Evaluation of intervention research in weight reduction in post menopausal women
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CRD summary
The review found that exercise when combined with hypocaloric diet or meal replacement therapy may reduce body weight and fat and improve insulin sensitivity, glycaemic control and cardio-respiratory fitness. The review appeared to be conducted poorly with substantial shortcomings in the review process, limited small and clinically heterogeneous studies and unclear reporting. The reliability of the authors’ conclusions is uncertain.

Authors' objectives
To evaluate the evidence on interventions targeting weight loss in postmenopausal women and to assess the efficacy of individual approaches.

Searching
CINAHL, MEDLINE, Academic Search Premier, Health Sciences, Physical Education Index, PsycARTICLES, PsycCRITIQUES, Psychology, PsycINFO and Science Citation Index Expanded databases and Google Scholar were searched for relevant studies from 1995 to December 2009; minimal search terms were reported.

Study selection
Controlled studies that assessed physical activity or dietary intervention effects on weight loss or body composition changes in postmenopausal women were eligible for the review. Descriptive-correlational studies and studies with diseases such as diabetes as the primary outcome were excluded.

All participants in the included studies were either overweight or obese. Most interventions included diet alone, exercise alone, combined diet and exercise or use of substances such as isoflavone, epigallocatechin gallate and meal replacement. One study compared health education with lifestyle change. Two studies were placebo controlled; other control groups included stretching, lifestyle change or various combinations of diet and/or exercise. In some studies, effects were compared between pre- and postmenopausal women or between Caucasian and African American women. Outcomes included changes in body weight, total and abdominal fat mass, body mass index (BMI), fat-free mass, waist and hip circumference, eating behaviour, psychological outcomes and other outcomes such as lipids and fasting glucose.

Studies also included details on the characteristics of the problem of obesity, specification of theoretical constructs and inputs that guided the design of the intervention and links of theoretical predictors and outcomes.

The authors did not state how many reviewers selected studies for the review.

Assessment of study quality
The authors stated that the methodological rigour of the included studies was evaluated. Neither the findings nor the number of reviewers involved were reported.

Data extraction
Data were extracted on the effects of interventions on outcomes as reported in each included study.

The authors did not state how many reviewers extracted data for the review.

Methods of synthesis
The studies were synthesised in narrative format.

Results of the review
Fifteen studies (1,692 participants) were included in the review. Eight studies were RCTs, one was a longitudinal study and six were described as experimental designs. One RCT was reported as double blind.
Studies with exercise only intervention arms (five studies): Exercise programmes reduced body weight, body fat percentage, total fat, intra-abdominal fat, subcutaneous abdominal fat, bioelectrical impedance assessment, hip size and waist to hip ratio.

Studies with diet-only intervention arms (five studies): Dietary interventions reduced body weight and fat-free mass only.

Studies with combined diet and exercise arms (nine studies): Combined diet and exercise reduced body weight, body fat percentage, visceral adipose tissue, leptin, BMI, waist and hip circumferences, fasting plasma glucose, insulin and triglycerides.

Authors’ conclusions
Exercise combined with hypocaloric diet or meal replacement therapy may reduce body weight and fat and improve insulin sensitivity, glycaemic control and cardio-respiratory fitness.

CRD commentary
The review addressed a very broad non-specific research question with several components. Inclusion criteria were clearly specified and relevant to the assessment of weight reduction outcomes. Effects on other outcomes such as lipids and glycaemic control which were not part of the objectives were reported. A wide range of relevant sources was searched. It was unclear whether any restrictions were applied, so language and publication biases were possible. Methods for study selection and data extraction were not reported, so reviewer error and bias could not be ruled out. The authors stated that they assessed the included studies for methodological rigour but did not report their findings.

A wide range of diet and exercise interventions were included and comparisons were made not only between interventions and control but also between different categories of participants (such as pre- and postmenopausal women and different ethnic groups) and this made it difficult to interpret the findings in relation to the objectives. Studies were synthesised in narrative format without supporting statistical information and without regard to the characteristics of the interventions or the participants. Results were reported for studies that were not part of the included studies table, so conclusions may have been based on additional studies that did not meet the inclusion criteria for the review.

The review appeared to be conducted poorly with substantial shortcomings in the review process, limited small and clinically heterogeneous studies and unclear reporting. The reliability of the authors’ conclusions is uncertain.

Implications of the review for practice and research
Practice: The authors stated that it was unclear how individual interventions might be effective in real world settings.

Research: The authors stated a need for further research on intervention approaches that addressed lifestyle behaviours and employed a combination of diet and exercise strategies.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.