What is the effectiveness of community-based/primary care interventions in reducing obesity among adults in the general population?

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CRD summary
This review assessed effectiveness of community-based/primary care interventions in reducing obesity among adults in terms of body mass index, blood pressure and weight loss. The authors concluded that some interventions appeared to be effective. Methodological weaknesses in the included studies and some limitations in the review process made the overall reliability of the authors' conclusions unclear.

Authors' objectives
To examine the effectiveness of community-based/primary care interventions in reducing obesity among adults in the general population.

Searching
MEDLINE, DARE, EMBASE, CINAHL, ERIC, PsycINFO, Cochrane Database of Systematic Reviews and Sociological Abstracts were searched from January 1990 to September 2007. Relevant peer-reviewed journals were handsearched from January 2007 to February 2008. Search terms were reported. Reference lists of retrieved papers were reviewed. Grey literature and relevant government websites were searched. Key informants submitted studies from the grey literature.

Study selection
Randomised controlled trials (RCTs) and cohort studies that assessed public health practice and/or primary care interventions relevant in reducing obesity were eligible for inclusion. Studies needed to be in a country where health practices and standards were similar to those in Canada. Interventions needed to be administered at the community or primary care setting. Studies needed a population of interest that was overweight with body mass index (BMI) of 25 to 29.9 or obese (BMI 30 or above) adults (at least 18 years) with no comorbid conditions. Eligible studies reported weight or BMI outcomes or other measures related to weight and included a comparison group.

Studies on weight loss or weight maintenance programmes that required physician or registered dietician supervision and focused on structural and community level characteristics of neighbourhoods/communities were excluded. Programmes that implemented pharmaceutical (including herbal remedies) or surgical interventions and very low caloric diets (less than 1,000 calories per day) or meal supplements/replacements were excluded.

Comorbid conditions were defined as cardiovascular disease that required medication, non-insulin dependent diabetes, arthritis, cancer in active treatment, pregnancy or lactating and psychiatric conditions treated with prescription medication.

Two reviewers independently selected studies and resolved discrepancies by discussions with a third reviewer.

Assessment of study quality
Trial quality was assessed using a standard tool that examined six quality domains: selection bias, allocation bias, confounders, blinding, data collection methods and attrition. A study was rated as strong if four of the six quality domains were rated strong (with no weak rating), moderate (fewer than four criteria rated strong and one criterion as weak) and weak (two or more criteria rated as weak).

Two reviewers independently assessed quality of the included studies and resolved discrepancies by discussion.

Data extraction
Data were extracted on changes in BMI, blood pressure, weight loss and measures of eating concerns between the pre-
and post-intervention periods. Data were extracted only from studies that were rated high quality.

The authors did not state how many reviewers performed data extraction.

**Methods of synthesis**
Data were summarised in a narrative synthesis grouped by intervention. Heterogeneity between studies was explored qualitatively.

**Results of the review**
Ninety-eight studies met the inclusion criteria: 23 studies rated as high quality (n=3,600) were included for further analyses and 51 moderate and 24 weak studies were excluded from the analyses. All 23 studies included in the analysis reportedly were randomised; only 22.7% described the methods of randomisation. Only 17.49% of studies reported calculating sample size, 30.4% blinded outcome assessors and 27.3% used intention-to-treat analysis. Dropout rates were high in most studies; there were no significant differences in baseline variables between dropouts and those who completed the studies.

The studies that assessed dietary and exercise interventions found that at six months diet alone or diet plus exercise interventions group had lost statistically significantly more weight than exercise alone. Two studies used the Internet to deliver the programme and reported statistically significant weight loss at six and 12 months compared to the control group.

Three of four studies that evaluated exercise interventions alone achieved weight loss in the intervention group compared to the control group. The fourth study, in which participants engaged in high physical activity, led to much more weight loss at the end of the programme compared to the control group. Of those who maintained their level of exercise, weight loss was still significant at one year after the intervention.

For dietary reduction interventions alone, only two studies that used high-protein, low-fat diet were successful in achieving weight reduction in the short-term and there was no difference between intervention and control groups after six months. The remaining five studies did not show an effect of the intervention.

**Authors' conclusions**
Some community based/primary care interventions appeared to be effective in reducing overweight or obesity.

**CRD commentary**
The review addressed a well-defined question in terms of participants, interventions and outcomes. The search included appropriate electronic databases. It was unclear whether language restrictions were applied in the search, so language bias could not be ruled out. Two reviewers independently selected studies and assessed study quality, but it was unclear how many reviewers extracted data and so bias and errors could not be ruled out. Study quality was assessed using a standard tool. Characteristics of individual trials were presented. Heterogeneity between studies was explored qualitatively. Data were summarised in a narrative synthesis grouped by intervention; this was appropriate given the clinical and statistical heterogeneity. Most of the included studies were considered to have methodological weaknesses. This and some limitations in the review process made the overall reliability of the authors' conclusions unclear.

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

**Practice:** The authors stated that implications for practice were unclear. They highlighted that culturally relevant interventions that combined diet or healthy eating and exercise and incorporated lay facilitators and social support should be encouraged.

**Research:** The authors stated that culturally relevant interventions and some internet-based programmes should be explored. Such studies should: emphasise programme development and evaluation; use long-term follow-up to determine programme effects over time; attempt to gather relevant long-term data from non-completers; identify and explore population-level interventions; and explore applicability and transferability of any successful programmes into their particular context. Further investigations were needed for some internet-based programmes that appeared
effective.

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