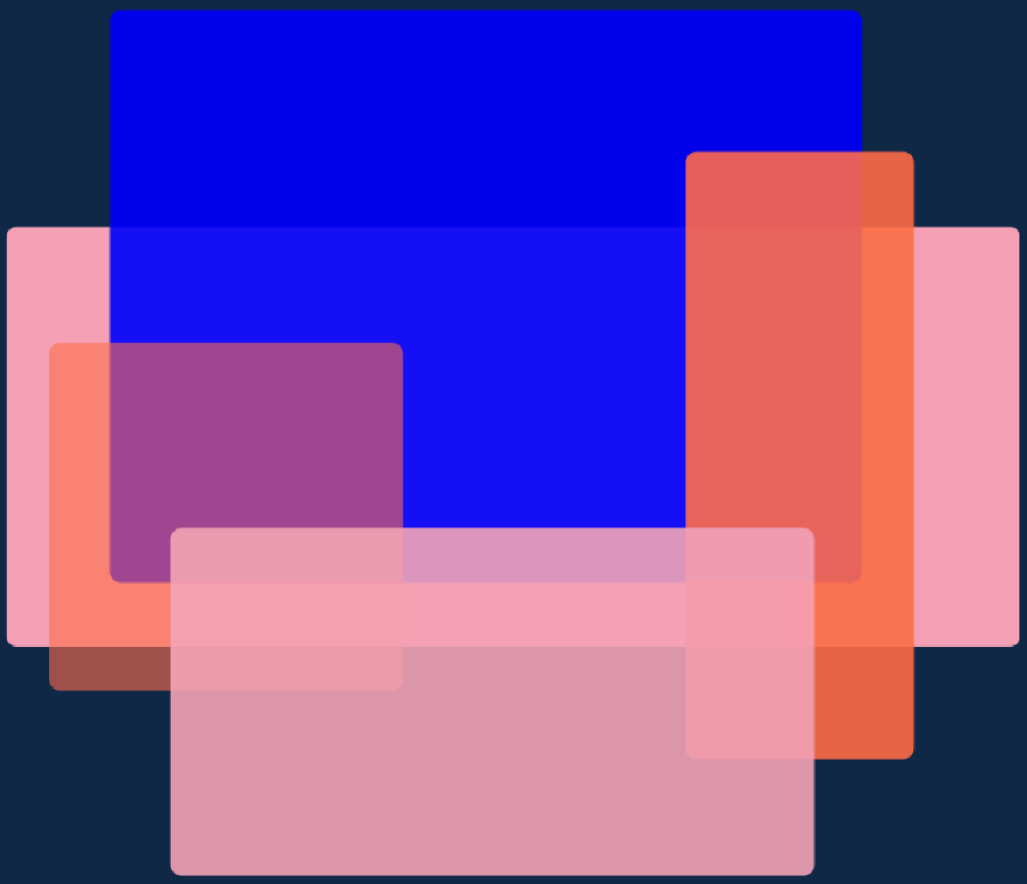
Blueprint
by nesta

Blueprint for halving obesity: rapid review

Individually targeted behavioural weight loss programmes as an intervention for adults with obesity



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Summary table

Title	Doctor referral of overweight people to low energy total diet replacement treatment (DROPLET): pragmatic randomised controlled trial	Extended follow up of a short total diet replacement programme: results of the doctor referral of overweight people to low energy total diet replacement treatment (DROPLET) randomised controlled trial at 3 years
Author and year	Astbury et al. (2020)	Astbury et al. (2021)
Type of study	Randomised controlled trial	Randomised controlled trial
Outcome variable	Mean difference in weight (12 month follow up)	Mean difference in weight (3 year follow up)
Treatment	Total diet replacement and behavioural support	Total diet replacement and behavioural support
Control	Usual care: behavioural support for weight loss from a practice nurse and a diet programme with modest energy restriction	Usual care: behavioural support for weight loss from a practice nurse and a diet programme with modest energy restriction
Magnitude of effect (Adults)	Treatment mean difference (12m): -10.7kg Control mean difference (12m): -3.1kg	Weight regain = 2.2kg per year
Magnitude of effect (Children)	Not in scope of the study	Not in scope of the study
Notes	For modelling the impact of this policy, this review was used to calculate weight loss.	For modelling the impact of this policy, this review was used to calculate weight regain.

Rapid umbrella review

Background

Behavioural weight management programmes (BWMPs) are one of many potential interventions that have been shown to be effective in reducing obesity. BWMPs aim to achieve weight loss through changes to diet, physical activity, or both. The National Institute of Clinical Excellence (NICE) guidelines recommend the use of BWMPs for the treatment of adults with obesity, and some local authorities fund referrals to such programmes via NHS treatment pathways. For this policy, we are focusing on BWMPs that include a total diet replacement (TDR) programme.

Objectives

To summarise the best available evidence of the effect of BWMPs with TDR on weight loss.

Methods

We aimed to identify reviews that included quantitative research synthesis (ie, meta-analysis) of the effectiveness of BWMPs on outcomes relevant to weight loss or obesity. If more than one review was identified that answered our research question, we aimed to identify the review that was reflective of the best evidence, based on (a) year published and (b) quality of review (judged by JBI checklist). If an individual study better answers our questions regarding the longer-term effect, we would select that.

Eligibility criteria

Participants. To be eligible for inclusion, articles could examine the effect of a BWMP with TDR on adults. To be eligible, articles were required to review BWMPs for adults with obesity. We used the World Health Organization's definition of obesity for adults.

Intervention. Reviews were required to synthesise interventions that were clearly defined and included a TDR component. Interventions had to involve multiple contacts. We excluded programmes that involved the use of any surgery or

weight-loss medications. Interventions incorporating other lifestyle changes such as efforts at smoking cessation or reduction of alcohol intake were not included. We excluded reviews that looked only at physical activity interventions with no dietary change. However, reviews that synthesise studies where some are physical activity only and some have both physical activity and nutrition support were included.

Comparator. No intervention or a lower intensity intervention (eg, brief education).

Outcomes. To be eligible for inclusion, reviews needed to include either clinical (eg, weight, BMI, % fat change) or behavioural outcomes (including, but not limited to: eating behaviour, food diaries). Reviews that only included measures of intentions/plans for future behaviour were excluded due to evidence of the gap between intended and actual eating behaviour.

Information sources and article selection

The search strategy was designed to identify syntheses of research evidence such as systematic reviews between the year 2010 and the date of search. Initial keywords were identified via scoping relevant papers and reports as well as via MEDLINE using the MeSH function. A search was performed in MEDLINE and the Cochrane Database of Systematic Reviews. We also searched grey literature using Google Scholar and Google to identify relevant reports. The search was run in January 2023.

Screening

Due to the rapid nature of the reviews, a single reviewer screened titles and abstracts and discussed any uncertainty with a second reviewer. For relevant titles/abstracts, the full text was retrieved for full text review. One reviewer reviewed the full texts and discussed uncertainties with a second reviewer.

Assessment of methodological quality

We aimed to select the highest quality and up-to-date review for data extraction (focusing on publications from 2010 onwards). Suitability to our research question was also taken into account when selecting the final review for extraction. The Blueprint Expert Advisory Group reviewed our identified papers and made recommendations for the input of more appropriate evidence that our search had not identified.

Data extraction

The following information was extracted:

- Review/study characteristics: author/year, objectives, participants (characteristics, total number), setting/context, interventions of interest.
- Results: findings of the review/study and comments.

Results

Findings from Astbury et al. (2020). Doctor referral of overweight people to low energy total diet replacement treatment (DROPLET): pragmatic randomised controlled trial.

This article was recommended for inclusion by the Blueprint Expert Advisory Group as it is a well-powered individually randomised controlled trial testing the effectiveness of doctor referral of people living with obesity to a TDR programme. It also had a three year follow-up study, which allowed us to incorporate an accurate estimate of weight regain after programme completion.

Methods

To test the effectiveness and safety of a TDR, the TDR programme comprised weekly behavioural support for 12 weeks and monthly support for three months, with the inclusion of formula food products providing 810kcal/day (3,389kJ/day) as the only food during the first eight weeks. This was followed by a gradual reintroduction of food. Usual care comprised behavioural support for weight loss from a practice nurse and a diet programme with a small reduction in energy intake. The primary outcome was weight change at 12 months analysed as intention to treat with mixed effects models. Secondary outcomes included biomarkers of cardiovascular and metabolic risk. Adverse events were recorded.

Results

Participants in the TDR group lost more weight (-10.7kg) than those in the usual care group (-3.1kg): adjusted mean difference -7.2kg (95% confidence interval (CI): -9.4 to -4.9kg). 45% of participants in the TDR group and 15% in the usual care group experienced weight losses of 10% or greater. Participants were followed up after three years to take measures of weight and clinical outcomes. The findings are

reported in a separate study, Astbury et al. (2021). The follow-up study showed that compared with baseline, at three years follow up participants in the TDR group lost -6.2kg (SD 9.1) and usual care -2.7kg (adjusted mean difference -3.3kg (95% CI: -5.2, -1.5), $p<0.0001$.) Weight regain from programme end (six months) to three years was greater in TDR group +8.9kg (SD 9.4) than UC + 1.2, (SD 9.1); adjusted mean difference +6.9kg (95% CI: 4.2, 9.5) $p<0.001$.