Interactive computer-based interventions for weight loss or weight maintenance in overweight or obese people (Review)

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[Intervention Review]

Interactive computer-based interventions for weight loss or weight maintenance in overweight or obese people

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ABSTRACT

Background

The World Health Organization (WHO) estimates that the number of obese or overweight individuals worldwide will increase to 1.5 billion by 2015. Chronic diseases associated with overweight or obesity include diabetes, heart disease, hypertension and stroke.

Objectives

To assess the effects of interactive computer-based interventions for weight loss or weight maintenance in overweight or obese people.

Search methods

We searched several electronic databases, including CENTRAL, MEDLINE, EMBASE, CINAHL, LILACS and PsycINFO, through 25 May 2011. We also searched clinical trials registries to identify studies. We scanned reference lists of included studies and relevant systematic reviews.

Selection criteria

Studies were included if they were randomized controlled trials or quasi-randomized controlled trials that evaluated interactive computer-based weight loss or weight maintenance programs in adults with overweight or obesity. We excluded trials if the duration of the intervention was less than four weeks or the loss to follow-up was greater than 20% overall.

Data collection and analysis

Two authors independently extracted study data and assessed risk of bias. Where interventions, control conditions, outcomes and time frames were similar between studies, we combined study data using meta-analysis.

Main results

We included 14 weight loss studies with a total of 2537 participants, and four weight maintenance studies with a total of 1603 participants. Treatment duration was between four weeks and 30 months. At six months, computer-based interventions led to greater weight loss than minimal interventions (mean difference (MD) -1.5 kg; 95% confidence interval (CI) -2.1 to -0.9; two trials) but less weight loss than in-person treatment (MD 2.1 kg; 95% CI 0.8 to 3.4; one trial). At six months, computer-based interventions were superior to a minimal control intervention in limiting weight regain (MD -0.7 kg; 95% CI -1.2 to -0.2; two trials), but not superior to infrequent in-person treatment (MD 0.5 kg; 95% -0.5 to 1.6; two trials). We did not observe consistent differences in dietary or physical activity behaviors between intervention and control groups in either weight loss or weight maintenance trials. Three weight loss studies estimated the costs of computer-based interventions compared to usual care, however two of the studies were 11 and 28 years old, and recent advances in technology render these estimates unlikely to be applicable to current or future interventions, while the third study was conducted in active duty military personnel, and it is unclear whether the costs are relevant to other settings. One weight loss study reported the cost-effectiveness ratio for a weekly in-person weight loss intervention relative to a computer-based intervention as USD 7177 (EUR 5678) per life year gained (80% CI USD 3055 to USD 60,291 (EUR 2417 to EUR 47,702)). It is unclear whether this could be extrapolated to other studies. No data were identified on adverse events, morbidity, complications or health-related quality of life.

Authors' conclusions

Compared to no intervention or minimal interventions (pamphlets, usual care), interactive computer-based interventions are an effective intervention for weight loss and weight maintenance. Compared to in-person interventions, interactive computer-based interventions result in smaller weight losses and lower levels of weight maintenance. The amount of additional weight loss, however, is relatively small and of brief duration, making the clinical significance of these differences unclear.

PLAIN LANGUAGE SUMMARY

Interactive computer-based interventions for weight loss or weight maintenance in overweight or obese people

Overweight and obesity are common health problems and increase the risk of developing several serious health conditions. The standard treatment for overweight and obesity is to help patients change their diet and exercise habits. Treatment programs in which patients interact with a computer may help people make these changes, and improve their ability to lose weight and keep it off. We looked for randomized or quasi-randomized trials in which an interactive computer intervention was compared with no treatment, a limited treatment such as usual care or paper materials, or an in-person treatment to help people lose weight or keep it off. We included 14 weight loss studies with a total of 2537 participants, and four weight maintenance studies with a total of 1603 participants. The length of treatment ranged from four weeks to 30 months. At six months, computer-based interventions led to greater weight loss than minimal interventions (mean difference -1.5 kg; 95% confidence interval (CI) -2.1 to -0.9; two trials) but less than in-person treatment (mean difference 2.1 kg; 95% CI 0.8 to 3.4; one trial). At six months, computer-based interventions were superior to a minimal control intervention in limiting weight regain (mean difference -0.7 kg; 95% CI -1.2 to -0.2; two trials), but not superior to infrequent in-person treatment (mean difference 0.5 kg; 95% -0.5 to 1.6; two trials).

Three weight loss studies estimated the costs of computer-based interventions compared to usual care, however two of the studies were 11 and 28 years old, and these estimates are probably not relevant to interventions using current technology, while the third study was carried out in active duty military personnel, and it is unclear whether costs would be similar in other settings. One weight loss study reported the cost-effectiveness ratio for a weekly in-person weight loss intervention relative to a computer-based intervention as USD 7177 (EUR 5678) per life year gained (80% CI USD 3055 to USD 60,291 (EUR 2417 to EUR 47,702)). It is unclear whether this is relevant to other studies. No studies had information on health-related quality of life, morbidity, complications or adverse effects.

Compared to no intervention or minimal interventions (pamphlets, usual care), interactive computer-based interventions are an effective intervention for weight loss and weight maintenance. Compared to in-person interventions, interactive computer-based interventions result in smaller weight losses and lower levels of weight maintenance. The amount of additional weight loss, however, is relatively small and of brief duration, making the clinical significance of these differences unclear.