

## A review of electronic interventions for prevention and treatment of overweight and obesity in young people

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### CRD summary

The authors concluded that electronic interventions appeared promising for prevention and treatment of obesity in children and adolescents, but the results should be viewed with caution due to the poor quality of studies. The review was generally well conducted. The authors' conclusions are suitably cautious and appropriately acknowledge the limitations in the evidence base.

### Authors' objectives

To assess interactive electronic media interventions for the prevention or treatment of obesity and/or obesity related behaviours in children and adolescents.

### Searching

Twelve electronic databases were searched from inception to March 2010 for articles published in English. The databases included MEDLINE, EMBASE, PsycINFO, Web of Science and Sport Discus. Search terms were reported. Reference lists of relevant articles were searched. Relevant national health websites and websites cited in studies were searched.

### Study selection

Studies of interactive electronic interventions delivered as either adjunct or sole interventions for the prevention or treatment of obesity and/or obesity related behaviours in children and/or adolescents (aged 18 years or under) were eligible for inclusion. Interactive electronic interventions were defined as interventions that were delivered via computer-based programs, interactive internet sites, electronic messaging, emails, social networking, e-whiteboards and other media. Relevant outcomes were changes in knowledge, behaviour and physical status.

The included studies considered CD-ROM, internet and emails, internet only and telemedicine. Most studies examined dietary intake and/or physical activity. Some studies examined weight-related concerns and behaviours and psychosocial measures. Some studies focused on obesity prevention. Other studies considered obesity treatment. Most studies were conducted in USA; Germany, Belgium and Taiwan were also represented. Intervention duration varied from two weeks to two years. Several studies used financial or non-financial incentives. Some studies involved parents.

Two reviewers performed study selection. Inclusion was decided by consensus.

### Assessment of study quality

Trial quality was assessed using criteria based on those of the Cochrane Collaboration to assess nine quality items that included randomisation, blinding, allocation concealment and tool validation to give a maximum score of 100%. The authors also used criteria adapted from the CASP appraisal checklist to assess longitudinal and pre-post studies.

Two reviewers performed quality assessment. Differences were resolved by discussion.

### Data extraction

Data on changes in knowledge, behaviour, or physical status were extracted onto a standardised form.

It appeared that more than one reviewer extracted data.

### Methods of synthesis

Trials were narratively synthesised and grouped according to children or adolescents.

### Results of the review

Twenty-four studies of 21 interventions (11 RCTs, five non-RCTs and five other study designs) were included in the review (n=5,812 participants). Study quality ranged from 13% to 88% (average 45%). Study sample size ranged from 35 to 2,840 participants.

Children (four studies): Three studies showed limited benefits of electronic interventions on the prevention of obesity. One study demonstrated modest benefits of home-based internet behaviour programs on treating obesity.

Adolescents (20 studies): Six studies showed modest benefits on prevention with electronic interventions; six studies were poor quality and did not provide adiposity outcomes. Eight studies showed benefits of internet-based interventions on treating obesity in terms of body mass index, body fat, psychosocial factors, diet and physical activity.

### Authors' conclusions

Electronic intervention appeared to be a promising approach for prevention and treatment of obesity in children and adolescents, but the results should be viewed with cautions due to the poor quality of studies.

### CRD commentary

Inclusion criteria for the review were broadly defined. Several relevant data sources were searched. There was a risk of language bias, as only English language studies were included. Publication bias was not assessed, but the inclusion of grey literature minimised the risks. Attempts were made to reduce reviewer error and bias throughout the review process.

Quality assessment was undertaken using a standard checklist, which indicated the poor quality of most of the evidence, which the authors acknowledged. Studies were narratively synthesised, which, given the

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quality of evidence and heterogeneity across studies, seemed appropriate.

The review was generally well conducted. The authors' conclusions are suitably cautious and appropriately acknowledge the limitations in the evidence base.

**Implications of the review for practice and research**

The authors did not state any implications for practice.

**Research:** The authors stated that further high-quality and rigorously reported studies were needed.

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