2 exercise units/week, 4 group sessions, every 2-3 weeks, 1 dietary facts and recommendations, 3 MoVo group meeting, Phase III: weeks 25-54; 2 question and answer sessions on diet, 6 MoVo group meeting every 3-5 weeks			motivate the participants and, mot importantly, to help them reach the targets they set for themselves and implement their plans. According to the MoVo process model, engaging in physical exercise and maintaining a healthy diet required positive outcome expectations, high self-efficacy strong goal intentions, detailed implementation intentions, good volitional intention shielding and positive outcome experiences.	
Gomez-Huelgas R, Ruiz-Nava J, Santama-	-	Hypocaloric diet (Mediterranean diet)	Physical exercise	-	-

ria-Fernandez S, Vargas-Candela A, Alarcon-Martin AV, Tinahones FJ, et al. 2019					
Goodpaster BH, DeLany JP, Otto AD, Kuller L, Vockley J, South-Paul JE, et al. 2010	One group was randomized to diet and physical activity for the entire 12 months, while the other group had the identical dietary intervention but with physical activity delayed for 6 months. The behavioral lifestyle intervention program was delivered with a combination of group, individual, and telephone contacts. During months 1-6 participants received 3 group meetings and 1 individual contact per month. During months 7--12 participants received 2 group sessions and 2 telephone contact per month.	All participants were prescribed a diet where energy intake was reduced to 1200-2100 kcal/d base on initial body weight. Targeted macronutrient composition was 20% to 30% fat, 50-55% carbohydrate, and 20-25% protein. To facilitate dietary compliance and improve weight loss, liquid and prepackaged meal replacements were provided at no cost for all but 1 meal per day during months 1-3 and for only 1 meal replacement per day during months 4-6.	A progressive physical activity program, moderate intensity physical activity, similar in intensity to brisk walking, was prescribed and progressed to 60 min, 5 d/wk. To maximize adoption and maintenance of physical activity, participants were allowed to accumulate multiple 10-minute physical activity sessions per day, were provided with a pedometer and goals of more than 10000 steps per deg.	-	-
Gray CM, Wyke S, Zhang R, Anderson	Each weekly FFIT session combines advice on healthy eating and/or use of behaviour change techniques with a coach-led group physical activity session using club facilities. Throughout FFIT, men are encouraged to make small, incremental behavioural changes	Healthy eating	incorporate physical activity in daily lives	The behaviour change techniques are those known to	-

AS, Barry S, Boyer N, et al. 2018	they can sustain long term, and to incorporate physical activity and healthy eating into their daily lives. The 12-week active phase was followed by a light-touch weight maintenance phase until 12 months after the start of the programme, this included an invitation to a group reunion and six e-mail prompts from coaches.			be effective in physical activity and dietary interventions (self-monitoring, goal setting, implementation intentions, feedback on behaviour). Socials support both among participants and from their wider social networks is also promoted.	
Gussenhoven AH, van Wier MF, Bosmans JE, Dekkers JC, van Mechelen W. 2013	ALIFE@work: employees were randomized to a group that received written modules with counselling by phone, a group that received the same information through a website with counselling by email and a control groups that received only general lifestyle brochures. This program was based on cognitive behavioural theory. An essential part of the programme was coaching by a personal counsellor. The intervention consisted of tem modules that provided information on nutrition and physical activity. All groups received self-help materials about physical activity and nutrition, published by the Netherlands Heart Foundation. Employees in the control group received only these materials and no counselling.	Information on nutrition	Information on physical activity	taught techniques for changing behaviour	-
Haas K, Hayoz S, Maurer-	Month 1-3: Mobile phone assisted patient coaching 5 times per week; feedback on nutrition and activity; setting 1 of 3 specific goals	Feedback on nutrition and activity if required	Feedback on nutrition and activity if required	Feedback via mobile phone during 12 months	-

Wiesner S. 2019	for 2 weeks at the time; assessing goals and adapting them if necessary; providing information and education materials that are appropriate to the goals; one Skype call at the end; clinical assessment at the end. Month 4-6 Mobile phone assisted patient coaching 3 times per week; feedback on nutrition and activity; strengthening new behavior; setting new goals if necessary; assessing goals and adapting them if necessary; providing information and education materials that are appropriate to the goals; exchange with peer groups (optional and anonymous, coach guided). Month 7-12; mobile phone assisted patient coaching once every 2 weeks; feedback on nutrition and activity if required; exchange with peer groups (optional and anonymous, noncoach guided or coach guided); access to Web-based education materials; final chat; clinical assessment at the end.				
Haire-Joshu D, Schwarz CD, Steger-May K, Lapka C, Schechtman K, Brownson RC, et al. 2018	Participants in usual care received the standard PAT (Parent as Teacher) program for parents of preschoolers, who can be eligible for up to 25, hour long visits. Parent educators provide support for parents while delivering a curriculum designed to assure school readiness. The curriculum also includes information on general health principles, but does not address maternal or family obesity-related lifestyle change. Intervention participants received HEALTH derived from DPP within the standard PAT curriculum- Participants were entitled to received up to 36 visits over 24 months, however, the actual number of visits was based on need. Intervention content was simplified to address specific lifestyle behaviors most likely to impact calorie intake, including limiting intake of sugar sweetened beverages, substituting fruits and vegetables for high caloric	Address specific lifestyle behaviors most likely to impact calorie intake	walking 30 min per day	Social Cognitive Theory guided the adaption of behavior change content to address intrapersonal (self-assessment, reinforcement), interpersonal (observational learning/parental modeling), and home environments (number of TVs, food access)	-

	snacks, limiting portion sizes, increasing physical activity by walking 30 min per day, decreasing sedentary activity.				
Hausmann J, Waechtershaeuser A, Behnken I, Aksan A, Blumenstein I, Brenner M, et al. 2019	Hypocaloric diet (Optifact52, franchise holder Nestle Inc, Vervey), during which they met weekly in groups of 12-15 persons at the University Hospital in Franfurt til follow the structured programme. 5 phases 1) 1-week introduction	2) 12-week "fasting" period with low-calorie diet during which participants exclusively consumed formula diet (Optifast 800 formula) providing a total daily intake of 800 kcal, 87 g protein, 12 g fat and 5 g carbohydrate, plus the recommended daily intake of vitamins, minerals and trace elements Patients were advised to drink at least 2,5 liters additionally each day, preferably water, tea or low-calorie soft drinks.3) 6 week refeeding phase, during which solid food was reintroduced and formula diet progressively replaced by normal diet without changing total energy intake, 4) 7-week stabilization phase in which energy intake was raised incrementally to an individual level allowing weight stabilization, 5) 26-week maintenance phase in which nutritional education and behaviour modification was intensified	2) 12 exercise units, 3) six exercise units, 4) four exercise units, 5) 13 exercise units	2) two behavioural therapy lessons and two nutrition counselling session 3) two behavioural therapy lessons and six nutrition counselling session 4) four behavioural therapy lessons and three nutrition conselling sessions 5) behaviour modification was intensified to learn coping strategies and to achieve long-term weight control, 22 behavioural therapy lessons and five nutrition counselling sessions	-

Headland ML, Clifton PM, Keogh JB. 2019	-	Compare 3 different dietary patterns 1) continuous (daily) energy restricted diet women recommended 4200 kJ, men 5040 kJ (fat 22%, Pro: 33%, CHO 38%, Fiber: 4%) 2) week-on, week-off energy restriction, 3) 5:2 eating pattern, participants consumed a very low-calorie diet for two days per week 2100 kJ/day for women and 2520 kJ/day for men along with 5 days of habitual eating	-	-	-
Hersey JC, Khavjou O, Strange LB, Atkinson RL, Blair SN, Campbell S, et al. 2012	Group 1 received the bookHEALTH manual and eHEALTH tools.. Group 2 added an interactive version of eHEALTH that provided tailored computerized feedback whenever participants submitted weekly assessment. Group 3 added telephonic coaching support provided by trained health lifestyle coaches every 2 weeks alternating between a telephone call and a personalized e-mail.	-	-	The coaches used motivational interviewing to help participants solve problems and reinforce successes	-
Hintze LJ, Messier V, Lavoie M-E, Brochu M, Lavoie J-M, Prud'homm	-	Monthly meetings with a registered dietitian. The total daily caloric intake was recommended to each participant and it was calculated based on their individual daily EE requirements, 55% carbohydrates, 30%	The 1-year RT (resistance training) weight loss maintenance intervention was performed weekly on 3 non-consecutive days for the first 6 months and on 2 non-consecutive days for the last 6 months. Each	-	-

e D, et al. 2018		fats, 15% protein. No individual meal plans were provided	training session included a warm-up period, which consisted of low intensity walking on a treadmill for 10 min. Each exercise session was individually monitored for proper technique and optimal progression. The RT program consisted of the following exercises: 2) leg press; 2) chest press; 3) lateral pull downs; 4) shoulder press; 5) arm curls; 6) triceps extensions. Each participant was given a target load range and attempted to keep each set (n=3-4) within the target range by adjusting the load to allow for the prescribed number of repetitions (n=10-12). Resting period were 1-1,5 min between sets.		
Ho TP, Zhao X, Courville AB, Linderman JD, Smith S, Sebring N, et al. 2015	Study participants received structured counseling on caloric restriction along with behavioral support from a registered dietitian, per recommended guidelines throughout the course of the 12 month study. Energy-restricted diets were prescribed on an individual basis. The relative macronutrient composition of the prescribed diets was consistent with the Dietary guidelines for Americans.	Diet plans were reinforced during the initial 2-4 weeks during individual diet counseling sessions with registered dietitians.	-	Education/support group sessions were offered bi-weekly during the first 3 months of study participation, and then monthly for the remainder of the study.	-

Holzapfel C, Merl M, Stecher L, Hauner H. 2016	The lifestyle counselling (six modules) is provided via phone calls, written information material and regular SMS with frequencies dependent on the module. The written information material focuses on self-help information about nutrition, physical activity, and behavior. During the intervention, the participants are called monthly in the orientation and intensive phase, biweekly in the maxi module and quarterly in the standard module. In the basis module one single call takes place. The first call is about 45 min, and the following calls are limited to around 30 min.	The SMS service had a remainder and motivation based on the defined aims (more fruits and vegetables, more physical activity).	The SMS service had a remainder and motivation based on the defined aims (more fruits and vegetables, more physical activity).	The participants have personal coaches (via telephone) during the whole program. The phone calls are based on motivational interviewing.	-
Iqbal N, Vetter ML, Moore RH, Chittams JL, Dalton-Bakes CV, Dowd M, et al. 2010	Both diet groups were invited to attend separate weekly 2-h nutrition education classes for the first month. Thereafter, participants were provided sessions every 4 weeks for the duration of the study. All sessions included up to 10 participants and were led principally by registered dietitian with expertise in weight-loss counseling. Information was presented by lecture and handouts during the first 30 min of the session, followed by reinforcement of concepts using interactive games and quizzes. A structured curriculum was used, in which each session was devoted to a specific topic.	Low-carbohydrate condition were provided with the CalorieKing Calorie, Fat, and Carbohydrate Counter to help them achieve their target carbohydrate intake of 30 g/day. Although the glycemic index was not specifically discussed, participants were encouraged to select whole grain products and foods with a high fiber content. Participants were not instructed to restrict their total fat or caloric intake, although general advice was provided on the various types of dietary fat. They were encouraged to consume health fats and to minimize the intake of saturated and transfats. Low-fat condition were given an individualized "fat	All participants were encouraged to engage in at least 30 min of moderate activity at least five times per week. Pedometers were provided to assist participants in meeting this goal, although no data were collected to quantify the number of steps taken per day.	-	-

		budget" and a calorie goal, based on height, weight and a deficit of 500 kcal daily. Participants were provided with CalorieKing Calorie, Fat, and Carbohydrate Counter. Participants received extensive education about the various types of dietary fats. Heart-healthy fats were emphasized and participants were instructed to consume <7% of total calories from saturated fats. Participants were specifically instructed to consume <300 mg of dietary cholesterol daily, and encouraged to increase their intake of fruits and vegetables.			
Jakicic JM, Davis KK, Rogers RJ, King WC, Marcus MD, Helsel D, et al. 2016	The IDEA, Both groups received a behavioral weight loss intervention for 6 months, at 6 months both interventions added telephone counseling sessions, text message prompts, access to study materials on a website. After 6 months participants randomized to the standard behavioural weight loss intervention group initiated self-monitoring of diet and physical activity behaviors, and those in the technology-enhanced weight loss intervention used the study website to access education material only and wearable technology was provided along with a web-based interface to monitor physical activity and diet. Both groups received group-based session weekly for the initial 6 months and monthly between months 7 to 24. During months 7-24 participants were also scheduled to receive a <10 min	Calorie intake in both groups was prescribed 1200 kcal/d for individuals who weight less than 90-7 kg, 1500 kcal/d for those who weight 90,7-113,4 and 1800 kcal for those who weight 113,4 or more. Dietary fat was prescribed at 20-30% and sample meal plans were provided During months 1- participants were instructed to self-monitor dietary intake	Nonsupervised moderate-to-vigorous physical activity in both intervention groups was initially prescribed at 100 min per week and increased at 4-week intervals until a prescription of 300 minutes per week was achieved.	-	-

	individual telephone contact once per month and weekly text messages. The telephone contacts were conducted by intervention staff and followed a standard script. The enhanced intervention group was provided and encouraged to use a commercially available wearable technology that included a web-based interface. This system included a multisensor device worn on the upper arm that provided feedback to the participant on energy expenditure, physical activity through a small display or through web-based software.				
Jakicic JM, Otto AD, Lang W, Semler L, Winters C, Polzien K, et al. 2011	-	Subjects were provided guidance on healthy eating behaviors consistent with a balanced nutritional diet, but an energy restricted diet was not provided nor encouraged.	MOD-PA was prescribed 150 min/wk, HIGH-PA 300 min/wk, SELF was provided with a self-help manual along with the same monthly newsletter provided to the other groups.	-	-
Jakicic JM, Rickman AD, Lang W, Davis KK, Gibbs BB, Neiberg R, et al. 2015	1) standard behavioral weight loss program (SBWP). Group-based session weekly for moths 1-6 and biweekly during months 7-18, lasting approx 45 min 2) SBWO plus intervention strategies for physical activity implemented over the initial 9 months (ADOPT), 3) SBWP plus additional intervention strategies for physical activity implemented between months 4-18 (MAINTAIN)	Reduce energy intake and dietary fat (20-30%) consumption	Structured periods of physical activity were prescribed, which progressed from an initial duration of 100 min per week til 150 min/wk at week 5, and 200 min/wk at week 9, with subjects encouraged to maintain at least 200 min/wk for the remainder of the 18 month period. Subjects were encouraged to distribute activity over 5 d/wk, with the	Specifically the telephone intervention contact of MAINTAIN groups were provided during months 4-6 supervised physical activity sessions were provided during Month 7-12 in conjunction with the be-	-

				minimum duration of any bout of activity Z= 10 min. In addition ADOPT received additional telephone contacts to enhance compliance to the recommended dose of physical activity (months 1-3), supervised physical activity (Month 1-6) physical activity campaigns (Months 4-9). Biweekly 10 min telephone call in addition to the in-person group intervention visit for weeks 1-12. The focus was to identify existing or anticipated barriers to the participant's physical activity behaviors and to identify strategies to overcome these barrier. During weeks 1-24 ADOPT were encouraged to attend group meetings to use cardiovascular training equipment of minimum 30 min per session. During months 4-9 subject in ADOPT participated in two 12-week campaigns to promote physical activity, using pedometers walking 10000 steps. MAINTAIN group received all components of SBWP and ADOPT, but the strategies were implemented across the	havioral group sessions, and physical activity campaigns were provided during months 13-18.	

			full 18 months of intervention in contract to the 9-month period for ADOPT.		
Jakicic JM, Tate DF, Lang W, Davis KK, Polzien K, Rickman AD, et al. 2012	STEP group and the SBWI (standard behavioral weight loss intervention) were prescribed identical diet and physical activity recommendations	Prescribed at 1200 kcal/d for participants weighting 90 kg or less, 1500 kcal/ for participants weight more than 90 kg, 1800 kcal/d for participants weighting 113 kg or more. Prescribed kcals/d were adjusted upward 100 kcal/d increments each week when further weight loss was not indicated or when the participant expressed to the intervention staff that they no longer desired to lose additional weight. Meal plans were provided.	Prescribed physical activity progressed to 300 min/wk by the end of week 24, with participants encouraged to maintain this dose for the remainder of the 18 months. Intensity was prescribed as moderate to vigorous.	The SBWI received group-based intervention sessions throughout the 18-month. Sessions were weekly for months 1-6, twice per month 7-12 and once per month during 13-18. Sessions focused on improving knowledge related to adoption and maintenance of eating and activity behaviors to promote weight loss, strategies to facilitate long-term behavioral change such as a barrier identification, problem solving, mastery experiences for self-efficacy. STEP content was	-

				identical, however, frequency, contact type and other weight loss strategies were modified depending on the achievement of specific weight loss goals at 3 months intervals.	
Jansson SP, Engfeldt P, Magnuson A, Pt GL, Liljegren G. 2013	Regular appointments five times over the first two years with both nurse and physiotherapist. In addition, the nurse and the physiotherapist contacted the patient by telephone four times during study months 6, 9, 15 and 21. In the control group the ordinary information used by the staff at the clinic the importance of a diet of adequate composition, reducing the total energy intake, and regular physical activity for weight control was given. Food advice was also based on the "plate-model" with the same composition as in the intervention group, but without further discussion.	At appointments with the nurse, written and illustrated information of the "plate model" was distributed to the patients and the content described in detail. T	At the appointments with the physiotherapist a personalized program of regular exercise was designed and continuously adjusted for each participant.	No behavioral therapy or motivational interviewing was used in either group.	-
Jebb SA, Ahern AL, Olson AD, Aston LM, Holzapfel C, Stoll J, et al. 2011	Participants in the commercial programme group received free access to weekly community-based Weight Watchers meetings for 12 months. This commercial programme promotes a hypoenergetic, balanced diet based on healthy-eating principles, increased physical activity, and group support. Weight loss goals are self-selected with input from the group leader, and participants are encouraged	hypoenergetic, balanced diet	increased physical activity	-	-

	to attend weekly meetings for a weigh-in and group discussion, behavioural counselling and motivation. Participants were able to access internet-based systems to monitor their food intake activity and weight change, to participate in community discussion boards, and to access a library of information, recipes and meal ides. Participants in the standard care group received weight loss advice from a primary care professional at their local practice. Professionals delivering this intervention were provided with, and encouraged to use the national clinical guidelines for treatment, and were made aware of information providing advice about weight loss.				
Jennings A, Hughes CA, Kumaravel B, Bachmann MO, Steel N, Capehorn M, et al. 2014	Participants attended regular monthly OSN consultation, using dietary diaries and a structured but flexible individual diet and activity education program, and referred to therapists as appropriate	Energy balance and calories, food groups and portion sized, cooking classes	increasing activities, referral to local gym 12 weeks	-	-
Jiang X, Fan X, Wu R, Geng F, Hu C. 2017	All patients received conventional treatment, including taking diabetes medications and monitoring their blood glucose, blood pressure. In addition patients in the intervention group received dietary intervention, exercise intervention, and psychology intervention.	The dietary intervention mainly included dietary evaluation by the program-registered dietitians, receiving a hypocaloric meal plan, using diabetes-specific meal replacement for breakfast and lunch. All meal plans	On the basis of each participant's health status and exercise capacity, an individualized exercise plan was designed by doctor and patients. The intensity level of exercise was set above the minimum required im-	Clinical psychologist or a social worker was invited to conduct group behavioral support sessions including basic mental health	-

		were low in glycemic index and low in sodium.	prove patients' current exercise capacity but below a level that might evoke abnomal cilinical symptoms. The exercise intervention included a balanced mix of aerobic exercise, resistance exercise, and core stability training. Patients were instructed to progress gradually from 20 minutes, 4 days/week to 60 minutes, 5 to 6 days/week	knowledge and the effects of medication on the behavior of those who suffered from illness. Patients were provided with handouts as remainders, and they were taught of self-monitoring of eating and exercise, behavioral goal setting, cognitive restructuring, assertive communication skills, and relapse prevention. The group sessions were performed once a month, besides, the patients received psychological guidance every 2 weeks through telephone	
Karlsen TI, Sohagen M, Hjelmesaeth J. 2013	The 1-year ILI comprised 4 or 5 stays at the rehabilitation center. In both cases there was one main stay for 4 weeks and the remaining stays lasted 1 week each. In the home periods the patients were followed up by telephone and by their GP. Outside their stays at the rehabilitation center patients were contacted by phone once	No special diet or weight loss drugs were prescribed, but patients were encouraged to reduce their daily total energy intake and follow the nutrition guidelines from the Norwegian	The daily schedule at the center was divided between organized physical activity (3-4 hours) varying intensity	Various psychosocially oriented intervention with a motivational approach.	

	every second week and were also encouraged to consult their general practitioner for weight measurement and follow-up every four weeks.	National Council of Nutrition, which recommend that the daily intake of protein, fat, carbohydrate and alcohol should account for 10-20,30, 50-6 and <5% of energy consumed.		The intervention included individual consultations with a medical doctor, registered dieticians, physiotherapists, and mental health nurses, all trained in motivational interviewing. They were encouraged to write a few words describing their emotions of the day.	
Kempf K, Rohling M, Martin S, Schneider M. 2019	Employees in the TMC-group were equipped with telemonitoring devices (scale and pedometer) were coached with weekly care calls in months 3-5 and after that with monthly calls from months 7 to 12. Volunteers of the C1-groups were also equipped with scales and pedometers but received no further support during the study phase. The C2-group had only a short-term coaching phase in months 6-9 and was also equipped with pedometers and scales at the 6th month.	Each coaching should last for 30 min and included information about healthy diet, physical activity, subjective possibilities for lifestyle change.	Each coaching should last for 30 min and included information about healthy diet, physical activity, subjective possibilities for lifestyle change.	Each coaching should last for 30 min and included information about healthy diet, physical activity, subjective possibilities for lifestyle change.	-
Keyserling TC, Samuel-Hodge CD, Pitts SJ,	Phase I included 4 monthly session delivered by a trained counselor. Dietary counseling comprised about 3/4 of intervention content and time; the rest was devoted to PA counseling, Phase II (months 7-12) consisting of 3 phone calls. Two formats over 16 weeks,	The intervention dietary pattern closely resembled that tested in the nut intervention of the PREDIMED	A goal of waking >=7,500 steps/day or >= 30 min on at least 5 days/week	-	-

Garcia BA, Johnston LF, Gizlice Z, et al. 2016	weekly group sessions or 5 group sessions plus 10 phone contacts. Phase III (months 13-24), participants losing >=8 lb could elect to take part in the weight loss maintenance RCT; those who did not and all other study participants received brief, quarterly lifestyle maintenance intervention phone calls. The first 2 calls addressed diet and PA, an to tailor counseling, began with the counselor administering a subset of item from the lifestyle survey. The 3rd and 4th call were open-ended, allowing the participant to select a diet or PA topic for discussion.				
Knauper B, Carriere K, Frayn M, Ivanova E, Xu Z, Ames-Bull A, et al. 2018	Groups comprised approx 6-10 individuals, and the sessions lasted for approx 1 hour. The active control group received the standard group-based DPP delivered over 1 year (12 weekly core sessions, 4 transitional sessions over 3 months, and 6 monthly support sessions). The enhance DPP group followed the same program as the standard DPP group, but instruction for if-then planning were integrated into it.	-	-	The concepts of if-then planning were introduced to participants in Session 1 and subsequently practiced though the example of weighing oneself and tracking one's food intake. In subsequent sessions, participants made individualized if-then plans targeting eating and exercise behaviors. Coaches guided participants through the formation of if-then	-

				plans by using structured handout sheets that were revised throughout the program.	
Koohkan S, Schaffner D, Milliron BJ, Frey I, Konig D, Deibert P, et al. 2014	One group received the weight-reduction lifestyle program without meal replacement, the other group received the same lifestyle program with the addition of a soy-based meal replacement product	Rather than strict diet plans, the program emphasized the importance of health food choices. The most important recommendations were to consume a low fat, carbohydrate consciousness, high protein diet. In addition participants were allowed to take a meal replacement product as a supportive nutritional measures, commercially available soy-yoghurt-honey product was recommended. The use of the product for meal replacement of obese subjects was recommended two a day within the first six weeks, and once a day in the following week.	Led by a sport physiologist, participants engaged in group-based exercise sessions once or twice a week. These sessions focused on endurance training as well as specific exercise to improve muscle strength, coordination and relaxation. One of the goals of the intervention was to teach participants how to include exercise in their everyday lives.	Behavior change was discussed with the psychologist in the group meetings also. The participants received lifestyle counselling and brochures to address their barriers to participating in physical activity and also share their weight loss problems.	-
Koster-Rasmussen R, Simonsen MK, Siersma V,	Therapeutic intentional weight loss, supervised by a medical doctor, who gave either routine care or structured personal care. The personal goals were set in an agreement between the doctor and the patient, and the goals were consciously adjusted.	-	-	-	

Henriksen JE, Heitmann BL, de Fine Olivarius N. 2016					
Krishnaswami A, Ashok R, Sidney S, Okimura M, Kramer B, Hogan L, et al. 2018	82-week program of 3 phases, complete meal replacement for 16 weeks, transition phase from 17 to 29 weeks, lifestyle maintenance phase from 30 to 82 weeks.	The active weigh loss period consisted of complete meal replacement therapy. Beginning Week 17, the transition to regular food was initiated. Meal replacement products were reduced by 1 every week until Week 20. By Week 21, all participants were expected to be off complete meal replacement or could continue using up to 3 partial meal replacements per day.	Participants were educated on targeted methods of physical activity, inclusion of exercise into daily routines, direct and indirect health effects of exercise, and exercise risk avoidance with strategies and techniques. Participants were given the long-term goal of reach 60 min/d to 90 min/d of exercise. The goal of 10,000 steps daily was reinforced during group sessions.	The active weight loss phase consisted of weekly closed-group behavior change sessions, 16-25 participants per group. The focus in lifestyle phase wat the weekly group behavior change sessions on attendance, accountability and problem solving.	-
Krukowski RA, Hare ME, Talcott GW, Gladney LA, Johnson KC, Richey	The myLINE program is a standardized, meal replacement, based weight loss program for at least 24 seeks. The program consists of four phases: During the first 2 days, the participants use exclusively a very low-calorie diet. Five meal replacements should be eaten on a regular basis every 3 h. Total energy intake: 835 kcal/day, 60,0 g/day protein, 15,5f/d fat, 100,0 g/d carbohydrates. Reduction	Meal replacement	-	-	-

PA, et al. 2018	phase, two out of three meals should be replaced by an energy-reduced standard diet, one meal should be eaten as regular fat-reduced food. The total fat content is <=30% of the daily energy intake. The reduction phase should be undertaken until the participant achieves two-thirds of intended weight reduction, at least for 10 weeks. Transitional phase: the beginning of the transitional phase is determined individually, at least one meal should be replaced and the other two should be eaten as a fat-reduced mixed meal. Stabilization phase: due to the acquired knowledge on how to arrange their meals correctly and how to adjust their energy intake to their daily requirements, the participants should maintain their weight without meal replacements. In this phase, they should eat three meals per day regularly.				
le Roux CW, Astrup A, Fujioka K, Greenway F, Lau DCW, Van Gaal L, et al.2017	1505 allocated to liraglutide 3,0 mg, 749 allocated to placebo	Participants were advised to reduce their daily energy intake to 500 kcal below their individualized energy requirement	Participants were advised to achieve at least 150 min of physical activity per week	All participants received standardised lifestyle intervention counselling from randomisation to end of follow-up, about once a month	Liraglutide 3,0
Le T, Flatt SW, Natarajan L, Pakiz B, Quintana EL, Heath		The diets compared were lower fat (20% energy), higher carbohydrate (65%) energy); lower carbohydrate (45% energy) higher fat (35 % energy); and walnut-rich (18% energy),	The physical activity goal was an average of at least 60 min/day of purposeful exercise at a moderate level of intensity plus increased lifestyle activity.	The group based behavioral weight loss intervention involved an intensive 6-month intervention period	

DD, et al. 2016		higher fat (35% energy) and lower carbohydrate (45% energy) All diet prescriptions limited saturated fat emphasizing lean meats and reduced-fat dairy foods, emphasize vegetables, fruit and whole grains as healthy high-carbohydrate choices.		during which participants met in closed group sessions weekly for the first 4 months, met biweekly for the following 2 months, and the met monthly for the remaining 6 months. In addition to group meetings, participants had telephone and email counseling contact with their group coleaders. Strategies included self-monitoring of food intake and exercise, setting realistic goals, using behavior specific goals and stepwise approach to progress and promote self-efficacy, addressing body image concerns, training and role playing in prob-

				lem solving, preventing relapse and modifying problematic thoughts and attitudes about weight food and physical activity.	
Lih A, Pereira L, Bishay RH, Zang J, Omari A, Atlantis E, et al. 2015	Metabolic Rehabilitation Program (MRP) vs Best practice (DC). MRP had consultation with a dietician on a 6-weekly basis and an annual review. There were also eight group sessions conducted to assist patients implementing individualized diet programs and meal replacements. Weight losing medications were not used. Oral hypoglycaemic pharmacotherapies were titrated at the discretion of the treating endocrinologist based on national guidelines. The DC group were seen at the outpatient hospital clinic, consultations with endocrinologists at 3-6 monthly intervals and regular but less frequent appointments with the same diabetes nurse educators and dietitians as in the MRP.	-	The exercise program was supervised by physiotherapist for 6 days a week to prescribe and supervise exercise. The intensive exercise program consisted of 330 minutes of moderate intensity physical activity a week. This comprised a compulsory 180 min of supervised exercise classes and a further 150 min on off-clinic days. The prescribed exercises included 20-30 min each of aerobic exercises and resistance training.	An on-site psychologist was available for an initial consultation and four group sessions conducted throughout the program.	-
Lindberg NM, Stevens VJ, Vega-Lopez S, Kauffman	Same strategies as PREMIER, with a cultural adaptation element interwoven into the content and delivery of all intervention sessions.	Participants learned about a the wide variety of caloric content of commercially-available tortillas	-	Role-playing exercises	

TL, Calderon MR, Cervantes MA. 2012					
Look AHEAD Look ARG 2010	The ILI aimed to achieve and maintain weight loss of at least 7% through reduced caloric intake and increased physical activity. The program included both group and individual counseling sessions, occurring weekly during the first 6 months, with decreasing frequency over the course of the trial. Participants assigned to the DSE group received 3 group sessions per year that focused on diabetes education, diet, exercise, and social support for years 1 through 4 of the trial.	ILI participants were assigned a calorie goal (1200-1800 based on initial weight), with <30% of total calories from fat (<10% from saturated fat) and a minimum of 15% of total calories from protein.	Physical activity goal of at least 175 min of moderate-intensity activity per week	-	-
Lowe MR, Butryn ML, Thomas JG, Coletta M. 2018	All group sessions were 75 min in length, and group leaders in all conditions spent the same amount of time with participants. BT (gold standard) material from LEARN o DPP. The BT+MR added meal replacement (MR), participants were instructed to consume 2 MRs/d during the first 6 mo and to switch to 1 MR and 1 snack replacement between 6 and 12 mo. HFE consisted of discussing various means of reducing caloric intake. Parts of the first 8 wk of treatment were spent providing a combination of personal vulnerability to weight gain and regain, the limitations of self-control skills for long-term weight management and the temptations inherent underlies the strong emphasis of HFE. An overview of research finding on the effects on eating and weight control. Weekly homework assignments of modification or removal. Emphasis on making sufficient changes to foods in participants' personal food environments	discussing various means of reducing caloric intake	-	providing a combination of personal vulnerability to weight gain and regain, the limitations of self-control skills for long-term weight management and the temptations inherent	-

	so that they did not need to depend as much on maintaining a consistently high level of eating self-control. Treatment sessions, which lasted 1 y, were led by a group leader and co-leader.				
Lowe MR, Butryn ML, Zhang F. 2014	All participants were instructed to 1) follow as 12-week weight loss diet using to meal replacements per day, plus a controlled meal and planned snacks 2) read weekly lifestyle change modules from LEARN manual 3) implement treatment recommendation via weekly 15-minute phone calls with a Weight Control Specialist.. Maintenance Phase: 1) continued use of MRs or not, 2) introduction of a reduced energy density eating program or not.	Participants were instructed to follow a balanced 1200-1500 kcal, MR-supplemented diet (Slim FASt).	-	-	-
Ma J, Rosas LG, Lv N, Xiao L, Snowden MB, Venditti EM, et al. JAMA.	RAINBOW trial. Group Lifestyle Balance (GLB) was adapted from DPP, grounded in social cognitive theory and used goal-based approach to promote modest (5-10%) weight loss through healthy dietary changes with reduction of 500 to 1000 kcal per day and at least 150 min of moderate-intensity physical activity (brisk walking) per week. The program to Encourage Active, Rewarding Lives for Seniors (PEARLS) used problem-solving treatment with behavioral activation strategies as the first-line therapy and then supplemented with as-needed stepwise increases in doses and number of antidepressant medication. Participants in the intervention group received self-care materials, including intervention handouts, a DVD set or and online access code for the GLB videos, a wireless activity tracker with replacement batteries, and written instructions for creating a MyFitnessPal.com account to track weight and dietary intake. Participants in the intervention and usual care groups contin-	Reduce 500-1000 kcal/day	Brisk walk 150 min pr week	The intensive treatment phase included 9 individual fact-to-face sessions lasting 60 min each (4 weekly, 2 biweekly, and then 3 monthly session) and 11 home-viewed GLB videos lasting 20 to 30 min each watched over a 6-month period. The maintenance phase included monthly tele-	-

	ued to receive medical care from their personal physicians. All participants also received information on mental health services, weight management, and other wellness program routinely available at their clinic. Usual care participants received a wireless activity tracker with batteries but not the other self-care materials.			phone sessions lasting 15 to 30 min each for 6 addition months	
MacLaughlin HL, Cook SA, Kariyawasam D, Roseke M, van Niekerk M, Macdougall IC. 2010	Weight management program had 4 components, a low-fat calorie-reduced renal diet, regular exercise, behavior therapy and use of the anti obesity drug olistat. Patients who declined to participate in the program formed the contemporaneous observational usual-care group, who continued to attend their regular nephrology, predialysis, or dialysis multidisciplinary team clinic appointments with 6-monthly nutritional assessment and dietary counseling.	A low-fat calorie-reduced renal diet was negotiated with each patient (requirements estimated using the Schofield equation for metabolic rate at rest based on age, sex and body weight plus appropriate activity fact minus 600 kcal/d for weight loss), based on food preferences and appropriate for each patients CKD stage. Energy intake was modified as required by gradually reducing added fats, sugars, and portions of starch foods in line with reducing energy requirements. Fat intake was < 70 g/d. Protein intake was optimized for the stage of kidney disease. Dietary potassium ans phosphate intake was modified to maintain acceptable serum levels. The dietician assessed adherence to dietary guidelines using monthly food diaries. Patients generated at least 2 dietary	Personal exercise plans were developed based on the current level of exertion and comorbid conditions and incorporated aerobic and muscular endurance activities to improve functional capacity and increase energy expenditure. Frequency was established as at least 3 d/wk, time was increased as tolerated, and intensity was based on the Borg scale of rating of perceived exertion between 13 and 15. The exercise plan was adapted at each monthly visit in line with improvements in exercise capacity to facilitate a progressive training effect.	behavioral theory	Patients received orlistat at the standard dose of 120 mg 3 time daily throughout the 14 months.

		goals each month from baseline to month 6.			
Masuo K, Rakugi H, Ogihara T, Esler MD, Lambert GW. 2011		Mild caloric restricted diet (1800 kcal/d) 55% of calorie from carbohydrate, 30% from protein and 15% from fat), low sodium diet /7g NaCl per day)	Aerobic exercise of more than 1 h daily (walking, jogging or gym exercise)	The subject attended a 1-h private counseling session each week for 4 weeks followed by biweekly 1 h session for an addition 11 months.	-
McRobbie H, Hajek P, Peerbux S, Kahan BC, Eldridge S, Trepel D, et al. 2016	Weight Management Programme intervention two research health psychologists per session delivering group session over eight weekly group sessions, mean size 15 participants. Following the initial 8-week course, 10 further monthly group sessions were provided during the maintenance sessions. Each group session lasted 2 hours. The nurse intervention (control) was based on best usual care, consisting of four sessions lasting 1 hour each delivered over 8 weeks by a practice nurse.	First week, advised to keep a food diary, second session introduced to "calorie counting", third session introduced to 5-a-day, firth session advised to say no to junk/unnecessary eating	Fourth session introduced to the importance of regular physical activity and were set the task of conducting two short bouts of moderate-intensity activity (10-20 min). The frequency and length was increased gradually until participants were able to achieve at least three bouts lasting 30 min each, with the goal of five 30-minute bouts per week.	Seventh session encouraged to remove triggers from sight	-
McTigue KM, Bhargava T, Bryce CL, Conroy M, Fischer GS,	Online lifestyle intervention, comprised lessons: tools for self-monitoring diet, physical activity and weight, Participants received regular, brief, individualized counseling via electronic messaging. Referring physicians were notified of their patients' progress and were contacted by the lifestyle coaches when health-relevant issues arose.	-	-	comprised lessons: tools for self-monitoring diet, physical activity and weight, Participants received	-

Hess R, et al. 2011				regular, brief, individualized counseling via electronic messaging.	
Merrill RM, Aldana SG, Bowden DE. 2010	Telephonic weight coaching (Ceridian), based on "one-day-at-a-time" philosophy that includes planning the journey and breaking the change process into "one-behavior-at-a-time". Focus is placed on healthy eating and physical activity. Each participant received an educational workbook, a pedometer to track physical activity, a measuring tape to track progress, and a weekly los to report steps. Various books, tip sheets and articles are also available. The coaches can either direct a participant to the Health Coaching website for downloadable tip sheets and articles or can assist the participant by ordering the materials for delivery via email or mail. Coaches are also able to view completed life health assessment personal reports and review them with the participants.	Participants are encouraged to reduce total calories, particularly saturated and trans fats, and increase intake of fruits, vegetables and whole grains. Participants create their own healthy eating plan and are encouraged to adopt foods they enjoy eating.	Adoption of moderate-intense physical activity most days of the week is recommended.	Goal setting is an important part of the program and includes identifying emotional eating triggers and changing eating patterns, learning to read food labels, increasing the amount of water consumed, keeping track of food and beverage intake, eating five or six small meals and snacks a day, learning to control portion sizes, adding more fruits and vegetables to the diet, increasing whole-grains, developing a realistic program of regular physical activity,	-

				building and maintaining a support system for a healthy lifestyle, choosing healthy snacks and desserts, choosing healthy beverages, and learning to lower the amount of fat in the diet. Participants interact with the same health coach throughout their enrollment and had unlimited access to contact their health coach for any needed support	
Moin T, Damschroder LJ, AuYoung M, Maciejewski ML, Datta SK, Weinreb JE, et al. 2017	VA-DPP used the Group Lifestyle Balance curriculum with 22 sessions of 12 months, MOVE! Participants have multiple options of days/times because sessions are delivered as independent topics, in contract to one specified class time, iterative sessions, and same coaches with VA-DPP.	-	-	-	-

Moncrieft AE, Llabre MM, McCalla JR, Gutt M, Mendez AJ, Gellman MD, et al. 2016	Intervention received a 17-session, structured life-style based on DPP. All intervention sessions were approx 1,5 to 2 hours in duration. Participants first received two individual sessions followed by two weekly and four bi-weekly group sessions. The remaining nine group sessions were scheduled monthly. Intervention components consisted of diet and physical activitity combined with cognitive behavioral and social learning approaches to address depressive symptions. No supervised exercise sessions or meals were provided as part of this intervention. Participants assigned to usual care received a short educational booklet that covered topics related to diabetes management, but were not formally instructed to make any lifestyle changes. Participants in both arms were also expected to be treated in accordance with ADA Clinical Paractice Guidelines by theiry primary care provider.	Goal for caloric intake based on initial body weight	Goals for physical activity 150-min aerobic activity/wk	Strategies to address depressive symptoms included behavioral activation, active problem solving, alteration of dysfunctional automatic thoughts, stress management, coping skills training and modification of behavioural, environmental, and cognitive factors to promote healthy levels of social support.	
Moreno B, Bellido D, Sajoux I, Goday A, Saavedra D, Crujeiras AB, et al. 2014	LC diet (low-calorie diet) or VLCK diet (very low-calorie-ketonic diet. VLCK part of a commercial weight loss program (Pronokal Method), which included lifestyle and behavioral modification support. The intervention for both groups included an evaluation by the specialist physician, expert dietician, group meetings, and exercise recommendation. The group meetings and evaluations took place in the hospital setting. In these meetings the patients received diet instructions, individual supportive counsel, and encouragement to exercise on a regular basis using a formal exercise program. In addition, a program of telephone reinforcement calls was instituted, and	The standard LC diet had a caloric value 10% below the total metabolic expenditure of each individual. The total metabolic expenditure was calculated from the basal metabolic expenditure multiplied by the coefficient of activity. The calories provided to this group ranged between 1,400 and 1,800 kcal/day. 45.55% carbohydrates, 15-25% protein and	exercise recommendations	Individual supportive counsel	-

	a phone number to address any doubts was provided to all participants.	25-35% fat, in addition to a recommended intake of 20-40 g/day fiber in the for of vegetables and fruits. VLCK a high-biological-value protein preparations diet and natural foods. Each protein preparation contained 15 g protein, 4 g carbohydrates and 3 g fat, provided 90-100 kcal. The active stage 600-800 kcal/day, low in carbohydrates (<50g daily from vegetables) and lipids (only 10g olive oil per day). The amount of high-biological-value proteins ranged between 0,8 and 1,2 g per each kg of ideal body weight, to ensure meeting the minimal body requirements and to prevent the loss of lean mass. Throughout the ketogenic phases supplements of vitamins and minerals, such as K, Na, Mg, Ca, and omega-2 fatty acids were provided in accordance to international recommendations. In the re-education stage, the ketogenic phases were ended by the physician in charge of the patient based on the amount of weight lost, and started a low-calorie diet. At this point, the patients underwent a progressive incorporation of				

		different food groups and participated in a program of alimentary re-education to guarantee the long-term maintenance of the weight lost. The maintenance stage, consist of an eating plan balanced in carbohydrates, protein, and fat, that lasted one year. Depending on the individual the calories consumed ranged between 1500 and 2,00 kcal/day and the target was to maintain the lost weight and promote healthy life style.			
Nackers LM, Middleton KR, Dubyak PJ, Daniels MJ, Anton SD, Perri MG. 2013	Both dietary prescriptions were implemented within a standard behavioral lifestyle intervention for weight management that included two phases: Months 0-6 involved initial treatment period of 24 weekly groups sessions, Months 7-12 entailed an extended care phase with sic monthly groups sessions. During months 7-12, participants were asked to attend monthly in-person group sessions and maintain coloric intake goals and exercise behaviors prescribed during the inital treatment phase.	Eligible participants were randomly assigned to intake goals of 1,000 or 1,500 kcal/day, respectively.	Participants were encouraged to increase walking to 10,000 steps per day	Treatment included training in cognitive and behavioral skills for weight management including stimulus control, self-reinforcement, cognitive restructuring, problem solving. Each group session involved a private weigh-in, review of participants' progress toward goals,	-

				feedback, and encouragement from group leaders and other group members, and a brief presentation related to nutrition, physical activity, stress management, or behavioral management of eating and physical activity.	
Nakade M, Aiba N, Suda N, Morita A, Miyachi M, Sasaki S, et al. 2012	Intervention group received individual counseling (30 min) and group sessions about effective exercise (20 min) at baseline and at 1, 3, 6 and 9 months. At least one objective for each energy intake (diet/eating behavior) and energy expenditure (exercise) parameter was set for each month. Participants in the control group did not receive any support for one year.	Dietitians explained adequate %fat and carbohydrate intake compared with each participant's actual intake as assessed by the diet history questionnaire. However, dietary instruction, such as to lower the fat or carbohydrate intake were not forced on the participants.	In the exercise group session, an exercise instructor taught participants effective exercises for weight loss, such as how to stretch and walk.	-	-
Neve M, Morgan PJ, Collins CE. 2011	The Biggest Loser Club, the self-directed program incorporated evidence-based weight management strategies and aligned with key elements of social cognitive theory. Online information in the form of weekly tutorials, fact sheets, meal, and exercise plans and weekly challenges were provided during the initial 12-week program. After 12 weeks, participants continued to received weekly	A daily energy intake target was set based on the participant's sex, weight, height, and physical activity level to facilitate either a weight loss of 0,5 kg to 1 kg per week or maintain current weight.	exercise plans	weekly challenges	-

	Web-based tutorials. Social support was available via a discussion board to communicate with other members.				
Nurkkala M, Kaikkonen K, Vanhala ML, Karhunen L, Keranen A-M, Korpelainen R. 2015	Intervention consisted of a 9-month weight loss period followed by 27 month weight maintenance period. During the first year the intervention group was given individual weight maintenance counseling three times by a nutritionist and eleven times by a qualified nurse. During the second year the intervention group met the nurse four times and during the third year two times. -the counseling included themes such as healthy diet, risk situations in weight management and physical activity. The subjects in the control group met a qualified nurse once at the beginning and also received a booklet concerning the principles of weight management.	Healthy diet	session about physical activity	-	-
Pal S, Ho S, Gahler RJ, Wood S. 2016	The control group who consumed the placebo with their usual diet, the psyllium who consumed a psyllium supplement with their usual diet and a PGX group who consumed a PGX with their usual diet.	Psyllium is one of the most widely used fibre supplements in Australia because it is reasonably cheap, is available in several flavours and sold as powdered drink mixes, capsules or wafer. PGX is a novel, highly viscous functional non-starch polysaccharide complexes, with developing viscosity. The supplementation consisted of either 5 g of psyllium or 5 g of PGX. Placebo consisted of 5 g rice flour.	-	-	-

Paskett ED, Baltic RD, Young GS, Katz ML, Lesko SM, Webber KH, et al.2018	Walk by Faith focused on environmental and individual level behavior changes to reduce overweight/obesity by focusing on components of a healthy diet and increasing physical activity. Educational and motivational material were delivered to participants at monthly session held at each church. Dedicated website. Each session was approx one hour. Ribbons of Faith focused changes to increase cancer screening knowledge and promote cancer screening.	Walk by Faith diet intervention focused on increasing fruit and vegetable and water intake, reducing sugary drink consumption, and reducing dietary fat.	Walk by Faith, the navigators worked together to identify strategies to support increase physical activity, such as setting up walking courses, group walks, and walking challenges.	-	-
Patrick K, Calfas KJ, Norman GJ, Rosenberg D, Zabinski MF, Sallis JF, et al. 2011	The intervention was based primarily on social cognitive theory and also informed by the behavioral determinants model, an approach that describes the social cognitive theory related behavior correlates of exercise. Based on feedback from focus groups, Web content was created in short, weekly sessions using "business-like" language and graphics and little extraneous information. The intervention consisted of three components, an initial computerized assessment to tailor recommendations for behavioral targets, weekly Web-based learning activities, and individualized feedback on their progress. Men in the wait-list control condition were given access to an alternate web site containing general health information of interest to men but not likely to lead to changes in diet or physical activity.	Dietary goals were based on improving diet quality and healthfulness. To promote weight loss the intervention was designed to improve diet 1) increased fruit and vegetable intake to five to nine or more servings per day 2) increased consumption of whole grain products to more than or equal to three servings per day 3) decreased saturated fat intake to <= 20 g per day	4) Increasing steps to at least 10,000 on at least 5 days/week 5) strength training at least two times per week targeting at least two body areas	-	-
Pavic E, Hadziabdic MO, Mucalo I, Martinis I, Romic Z,	Both Mediterranean diet and Standard hypolipaemic diet were designed to be calorie-restricted with caloric intakes based on Dubrava University Hospital nutrition recommendation. The intervention phase included an educational program consisting of a block of five half day sessions in Daily hospital (outpatient clinic), followed by five consecutive two hour visits throughout the one year period	Reduce calorie intake. The nutritional education was provided by clinical dieticians during an intensive five-day educational program in group sessions and at each follow-	Increase their physical activity, participants were prescribed an individualized exercise program based on their history of physical activity and their physical condition. Since many	Standard behaviour modification techniques. Emotional feelings towards obesity and their life-	-

Bozikov V, et al. 2019	(day 7m month 1, 3, 6, 12). On each follow-up the participants conducted a 30 min interview with the clinical dietician.	up session individually. MD consisted of vegetables, fresh fruits, whole grains, non-fat or low-fat dairy products. It was low in read meat, with poultry and fish replacing pork, beef and lamb. Energy intake was restricted to an average of 1573 kcal/day. MD were provided with extra virgin olive oil and were explained they needed to consume 3-4 portions of fish per week, a handful of nuts per day and 2 tablespoons of extra virgin olive oil per day. The conventional diabetic diet based on Dubrava University Hospital guidelines, was rich in whole grains, fruit, vegetables and restricted additional fats, sweets and high-fat snacks with energy intake limited to 1287 kcal/day. Recommended intake of non-fat or law-fat dairy products and legumes was equivalent for both diets. Participants assigned to the SHD were not specifically advised to consume fish, but if fish was part of their regular diet they were encouraged to continue with this eating pattern, albeit not more than once	patients had musculoskeletal problems, physiotherapists demonstrated a set of techniques and exercises to help them achieve maximum mobility.	style were also tackled with group sessions. Following group sessions, participants had the possibility of individual consultation with any of the members of the multidisciplinary team.	

		weekly. Salt intake was not restricted in our study, although participants were advised to decrease its intake.			
Pearl RL, Wadden TA, Tronieri JS, Berkowitz RI, Chao AM, Alamuddin N, et al. 2018	During phase 1, participants were provided 14 weekly, 90-minute group lifestyle modification sessions. They were prescribed a structured 1000-1200 kcal/d diet that included the daily consumption of four meal replacements, combined with an evening meal of a frozen-food entree, a garden salad, and two servings of fruit. Participants who completed the 14-week program, lost >=5% initial weight, and wished to continue to participate were assigned to lorcaserin or placebo. Participants also were provided group weigh loss maintenance counseling ever-other-week for the first 12 weeks, and once every 4 weeks for the remainder of the 52 weeks. Approx half of the sessions were conducted in person and the other half by teleconference.	Participants were instructed to consume a calorie-reduced diet of conventional foods based on current dietary guidelines in order to maintain their weight loss.	Participants also were instructed to increase their physical activity to 225 minutes/week by week 40.	-	Lorcaserin
Pedersen E, Jesudason DR, Clifton PM. 2014	High protein diet was compared to a standard protein diet. The two diets differed only in the proportion of protein and carbohydrate; total fat and saturated fat were similar in both diets.	The planned protein:fat:carbohydrate ratio was 30:30:40% total energy for the high protein diet and 20:30:50% for the standard protein diet. The planned range of protein intake was 90-120g/day in the high protein diet vs 55-70 g/day in standard.	-	-	-

Pedersen LR, Olsen RH, Anholm C, Astrup A, Eugen-Olsen J, Fenger M, et al. 2019	AIT: 12 weeks supervised AIT three times weekly followed by 40 weeks AIT twice weekly. LED?AIT: 8-10 weeks LED (800-1000 kcal/day, followed by 2-4 weeks transition to a maintenance diet to avoided examining the participants in a catabolic state. The last 40 weeks included the maintenance diet and AIT twice weekly.	LED (800-1000 kcal/day, the Cambridge Weight Plan The maintenance diet was a low glycaemic load diet achieved by slightly higher protein content and focus on low glycaemic index carbohydrates as described in the DIOGens study.	Each exercise session was preceded by a 10-min warm-up on stairs or an exercise bike followed by high intensity interval training on an exercise bike. The total duration of each training session was 48 min including the warm-up.	-	-
Petrella RJ, Gill DP, Zou G, A DEC, Riggin B, Bartol C, et al. 2017	Components from HealtheSteps that were integrated into Hockey FIT included 1) lifestyle prescriptions for healthy eating, PA and exercise 2) eHealth technologies including the private and customizable online social network platform and the HealtheSteps smartphone app designed to help participants maintain their PA and exercise goals. The Hockey FIT program was delivered over 12 weekly 90-min sessions by Hockey FIT coaches from the central research team. Forty-week minimally supported phase, participants were encouraged to continue with their lifestyle prescriptions and sustain their behaviour changes with the support of free-of-charge eHealth tools. Six standardized messages were sent using the online social network and by e-mail to provide encouragement to sustain healthy lifestyle behaviors. A group reunion and booster session was held at month 9 to attend a hockey game. Wait-list control: men were instructed with usual daily activities without any restriction from the research team and with minimal intervention.	Healthy eating	Aerobic, strength and flexibility exercises, incorporating their passion for hockey off the ice. Sessions were designed to appeal to men, they included elements of friendly competition and encouraged banter, humor, and peer support	Classroom-based teaching of behavior change techniques and simple information sharing on PA and healthy eating, delivered to encourage participant interaction and mutual learning.	-

Phillips EG, Wells MT, Winston G, Ramos R, Devine CM, Wethington E, et al. 2017	SCALE The Small Changes and Lasting Effects. Participants were followed at routine intervals (weekly for months 1-3, biweekly months 4-9, once monthly for months 10-12). At enrollment participants identified their specific eating challenges. Ten small eating strategies were: prepare the main meal at home, take time for meals, drink water instead of sweetened beverage, eat a fruit or vegetable before snacking, eat breakfast daily, make half the main meal vegetables, turn off the television during meals, stop buying snack foods, hide snacks in an inconvenient place, eat main meals on a 10-inch plate.	Strategies to reduce calorie intake	Strategies to increase activity	After goal setting, participants randomized to the PA/SA group were taught the positive affect/self-affirmation script. They were instructed to identify small things that made them feel good and asked to think about these things when they first wake up in the morning and throughout their day. For the self-affirmation component participants were asked to think of a proud moment in their life and to think of that moment when they were faced with barriers to their new behavior goals.	-

Pjanic, Muller R, Laimer M, Hagenbuch N, Laederach K, Stanga Z. 2017	First part lasted 12 weeks with the first 6 weeks being the most intensive treatment phase. During weeks 1 through 6, patients had a weekly 90 minutes session in cognitive behavioral therapy, three 90 min sessions in nutrition counseling, a weekly two hour session in body-awareness therapy, and two 60 min exercise sessions to improve physical activity levels. During weeks 7 to 12, patients received weekly alternating CBT session or nutrition counselling. Also, a weekly 60 min sport session was added. In the second part transfer into everyday life was a central focus. The patients had a monthly session alternatingly between CBT and nutrition counselling. In these sessions, progress and obstacles to their goals were discussed. Additionally, psychological topics and nutritional advice from the first 12 weeks intensive treatment were repeated. The physical activities had to be organized by the patients themselves as part of the transfer process into everyday life.	The nutrition counseling included information on balanced diet, addressing the combined importance of fat, proteins and carbohydrates, and focusing on a reduction of self imposed prohibition of certain foods.	The physical activity modalities included water gymnastics, Nordic walking and weight lifting in the hospital's fitness center.	The CBT addressed defining realistic weight goals, self-monitoring of dysfunctional eating habits, analyzing one’s own behavior, setting up flexible behavioral goals, education on emotion regulation, and training of emotion regulation skills.	
Poddar KH, Ames M, Hsin-Jen C, Feeney MJ, Wang Y, Cheskin LJ. 2013	Visit 1-15- The participants received diet counselling	Meat diet: Participants were prescribed a 500 kcal/d energy-deficit diet over the first 6 months of intervention. Instruction regarding various methods to improve diet was offered. Mushroom diet. These participants were prescribed a 500 kcal/d energy deficit diet for the first 6 months. In addition they were instructed and monitored in the preparation and use of mushroom substitutes for meat and other high ED	-	-	-

		foods and provided with mushroom recipes.			
Powell LH, Appelhans BM, Ventrelle J, Karavolos K, March ML, Ong JC, et al. 2018	During the 6 month intensive phase, three cohorts of 810 participants met in groups on a weekly (first 3 months), then biweekly (second 3 months) basis. Each group was facilitated by a dietitian and a health psychologist. During the 24 month maintenance phase, the three groups merged and met on a monthly basis around an agenda they developed. Individual telephone coaching was available for participants who requested it. Group sessions lasted approx 2 hours, included 30 min of physical activity, 30 min meal preparation, 60 min of sharing the prepared meal together with dinner conversation that focused on new content presented .	Encouraged half of every plate at lunch and dinner to be comprised of vegetables, HALT aimed to reduce emotional eating by pausing, taking a deep breath considering whether on was Hungry, Angry, Lonely or Tired/Bored	Play aimed to restructure perception of physical activity from work to enjoyment, Use it or Lose it, encouraged maintenance of muscle mass with moderate-to-vigorous physical activity for 30 min on most days, and encouraged finding ways to get more steps into a day.	Techniques were informed by two theories of sustained behavior change which emphasize ongoing social support, objective feedback, and behavioral self-management skills, principles of habit formation and mindfulness practice.	
Puhkala J, Kukkonen-Harjula K, Aittasalo M, Mansikkamaki K, Partinen M, Hublin C, et al. 2016	Topics included diet and PA. The program consisted of 13 individual sessions: 6 face-to-face sessions (baseline and months 1, 3, 6, 9 and 12) with 7 telephone sessions in between. Face-to-face sessions were planned to last for 60 min, telephone sessions for 30 min. The counselors traveled to meet participants for face-to-face sessions. We used the Health Action Process Approach. The first three sessions focused on intention building, the four through twelfth session on putting the intentions into action via planning, and the thirteenth session on maintaining the recommended actions. During each counseling session, the participant and the couselor together established dietary and PA goals for the following months.	Dietary goals were based on Finnish nutrition recommendations. The main goals were to decrease energy intake by balancing meal frequency and increasing the intake of vegetables, fruits, and berries. The plate model was used for meals: half of the plat consists of vegetables; one fourth of potatoes, rice or paste: one fourth of meat, fish or legumes. The other goals were to use vegetable oils and spreads, consume low fat	Increasing habitual walking was the major PA goal. The emphasis was on taking walks in leisure time and during work breaks. The ultimate goal at 12 months was to add 4000 steps on five self-selected days of the week. As 4000 steps corresponds to approx 30 min of brisk walking, the additional steps equate to a total of 150 min a week.	-	-

		milk and meat products and reduce the use of low-fiber, rapidly-absorbed carbohydrates.			
Raynor HA, Steeves EA, Hecht J, Fava JL, Wing RR. 2012	Lifestyle interventions contain 3 components: a cognitive behavioral intervention, a diet prescription, and a physical activity prescription. The 18-mo intervention consisted of 48 group meetings lasting 60 min each. These meetings occurred weekly from month 1 to month 6 and then twice a month from month 7 to month 18. Separate group meetings occurred for the 2 conditions. Sessions covered lessons on behavioral and cognitive skills to help with changing dietary and physical activity behaviors and were modeled after lessons used in DPP.	Participants were instructed to consume a standard energy- and fat-restricted diet. Daily calorie goals were based on study entry weight. Fat intake was restricted to 30% of energy from fat. A sample meal plan, based on recommendations of MyPyramid, was provided to help participants consume a balanced diet while meeting energy and fat goals. Participants were also educated on how to adjust caloric intake for weight maintenance, to prevent weight regain.	Participants were instructed to gradually increase moderate-intensity physical activity to >=40 min/d 5 times/wk. Participants were encouraged to walk briskly and accumulate time spent being physically active by engaging in multiple short bouts. Participants were also given a pedometer and a goal of 10,000 steps per day.	Sessions covered lessons on self-monitoring, stimulus control, problem-solving, pre-planning, goal setting, cognitive restructuring, social support developments, relapse prevention	-
Rejeski WJ, Ambrosius WT, Burdette JH, Walkup MP, Marsh AP. 2017	Three interventions: weight loss alone (WL), weight loss + aerobic training (WL+AT), and weight loss + resistance training (WT+RT). The three study arms received the same WL intervention in three 6-months phases: intensive (months 1-6), transition (months 7-12), and maintenance (months 13-18). During the intensive phase, participants had three group and one individual session each month. Group sessions tapered off to two and then on per month for the subsequent phases with individual session scheduled as needed. All sessions lasted 60 minutes.	The nutritional composition of the diet was 20-25% proteins, 25-30% fats and 45-55 carbohydrates. For the three study arms, no specific physical activity goals were provided except for the AT and RT.	AT, walking on an indoor cushioned tract at the YMCA 4 d/wk, although participants were encouraged to walk at home as well. Walking behavior was shaped toward a goal of 45 min/session with a walking intensity of 12-14 on the RPE Scale. The RT intervention also involved train-	-	-

			ing 4 d/wk to ensure the time devoted to RT and AT was comparable. An RPE of 15-18 was used as a target intensity for each RT exercise with the training sessions shaped to 45 min. Participants completed three sets of 10-12 repetitions on eight machines with initial resistance determined from 1 repetition maximum testing. When a participant completed 12 repetitions in the third set for two consecutive days, the resistance was increased to ensure progressive overload. To assist with recovery time, participants rotated exercises on a 2-day schedule.		
Rejeski WJ, Brubaker PH, Goff DC, Jr., Bearon LB, McClelland JW, Perri MG, et al. 2011			The PA intervention involved 2 phases: intensive and maintenance. The 6-month intensive phase involved counseling sessions in a mix of 3 group sessions and 1 individual session per month.	-	-

Rock CL, Flatt SW, Sherwood NE, Karanja N, Pakiz B, Thomson CA. 2010	Participants assigned to the center-based or telephone based study groups received all program materials, including free-of-charge prepacked prepared foods as need to achieve a meal plan. Interactions between corporate-trained and supervised staff and the participants consisted of brief weekly one-to-one contacts with an in-person or telephone counselor, with follow-up telephone and e-mail contacts and web site or message board availability. Counselors were instructed to provide the program as designed for a regular paying client, although they were not blinded to identity of study participants. Free-of-charge counseling sessions were offered to participants for the entire 2-year period. Participants assigned to the usual care group were provided consultation with a research staff dietetics professional, who provided publicly available print material that described dietary and physical activity guidelines to promote weight loss and maintenance at baseline and again at 6 months. This 1-hour session was followed by monthly check-in via e-mail or telephone, and progress and strategies were discussed in a follow-up counseling session at 6 months.	The diet component of the program consisted of a nutritionally adequate, low-fat (20-30% of energy), reduced-energy diet (typically 1200-2000 kcal/d) that included prepackaged prepared food items with increased amounts of vegetables and fruits to reduce the energy density of the diet. Control group was advised a deficit of 5001000 kcal/d. Sample meal plans based on food groups.	Increased physical activity was another program component; the goal was 30 min of physical activity on 5 or more days per week. Control group was recommendated to increase physical activity.	-	-
Rodriguez-Cristobal JJ, Alonso-Villaverde C, Panisello JM, Trave-Mercade P, Rodriguez-Cor-	Control group: patients were visited every 3 months and doctors always included advice on life-style changes, physical exercise, hypo-caloric diet containing 1,200-1,500 kcal.	Hypo-caloric diet containing 1,200-1,500 kcal	Advice on physical exercise	The motivational intervention group received identical treatment as the control group plus a group motivational intervention every 15 days, once fortnightly during weeks 1 to	-

tes F, Marsal JR, et al. 2017				12, then monthly from week 13 to 32. Each session would last for one hour, for a 24-month follow-up period, with a total of 32 interventions, as described.	
Rolls BJ, Roe LS, James BL, Sanchez CE. 2017	Participants met individually with registered dietitians and trained interventionists for 19 session over 1 year. Each interventionist used standard instruction manuals. Thirty-minute sessions were scheduled weekly in month 1 and biweekly in months 2-6, and 1-hour sessions were scheduled monthly in months 7-12. In each group, energy balance was explained as the basis for weight loss, but in order to test the influence of different portion-control strategies, instruction focused on following the assigned dietary program and making behavioral changes. Participants in the Portion Selection Group were instructed to choose food portions based on ED in order to eat satisfying portions of low-ED foods, and to control portions of higher-ED foods. Participants in the Pre-portioned Food Group were instructed to structure their meals and to learn appropriate food portions using preportioned foods, such as individual serving of main dishes, side dishes, snacks, yogurt and whole fruits. Participants were instructed to eat preportioned main dishes daily for lunch and dinner during months 1-3 of the trial and were encouraged to continue this practice subsequently.	The specific principles of each program were reinforced with basic lessons about food categories as well as meal planning and managing behavior change	All participants received similar instruction on increasing physical activity through walking, with the goal of achieving 10 000 steps daily.	-	-

Ross R, Lam M, Blair SN, Church TS, Godwin M, Hotz SB, et al. 2012	Participants randomized to usual care received advice from their physician regarding lifestyle as strategy for obesity reduction and continued to meet their physician according to their usual schedule. Physicians were asked not to change their routine counseling approach for obese PROACTIVE patients. The 2-year, multiphase intervention was designed to promote physical activity concurrent with the consumption of a balanced diet. During phase 1 (months 0-6, 15 sessions), phase 2 (months 712, 6 sessions) phase 3 (months 13-24, 12 sessions).	provide knowledge and skills to consume a healthy diet, maintain the program	provide knowledge and skills to increase daily physical activity, maintain the program 45-60 min activity per day	The intervention included individually tailored counseling based on the transtheoretical model and social cognitive theory. Counseling was delivered by health educators who had degrees in kinesiology. Each health educator was assigned to 1 of 3 family medicine clinics and delivered all counseling sessions on site within a private office. Motivational interviewing served as the counseling model.	-
Rossen LM, Milsom VA, Middleton KR, Daniels MJ, Perri MG. 2013	TOURS trial. All participants received a 6-month lifestyle intervention (Phase 1) carried out through Cooperative Extension Service offices in six rural counties in North Florida. Phase 1 included 24 weekly group behavioral treatment sessions. At the conclusion of	The program was designed to decrease caloric intake (to 1200 kcal per day). No liquid meal supplements were utilized in the trial.	Increase moderate-intensity physical activity to reach a 10,000 per day step average or attain at least 3000 steps greater than baseline levels.	-	-

	Phase 1, these women were randomized on of three year-long follow-up programs: a face-to-face counseling program, a telephone counseling program, or a mail-only education "control" condition.				
Rudolph A, Hellbardt M, Baldofski S, de Zwaan M, Hilbert A. 2016	DOC WEIGHT, groups of 8-12, Phase 1 (week 1-8), Phase 2 (week 9-32), Phase 3 (week 33-52)	2 group sessions in Phase 1, 4 sessions and 2 practical exercises in Phase 2, and 1 group session and 1 individual meeting in Phase 3	1 group session and 4 practical units in Phase 1, 12 practical units in Phase 2, 4 practical units in Phase 3	2 group sessions in Phase 1, 4 group sessions in Phase 2, 2 group sessions in Phase 3	-
Ryan DH, Johnson WD, Myers VH, Prather TL, McGlone MM, Rood J, et al. 2010	LOSS, the usual care condition group were instructed in the use of the Mayo Clinic Weight Management Web site. The intensive medical intervention group used evidence-based approaches supported by weight management literature but delivered in a practical manner.	Phase 1 could continue for 12 weeks, low-calorie liquid diet plus 10g of added fat. Phase 2 nest 4 months, highly structured diet and medication. Group sessions were held weekly for 4 weeks, then every 2 weeks for 3 months. Recommended diet 2 meal replacements along with 2 portion-controlled snacks and 1 structured meal. Phase 3, months 8-24, weight loss medication and 1 daily meal replacement were continued, monthly group sessions were conducted.	-	-	-

Safavi R, Lih A, Kirkpatrick S, Haller S, Bailony MR. 2019	AOM (Anti-obesity medication) Patients engage in one-on-one meetings with a registered dietician on a weekly basis during the first 3 months, once every other week during the next 3 months and then once monthly for 6 months. Patients also see their physician on average once a month or the first 3 months, and then every 3 months. Patients may conduct their visits either in-person or via face-to-face video communication. Between visits patients utilize an m-Health application, which delivers tailored educational content, messages of encouragement and support, nutritional and behavioural feedback, a review of meals and feedback by a registered dietician, as well as exercise suggestions, planning and encouragement by fitness trainer.	Patients may choose between an intense, rapid weight loss program (daily caloric intake: 800-1000 kcal) or a non-intensive weight loss programme that emphasizes non-processed foods but does not encourage calorie counting. Both options encourage whole, unprocessed, low glycaemic foods.	Although all participants are assigned a target exercise goal of 150 min/week, a personal exercise coach determines the duration of exercise based on the patient's physical ability.	-	Where appropriate patients are prescribed medications to assist with weight loss. AOMs are prescribed in accordance with the US Food and Drug Administration-labelled recommendations. The choice of medication is ultimately mad by the patients and their physicians.
Salinardi TC, Batra P, Roberts SB, Urban LE,	There were a total of 19 session (15 consecutive sessions followed by biweekly session). The 60-min didactic sessions, which were held during the lunch hour, had up to 20 participants and were led by nutritionists with experience in behavior modification. In addition	Topics included dietary composition recommendations, portion control, self-monitoring, stimulus control, dietary variety,	-	-	-

Robinson LM, Pittas AG, et al. 2013	to group sessions, participants received a weekly e-mail for individual support. A structured maintenance program was implemented for 6 mo after the end of the weight-loss program on the basis of requests from worksites. The program was identical to the original except the groups met once per month. In addition to the weight-loss program, there was a low-intensity health and nutrition education program at intervention sites that was open to all employees. The program consisted of 6 newsletters on healthy eating and monthly, open-access seminars on general-interest topics including cardiovascular health, physical activity, and childhood nutrition.				
Santanasto AJ, Newman AB, Strotmeyer ES, Boudreau RM, Goodpaster BH, Glynn NW. 2015	WELL. The program was divided into three phases: adoption (weeks 1-8), transition (weeks 9-24) and maintenance (weeks 25-52). During the adoption phase, participants were required to attend 3 center based exercise sessions per week. For the transition phase, 2 sessions per week with the third conducted at home, during the maintenance phase participants were invited to attend 1 optional exercise session per week, but were expected to engage in physical activity at least three times per week. The PA+SA group attended 60-min, once monthly successful aging health education workshops to control for attention. The sessions were based on "The Ten Keys to Healthy Aging".	Participants in PA+WL attended 24 weekly, 2 bi-monthly, and 5 monthly sessions lead by a nutritionist. Strategies to achieve the recommended caloric intake were discussed and performance in weight loss intervention was evaluated. Participants were assigned to one of the following daily goals: 1200 calories and 33 fat grams, 1500 calories and 42 fag grams, 1800 calories and 50 fat grams, or 2000 calories and 55 fat grams. In addition participants were instructed to include at least 5 servings of fruits or vegetables and 6 servings of grains, especially whole grains, in their daily diet.	All enrollees participated in a physical activity program consisting primarily of treadmill walking, supplemented with lower extremity resistance training using ankle weight and balance exercises. Exercise sessions were designed to be 60-75 min, with an emphasis on treadmill walking of at least 150 min/week by week 9.	-	-

Saslow LR, Daubenmier JJ, Moskowitz JT, Kim S, Murphy EJ, Phinney SD, et al. 2017	Participants attended 19 classes over 12 months, twelve 2-h weekly classes, then three 2-h classes every 2 weeks, followed by four 1,5 h classes every 2 months. Starting in week 6 group leaders taught participants in both groups about the importance of sleep and exercise for type 2 diabetes and encouraged them to increase both, if needed.	One group leader instructed LCK participants to eat an ad libitum very low-carbohydrate, likely ketogenic diet, by reducing their carbohydrate intake to 20-50 g carbohydrates (excluding fiber) a day. A different group leader instructed the MCC participants to follow and MCCR diet in which 45-50% of their calories were to be derived from carbohydrates. We also instructed them to lower their fat consumption and eat 500 fewer kcal per day.	-	A third group leader taught all participants supportive behavioral adherence strategies aimed at increasing positive affect and mindful eating, in order to increase intervention adherence.	-
Sattin RW, Williams LB, Dias J, Garvin JT, Marion L, Joshua TV, et al. 2016	Each intervention arm involved participants attending 12-weekly group one-hour core sessions at their respective church. For FBAS, the 12 core sessions comprised the key components of successful weight loss programs such as strategies to reduce calories and dietary fat consumption, encouraging physical activity and behavioral modification such as stimulus control, goal setting and problem solving. For HE the 12 core sessions included information and risk improvement strategies about mental health and stress, heart disease and stroke, diabetes, cancer, smoking, injury and violence, asthma, nutrition, physical activity, HIV/AIDS and communicating with one's health provider.	strategies to reduce calories and dietary fat consumption	encouraging physical activity	behavioral modification such as stimulus control, goal setting, and problem solving	-

Schroder H, Cardenas-Fuentes G, Martinez-Gonzalez MA, Corella D, Vioque J, Romaguera D, et al. 2018	PREDIMED. During the first year of the ongoing trial, participants in the intervention group received PA recommendations by means of a tailored face-to-face education program including 12 individual one-hour sessions, 12 telephone calls, and 3 one-hour group sessions focused on PA. The program was delivered by dietitians who received additional training in PA recommendation.	-	During the first 6 months of intervention, participants were encouraged to gradually increase their activity level to at least 150 min/week of moderate-to-vigorous PA, with the ultimate goal of walking at least 45 min per day, 6 days per week, and doing static exercises to improve strength, flexibility, and balance according to specific instruction.	The PA intervention is a face-to-face tailored intervention program including goal setting, action planning, feedback, informational materials, motivation and self-monitoring.	-
Schutte BA, Haveman-Nies A, Preller L. 2015	BeweegKuur. Assign the participant to exercise programs 1, 2 or 3, varying in intensity of guidance by the LSA and physiotherapist. Throughout the year, participants had around seven tailor-made coaching and supervision sessions with the LSA based on principles of motivation interview, and the self-determination theory. All partisipants were referred to a dietician.	All were referred to a dietician	Exercise programs of varying intensity	Based on principles of motivational interviewing	-
Sepah S, Jiang L, Peters AL. 2014	PREVENT provide DPP lifestyle intervention in an online small-group format that i accessible and engaging and included 4 major intervention components: small-group support, health coaching, DPP curriculum and digital tracking tools. Participants were matched into groups of 10-15 who could relate to one another (location, age, BMI). Participants communicated via a private online social network. The Prevent program began with a 16-week core program phase, consisting of 16 online weekly lessons adapted from the CDC National DPP core curriculum. Lessons were posted	Weeks 1 to 4 focused on changing dietary habits,	Weeks 5 to 8 focused on increasing physical activity	Weeks 9-12 focused on relapse prevention, Weeks 13 to 16 focused on maintenance.	-

	every Sunday morning, and participants were encouraged to complete them at their own convenience with the week. A lesson was considered complete if a participant clicked through all of the pages and answered the free response questions. Once participants completed the 16-week core phase, they were invited to participate in the post-core phase, totaling 12 months. The post-care phase included 9 monthly lessons from the CDC National DPP post-core curriculum.				
Shapiro JR, Koro T, Doran N, Thompson S, Sallis JF, Calfas K, et al. 2012	The theoretical foundation was social-cognitive theory with evidence-based behavior change strategies including: self-monitoring of PA and weight, stimulus control tips, goal setting, problem solving, and planning for high-risk situations. Lapses, and weight maintenance. The current program, Text4Diet sent SMS and MMS 4 times/day for 12 months. SMS included tips, facts, motivation, MMS included portion control pictures and weight/step graphical feedback over time.	create a calorie deficit of 3500 to lose 1 lb, example of part of SMS	a daily pedometer goal calculated by averaging the daily steps from the previous week and adding 750 until they reached a daily average of 12,000 steps	-	-
Shea MK, Houston DK, Nicklas BJ, Messier SP, Davis CC, Miller ME, et al. 2010	ADAPT Study. Months 1-4 increase awareness if the need for behavior modification to change eating habits, months 5-6 set new goals in order to prevent relapse or to lose weight, months 7-18 maintain weight loss or provide additional support in participants who had difficulty losing weight. The healthy lifestyle control group attended 3 monthly health education programs on OA, obesity, and exercise for the first 3 months followed by monthly phone contact for Months 4-6 and then bimonthly phone contact for Months 7-18.	Goal to lose 5% of baseline body weight for a period of 18 months.	The exercise intervention consisted of 3 days/week of an aerobic exercise phase (15 min walking within 50-75% of heart rate reserve, resistance training (15 min, included two sets of 12 reps of lower body strength training) and 15 min cooldown for a period of 18 months	-	-

Silva MN, Vieira PN, Coutinho SR, Minderico CS, Matos MG, Sardinha LB, et al. 2010	The 30 intervention sessions, designed to follow SDT basic tenets, covering PA, eating/nutrition, body image, and other cognitive and behavioral content, occurred weekly or bi-monthly and lasted about 120 min each. Module I: increasing knowledge, Module II: triggering weight loss, improving diet, Module III increasing physical activity, Module IV addressing barrier, promoting self-regulation, developing autonomy, Module V improving body image, Module VI preparing weight maintenance	Healthy/preventive nutrition	Module III was introduced by about week 10 and aimed at establishing a more active lifestyle.	To create an autonomous-supportive environment, the intervention team attempted to promote in each participant a sense of ownership over their behaviour such that it would stem from an internal perceived locus of causality. This involved building sustainable knowledge that supported informed choices, by using neutral language during interpersonal communication (may and could, not should or must), providing participants with a menu of options and a variety of avenues for behavior change.	-

Simon GE, Rohde P, Ludman EJ, Jeffery RW, Linde JA, Operskalski BH, et al. 2010	One group focused on weight loss, the other both weight loss and depression. In both programs, group sessions were scheduled weekly for 12 sessions, bi-weekly for 10 session, and monthly for 4 session. The groups were similar in structure but different in content. The combined weight loss and depression intervention integrated the behavioral weight loss program for the weight loss group with essential element of cognitive-behavioral treatment for depression as drawn from the Coping with Depression manual.	Participant in the weight loss intervention were given daily caloric intake goals of 1200 or 1500 kcal. Dietary goals limited fat intake to 20% of daily caloric intake. Participants were provided with structured meal plans	Physical activity goals were increased in bi-weekly increments of 500 kcal/wk until the goal of 2500 kcal/wk was reached.	and received specific skills training in environmental stimulus control. And problem solving related to weight loss.	-
Spring B, Duncan JM, Janke EA, Kozak AT, McFadden HG, DeMott A, et al. 2013	MOVE! Participants assigned to the standard group returned the PDA when the 6-month intervention phase began, those assigned to the + mobile group retained the PDA. During months 1-6 both groups attended biweekly MOVE! Sessions. Each session lasted approx 1,5 hours and included discussion of nutrition, physical activity, and behavior change. For participants assigned to the + mobile group, a goal feedback thermometer on the PDA was activated at the start of the intervention phase. By recording their foods throughout the day, the thermometer was automatically updated with current caloric intake, and participants used the PDA as a decision support tool to self-regulate energy intake.	No participant was given an intake goal below 1200 kcal/d.	Daily physical activity goals were assigned by increasing self-reported baseline activity level by 25% after 1 month. Subsequent physical activity goals were increased by 25% when participants met their previous goal.	During months 7-12, participants in both groups attended monthly MOVE! Support group sessions led by hospital staff.	-
Stomby A, Simonyte K, Mellberg C, Ryberg M, Stimson RH, Larsson C, et al. 2015		Energy intake in both diets as ad libitum. During the 24 month study period, subjects attended 12 group sessions with a dietician to ensure compliance with their diet. The paleolithic-type diet was based on foods such as lean meat, poultry,		-	-

		fish, eggs, fruits, berries and nuts. Dairy products, cereals, added sugar and salt were avoided. Aimed to provide 30 E% as protein, 30E% as carbohydrates and 40 E% as fat with a high proportion of mono- and polyunsaturated fatty acids. The Nordic nutrition recommendation diet provide 55-60% E% as carbohydrates, 25-30E% as fat and 15E% as protein, with emphasis on low-fat dairy and high-fiber products.			
Svetkey LP, Batch BC, Lin P-H, Intille SS, Corsino L, Tyson CC, et al. 2015	The major difference between CP and PC was the source of intervention delivery and the use of the smartphone. In CP, the smartphone was used for both intervention delivery and self-monitoring. Specifically, the intervention was delivered exclusively through and investigator-designed smartphone app which included goal setting, challenge games, and social support. In contract the PC intervention was delivered primarily by an interventionist during 6 weekly group sessions followed by monthly phone contacts. The smartphone was used exclusively for self-monitoring. The control group were given three handouts on healthy eating and physical activity from the Eat Smart Move More NC program, but otherwise received no intervention and were not asked to self-monitor. Use of these materials was not monitored.	Targeted goals and behaviors included moderate calorie restriction, healthy dietary pattern, limited alcohol intake	>=180 minutes/week of moderate PA	Cell Phone group and Personal Coaching groups were based on social cognitive theory and the Transtheoretical model. Both interventions used techniques of behavioral self-management and motivational enhancement.	-

Swencionis C, Wylie-Rosett J, Lent MR, Ginsberg M, Cimino C, Wassertheil-Smoller S, et al. 2013	Tailoring lifestyle modification goals, the incremental levels included a workbook alone, the addition of computerized tailoring, and the addition of computers and staff counselling. -staff consultation consisted of six group weight-related treatment sessions, as well as up to 18 telephone or face-to-face consultation.	Quizzed about knowledge in nutrition	Quizzed about knowledge in activity	All groups based on Transtheoretical Model of Change which determines an individual's readiness to implement a novel health-related behavior and provides strategies to guide the individual through various stages	-
Tapsell LC, Batterham MJ, Thorne RL, O'Shea JE, Grafenauer SJ, Probst YC. 2014	Initial consultations lasted 1 hour, with 30 min follow-up at months 1, 2, 3, 6, 9 and 12 by the same dietitian. E-mail messages were sent 2 weeks before clinic visits. Short message service was sent to participants' mobile phone with reminders of appointments and encouragement to study requirements. Booklets outlining the recommended number of servings of food groups per day and a 4-day estimated food record were provided. The high vegetable group were given extra support and materials on use of vegetables.	Personalised diet prescription based on core food groups from the Australian Guide to Healthy Eating, vegetables, fruit, grain foods, meat/fish/eggs/cheese, milk/yoghurt and nuts/seeds/spreads/oils providing 805 energy requirement. All participants were requested to consume at least five servings of vegetables each day, but the servings were different between control vs comparator (0,5 vs 1,0 cup cooked; 1 vs 2 cups raw, respectively.	-	-	-

Tapsell LC, Lonergan M, Batterham MJ, Neale EP, Martin A, Thorne R, et al. 2017	Three groups: usual care (general advice by nurse, interdisciplinary advice and interdisciplinary advice and 30 g walnuts/day	Personalised diet prescription based on core food groups from the Australian Guide to Healthy Eating, vegetables, fruit, grain foods, protein rich foods, dairy foods, oils	Trained health coaches delivered related scripted calls of short (15 min) duration	The psychological coaching component was based on principles from Acceptance and Commitment Therapy and involved underlying values to increase motivation related to weight loss, increasing mindfulness and awareness to facilitate better health choices, and self-compassion to promote better valued-action even in the presence of setbacks	-
Tay, J, Luscombe-Marsh ND, Thompson CH, Noakes M, Buckley JD, Wittert GA, et al. 2015	LC: very-low-carbohydrate, high-unsaturated fat/low-saturated fat, HC traditional high-carbohydrate, low-fat diet. Participants met individually with a dietitian (every 2 wk for 23 wk and monthly thereafter, and key foods (30% of total energy) that were representative of assigned diet profiles were provided for 12 wk. Vouchers provided on alternate months.	LC: 14% of total energy from carbohydrate, 28% protein, 35% monounsaturated fat 13% polyunsaturated fat. HD 53% carbohydrate (emphasis on low-glycemic index foods), 17% protein, <30% fat (15% monounsaturated, 9% polyunsaturated)	Participants undertook, free of charge, 60-min professionally supervised exercise classes in a circuit training format on 3 nonconsecutive days per week that incorporated moderate intensity aerobic resistance exercise.	-	-

Teeriniemi AM, Salonurmi T, Jokelainen T, Vahanikkila H, Alahaivala T, Karppinen P, et al. 2018	Prevent Metabolic Syndrome. The control group received usual care, personal laboratory results and written information about the factors affecting metabolic syndrome and weight management.	Goal to improve eating behaviour	-	The theoretical framework of the CBT counseling with eight sessions was based on a CBT approach integrating the assumptions and strategies of acceptance and commitment therapy. CBT counseling included eight 90 min sessions in groups of 8-9 participants. Seven group counselling sessions were conducted every second week, with the last session after 1 month. Each group session comprised a mindfulness exercise, a short psychoeducation session, individual pair or group exercises, feedback discussion of a home task.	-

				Home tasks between group sessions were an integral part of the counselling model, and participants were encouraged to carry our these tasks with care.	
ter Bogt NC, Bemelmans WJ, Beltman FW, Broer J, Smit AJ, van der Meer K. 2011	GOAL study. NP (nurse practitioners) OG-UC (general practitioners). Lifestyle intervention consisted of 4 individual visits and 1 feedback session by telephone in the first year, in the next 2 years 1 individual visit and 2 feedback sessions were planned each year. During these contact sessions the NP is guided by the standardized computerized software program, which contains instructions on lifestyle counseling according to national and international guidelines. The NPs followed a specially developed training program (5 sessions of 4 hours each: 4 sessions before the intervention and 2 session after 1 year) and received an individual instruction about the software program before the start of the study. The GP group visited the GP after each measurement to discuss the results, and thereafter they received usual care according to GP guidelines.	-	-	The NP program consisted of several elements of behavioral counseling such as individual goal setting, monitoring using food diaries and pedometer, and addressing barrier for lifestyle change.	-
Thomas JG, Raynor HA, Bond DS, Luke AK, Cardoso	The control condition consisted online newsletters made available weekly for 3 months, then biweekly for 3 months, then monthly for 6 months. The newsletters contained general educational information on the benefits of losing weight and healthy eating and PA habits. Participants assigned to the WWO condition received 12 months of	-	-	-	-

CC, Foster GD, et al. 2017	access to WWO at no cost. Participants were instructed to access WWO via their PCs but could access resources for tracking daily food intake and PA, and weekly tracking of body weight, via a mobile application for smartphones and tablets. The WWO program used the PointsPlus dietary plan and tracking system and the activity PointsPlus PA tracking system, both aimed at fostering a healthy diet, increased PA, and gradual weight loss. Participants assigned to the WWO plus Active Linke received all of the resources in the WWO condition and an ActiveLink PA tracing device with related software at no cost. The ActiveLink is a thumb-sized device containing an accelerometer that can be worn on the waist, chest, or wrist and in combination with the accompanying softer, monitors PA.				
Trepanowski JF, Kroeger CM, Barnosky A, Klempel MC, Bhutani S, Hoddy KK, et al.2017	Alternate-day fasting group, daily calorie restriction group, no-intervention control group. The active trial duration was 1 year and consisted of a baseline phase (1 month), a weight-loss phase (6 months), a weight-maintenance phase (6 months). During the baseline phase, all participants ate their usual diet and maintained a stable weight. Participants in the alternate-day fasting group and those in the daily calorie restriction group were provided with all meals during the first 3 months of the trial, and received dietary counseling thereafter. each month to learn cognitive behavioral strategies to prevent weight regain, and received personalized energy targets for weight maintenance.	During the 6-month weight loss phase, the intervention groups were instructed to reduce their energy intake by a mean of 25% per day. To achieve this reduction, the alternate-day fasting group was instructed to consume 25% of baseline energy intake as a lunch on fast days and 125 % of baseline energy intake split between 3 meals on alternating feast days. The daily calorie restriction group was instructed to consume 75% of baseline energy intake plight between 3 meals every day. The provided meals were in accordance	-	Intervention participants met with the dietician individually each month to learn cognitive behavioral strategies to prevent weight regain.	-

		with the American Heart Association Guidelines for macronutrient intake, with 30% of energy as fat, 55% as carbohydrate, and 15% as protein. From months 4 to 6, when food was no longer provided, intervention participants met individually with a dietician or nutritionist weekly to learn how to continue with their diets on their own. At the beginning of the 6-month weight-maintenance phase, total daily energy expenditure was reassessed. Participants in the alternate-day fasting group were instructed to consume 50% of energy needs as lunch on fast days and 150% of energy needs split between 3 meals on alternating feast days. Participants in the calorie restriction group were instructed to consume 100% energy needs split between 3 meals every day.				
Tur JJ, Escudero AJ, Alos MM, Salinas R,	intensive life style behavioural modification. They attended weekly group meetings from weeks 1 through to 12, sessions were conducted biweekly from weeks 13 to 52. Meetings included 10–12 subjects, lasted 90 min, and were led by a registered nurse, Master in nutrition. The group sessions were focused on the qualitative as-	The group sessions were focused on the qualitative aspects of the dietary habits, as the distribution of energy intake, frequency of consumption and food choices. We provided information on the benefits of the				

Teres E, Soriano JB, et al. 2013	pects of the dietary habits, as the distribution of energy intake, frequency of consumption and food choices. We provided information on the benefits of the Mediterranean diet and encouraged our patients to follow this diet. There were no restrictions in calorie intake. Nutrition education strategies took into account the patients' social, economic and cultural life of their personalities, their habits, customs and preferences, recognizing their personal circumstances and situations	Mediterranean diet and encouraged our patients to follow this diet. There were no restrictions in calorie intake.			
Venn BJ, Perry T, Green TJ, Skeaff CM, Aitken W, Moore NJ, et al. 2010	Control group based on guidelines produced by the National Heart Foundation of New Zealand, or a diet that emphasized wholegrains and pulses.	The first 6 months involved 2-weekly counseling sessions and the provision of foods, followed by 12 months during which participants had monthly contact with the study investigators. During the first 6 months, participants attended cooking classes and supermarket tours, and they received dietary advice and recipe cards developed by a registered dietitian. Every 2 weeks, participants attended dietary counseling sessions in pairs, during which they were weight and received dietary advice from a registered dietitian.	Participants were encouraged to exercise for half an hour a day and were given a pedometer.	-	-
Villareal DT, Chode S, Parimi N,	Four groups: control group, group that participated in a weight-management program (diet group), a group that received exercise train-	Balanced diet that provided an energy deficit of 500 to 750 kcal per	Participants in the exercise group were given information regarding a diet that would maintain their current	The diet group were instructed to set weekly behavioral	-

Sinacore DR, Hilton T, Armamento-Villareal R, et al. 2011	ing (exercise group), and a group that received both weight management instruction and exercise training (diet-exercise group). The control group were provided general information about a healthy diet during monthly visits with the staff	day from their daily energy requirement. Participants met weekly as a group with a dietitian for adjustments and for behavioral therapy	weight, and participated in three group exercise-training sessions per week. Each session was approx 90 min and consisted of aerobic exercises, resistance training, and exercises to improve flexibility and balance. The exercise sessions were led by a physical therapist. The aerobic exercises included walking on a treadmill, stationary cycling, and stair climbing.	goals and attend weekly weigh-in sessions.	
Wadden TA, Foreyt JP, Foster GD, Hill JO, Klein S, O'Neil PM, et al. 2011	Two groups: intensive group behavior modification with placebo or naltrexone SR 32 mg/day combined with bupropion SR 360 mg/day. Participants were instructed to take two tables twice daily (morning, evening). Participants who discontinued medication before the end of the study were encouraged to reaming i the behavioral program and to return for scheduled study assessments at weeks 28 and 56. Participants had study visits at baseline and every 4 weeks thereafter. All participants in both treatment groups attended group meeting (10-20 persons) lasting 90 min and were held weekly for the first 16 weeks, every other week for the nest 12 weeks, and monthly thereafter (total of 28 sessions)	All participants were instructed to consume a balanced deficit diet of conventional foods that provided 15-20 % of energy from protein, 30% or less from fat, and the remainder from carbohydrate. Participants who weighed >259 lb were prescribed 1,200 kcal/d, whereas those 250-299 lb were prescribed 1,5 kcal/d, with higher allotments for heavier individuals. Partisipants were instructed in measuring portion sizes, counting calories.	They were also encouraged, during the first 6 months to gradually increase to 180 min/week of planned moderately vigorous physical activity. During months 7-12 they were encouraged to aim for up to 360 min of activity per week.	Group leaders introduced a new topic in weight control which, during the first 16 week, included meal planning, stimulus control, slowing eating, problem solving, social support, coping with high risk situations. Subsequent sessions covered skills required for maintaining lost weight. Treatment sessions were led following detailed	Naltrexone SR/Bupropion SR

				treatment manuals that incorporated materials from the LEARN program for Weight Management and Diabetes Prevention Program.	
Wadden TA, Volger S, Sarwer DB, Vetter ML, Tsai AG, Berkowitz RI, et al. 2011	POWER-UP. All participants were prescribed the same goals with respect to diet and physical activity but were provided with different levels of support to achieve them. Participants assigned to usual care were scheduled for quarterly PCP visits during the 24 months. At each visit, the PCP spent approx 5-7 min reviewing the participant's weight change and discussing the information provided in the hand-outs. The PCPs followed written protocols and were instructed not to provide specific behavioral strategies for changing eating and activity habits. Brief Lifestyle counseling: Participants were scheduled for the same quarterly PCP visits as the usual-care group but also spent 10-15 min each month with an auxiliary health care provider (medical assistant) who delivered treatment y following abbreviated lessons from the Diabetes Prevention Program. For month 1 only, participants had two counseling visits to instruct them about how to record food and calorie intake in diaries provided. In year 2, they were permitted, every other moth, to complete counseling visits by phone. Enhanced Brief Lifestyle Counseling, Participants had the same PCP and counseling visits as brief lifestyle counseling, However, they also chose to take sibutramine, orlistat	Participants whose weight was less than 113,4 kg were prescribed a balanced diet of 1200 to1500 kcal per day (1500 to 1800 kcal per day for participants who weighted 113,4 or more), which consisted of approx 15 to 20 % from protein, 20 to 35% kcal from fat and the remainder from carbohydrate.	All participants were instructed to gradually increase their physical activity to 180 min per week and were given a pedometer, a calorie counting book, and handouts from Aim for a Healthy Weight.	-	Sibutramine/Orlistat

	or meal replacements to increase weight loss, beginning 1 month after treatment.				
Wadden TA, Walsh OA, Berkowitz RI, Chao AM, Alamuddin N, Gruber K, et al. 2019	All participants had seven brief (5 min) medical visits over the years (weeks 1, 4, 8, 16, 24, 40, 52). IBT alone, no supplemental treatment was provided. IBT-liraglutide, in addition starting at week 1, they were prescribed liraglutide as a once-daily self-administered, subcutaneous injection. , Multi-component group received the same as IBT-liraglutide with the exception of at week 4 they were prescribed, for 12 weeks, a 1000-1200 kcal/day diet that provided four servings daily of a liquid shake and an evening meal of a frozen food entree with a serving of fruit and salad.	Participants who weighted <113,6 kg were prescribed a diet of 1200-1499 kcal/d, comprise of conventional foods, with approx 15-20% kcal from protein, 20-35% from fat and the remainder from carbohydrate. Those >=113,6 kg were prescribed 1500-1800 kcal/d. They were provided lists of breakfast, lunch and dinner options to be used.	Participants were instructed to engage in low-to-moderate intensity physical activity (principally walking) 5 days/wee, gradually building to >= 180 min/week by week 24. This increased to >=225 min/week from weeks 25-52.	Participants in all three groups received the same 21 sessions of intensive behavioral therapy, 4 initial weekly visits, followed by 10 every-other-week sessions (through month 6), followed by 7 additional visits, delivered every 4 weeks through month 12. All participants were provided counseling in the second 6 months, regardless of whether they had lost >3 kg at month 6. Counseling sessions lasted 15 min and were delivered following a detailed protocol adapted from the DPP	Liraglutide

Weinstock RS, Trief PM, Cibula D, Morin PC, Delahanty LM. 2013	Diabetes Prevention Program (DPP) materials were adapted for delivery by telephone. Written materials were provided to participants at baseline visits. For both interventions, educators followed scripts per DPP materials for the 16-session core curriculum, which included goal setting, self-monitoring, diet/activity modification and problem solving. Topics were presented weekly for the first 5 weeks, then monthly for 1 year. A modified 12-session curriculum was used by educators during year 2. For the CC intervention, scripts included prompts for educators to engage all group members in the discussion. In the DPP, the core curriculum was augmented with other components. Coaches made monthly calls (after first 5 weeks) alternating with educators. During year 2, each participant could request up to six coach contacts, but very few did so.	included diet modification	included activity modification	included goal-setting, self-monitoring, problem solving	-
Welsh P, Cezard G, Gill JM, Wallia S, Douglas A, Sheikh A, et al. 2016	Secondary analysis of PODOSA. The families in the intervention were offered information and demonstrations on healthy shopping and cooking practices, and received 15 visits from a dietitian over 3 years, who advised on achieving weight loss through calorie deficit and physical activity of at least 30 min per day using culturally sensitive techniques. The control group was given standardized written and verbal advise on healthy eating, diabetes prevention, promotion of physical activity and on accessing other weight control and physical activity services over four visits with a dietitian.	Achieving weight loss through healthy eating and calorie deficit	Achieving weight loss through physical activity	-	-
West DS, Harvey JR, Krukowski RA, Prewitt	The 18 month manualized intervention focused on changing dietary and physical activity patterns using self-management skills and other behavioral strategies. One hour online synchronous chat ses-	A calorie-restricted diet and dietary fat goal corresponding to <25% of calories from fat were prescribed	Graded exercise goals that progressed to 200 min/week of moderate to vigorous exercise were pro-	Behavioral strategies to assist in making habit changes in-	-

TE, Priest J, Ashikaga T. 2016	sions of 12-19 participants were moderated by experienced behavioral weight control counselors. Chats were offered weekly during the first 6 months and monthly for twelve additional months. The online MI intervention gave six individual MI sessions using an interactive, synchronous form of private chat integrated within the same website as the group weight loss program. The text-based chat was selected because many participants lived in rural areas without consistent access to the technology required to support alternatives like video chat. Chats were designed to last approx 30 min and followed a protocol which allowed flexibility in session flow. The first MI session was conducted before the group program started. The second MI session was after session 5 of the weekly group program. The next five MI chats were offered at 3-month intervals.		vided. Pedometers were given to assist in self-monitoring steps and a goal of 10000 steps/day was provided	cluded self-monitoring, goal setting, problem solving, and relapse prevention.	
Williams AE, Stevens VJ, Albright CL, Nigg CR, Meenan RT, Vogt TM. 2014	The intervention sought to increase physical activity and promote a healthy low-fat and low-calorie diet. Strategies for influencing behavior were based on Social Ecological Model. 3W had group sessions and workplace environment intervention. The Worksite Environment Intervention was designed to be pervasive but not instructive. It delivered health-supportive messages to employees in two ways, displays in employee-only areas and newsletter and fliers in pay envelopes of employee mailboxes.	Instruction about diet, Nutritional advice was consistent with the DASH diet9: high fruit and vegetable intake, low fat and sugar intake	Instruction about physical activity choices	-	-
Winkler JK, Schultz JH, Woehning A, Piel D,	OP52 (OPTIFAST52) franchise holder Nestlé, Vevey, CH) consists of a five-phase lifestyle modification program designed for 52 weeks, including meal replacement for 12 weeks and based on four modules (psychology, medicine, dietetics and exercise). During the	2 nutrition counselings during 12 weeks, 6 nutrition counseling during	12 exercise units during 12 weeks, 6 exercise units during 6 weeks, 4 sessions during 7 weeks, 13 sessions during 26 weeks	2 behavior therapy session during 12 weeks, 2 behavior therapy sessions	-

Gartner L, Hildebrand M, et al. 2013	program, closed group of 8-15 persons meet weekly for about three and a half hours per session. The five program phases included () a 1-wee-introduction time to check inclusion and exclusion criteria; (ii) a 12-week-period of low-calorie diet (800 kcal/day) during which participants consume formula diet exclusively, accompanied by 12 medical examinations, 12 exercise units, two behavior therapy lessons and two nutrition counselings; (iii) a 6 week-refeeding phase, during which solid food is reintroduced and formula diet is stepwise replaced by normal diet without change of total energy intake, accompanied by six medical examination, six exercise units, two behavior therapy lessons and six nutrition counseling; (iv) a 7-week-stabilization phase in which energy intake is stepwise, enhanced to an individual level that allows weight stabilization, accompanied by three medical examinations, four exercise units, four behavior therapy lessons ah three nutrition counseling, (v= 26 week maintenance phase in which nutritional education and behavior modification is intensified to learn coping strategies and to achieve long-term weight control, accompanied by six medical examinations, 13 exercise units, 22 behavior therapy lessons and five nutrition counselings.	6 weeks, 3 nutrition counseling during 7 weeks, 5 nutrition sessions during 26 weeks		during 6 weeks, 4 sessions during 7 weeks, 22 sessions during 26 weeks	
Wycherley TP, Brinkworth GD, Clifton PM, Noakes M. 2012	Participants were asked not to modify their lifestyle patterns during the study other than that required to comply with the study protocol. No specific prescription of physical activity was provided.	The dietary patterns were isocaloric and moderate energy restricted. HP diet: protein 35%, fat 25%, carbohydrate 40%. Within the HP diet the prescribed daily protein distribution was approx 20% in the morning, 30% at lunch time and 60% during afternoon/evening. Participants met	-	-	-

		individually with a qualified dietitian at baseline and every 2 weeks during the first 12 weeks and monthly thereafter. HC diet: protein 17%, Carbohydrate 58%, fat 25%			
Wycherley TP, Brinkworth GD, Keogh JB, Noakes M, Buckley JD, Clifton PM. 2010	Participants attended the clinic for consultation with a qualified dietician, fortnightly for the first 8-weeks and monthly thereafter.	LC diet were prescribed a dietary plan that provided 4% of total energy from carbohydrate, 35% as protein and 61% as fat with the objective to restrict carbohydrate to <20 g/day for the first 8- weeks with an option to increase to <40 g/day for the remainder for the study. For participants on the LF diet the prescribed dietary profile was 46% of total energy as carbohydrate, 24% as protein, 30% as total fat with the objective to restrict saturated fat intake to <10 g/day for the study duration. Both diets were designed to be isocaloric with moderate energy restrict (6000 kJ/day for women and 7000 kJ/day for mem).	-	-	-
Yaeger A, Cash NR, Parham T,	The nurse reviews the patient's typical daily diet, eating habits, alcohol and tobacco use, and exercise routine. Additional education	Education focuses on healthy eating habits, increasing fruit and vegetable intake, limiting processed foods and	Recommendations of 150 min per week of moderate-intensity physical activity are discussed.	-	-

Frankel DS, Deo R, Schaller RD, et al. 2018	on obesity management is provided as needed during follow-up telephone calls, which occur every 2 weeks during the first 2 months, once-monthly during months 3 to 6 and every 3 months during months 6 to 12.	added sugars, improving portion control, understanding nutrition labels, reducing alcohol intake.			
Yeh MC, Heo M, Suchday S, Wong A, Poon E, Liu G, et al. 2016	The DPP curriculum was adapted for the study based on feedback from three focus groups of Chinese participants with prediabetes and one advisory group meeting of CAIPA physicians and community leaders. Modifications included reorganizing the DPP 16-session core curriculum, including more information about Asian diabetes risk disparity, following each intervention with a physical activity session, inviting family members to attend sessions, providing measuring cups, as well as culturally and linguistically tailoring. The modified lifestyle programme, consisting of 12 bi-weekly core sessions and six monthly follow-up sessions, was conducted in Chinese by trained lifestyle coaches at a community site that could accommodate an exercise program. Each session lasted 1,5--2 hours.	-	-	-	-
Zinn C, Schofield GM, Hopkins WG. 2012	The 12 week weight-loss phase of small-changes intervention was divided into three 4-weeks stages. On the basis of initial food and exercise diaries submitted by the participants, a unique set of small changes was selected for each participant from three lifestyle areas - food, exercise and mindfulness of health behaviors. The initiative was call "Power of 3" to emphasize the integration of these three lifestyle areas. Each participant was presented with three eating changes, on moving change and two thinking changes, and they were informed to focus on only those changes for the first stage of the program. After 4 weeks a meeting was held with the dietitian	Small changes from three lifestyle areas - food, exercise and mindfulness of health behaviors	Small changes from three lifestyle areas - food, exercise and mindfulness of health behaviors	Small changes from three lifestyle areas - food, exercise and mindfulness of health behaviors	-

	and each team to discuss their progress and any issues that may have arisen. At this meeting, in a motivational style interview, the dietitian assisted the participants to select their next set of changes. After another 4 weeks, the meeting was repeated and the final set of changes was selected. The maintenance phase consisted of five components staggered throughout the 9 months: an automated MMS-text program, five CDs, delivered once per 6 weeks to each participant at the workplace, containing podcast-style recordings of topics pertaining to weight loss and health, a team pedometer challenge, a Christmas seminar,				
Zurlo F, Trevisan C, Vitturi N, Ravussin E, Salvo C, Carraro S, et al. 2019	-	structured dietary training was implemented to educate participants about food glycemic index, macronutrients composition, and daily calorie distribution. Patients were invited to follow a diet with an energy intake equal to the measured RMR and with a 45% carbohydrate, 20% protein, 35% fat and 30 g/day fiber content.	A certified trainer coached participants about the importance of exercise in promoting health in particular among diabetic people, with specific recommendations on exercise. Trainers supervised the participants during 12 weeks of structured exercise by a local health club. Training consisted of 150 min/week workouts, divided in three sessions of progressive mixed exercise. Intensity was changed monthly according to improvements in calculated VO2max and muscle fitness.	-	-

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