The effectiveness of worksite nutrition and physical activity interventions for controlling employee overweight and obesity: a systematic review


CRD summary
This review assessed the effectiveness of work site nutrition and physical activity programmes to promote healthy weight among employees and concluded that programmes achieved modest improvements in employee weight status at six to 12 months follow-up. These conclusions reflected the evidence, but given uncertain study quality and potential for bias during study selection they should be interpreted with caution.

Authors' objectives
To assess the effectiveness of work site nutrition and physical activity programmes to promote healthy weight among employees.

Searching
MEDLINE, EMBASE, CINAHL, PsycINFO, SPORTDiscus, Latin American and Caribbean Center on Health Sciences Literature, Dissertation Abstracts and The Cochrane Library were searched for English-language studies; search dates ranged from 1966 to December 2005. Additional studies were sought by handsearches of American Journal of Preventive Medicine, Occupational Medicine and International Journal of Obesity (from 2004 to 2005). Reference lists of relevant publications were screened and experts consulted for additional studies. Search terms were reported.

Study selection
Comparative and time-series studies of employees aged at least 18 years of age that evaluated a work site health promotion programme that addressed diet and/or physical activity were eligible for inclusion. Interventions were targeted at employees of any weight status with or without identified risk factors or conditions and assessed at least one weight-related outcome measured at least six months from the commencement of the intervention programmes; interventions that assessed commercial weight-loss products or programmes were excluded. Comparators could be other interventions or no treatment.

Most of the studies combined informational and behavioural strategies to influence diet and physical activity; fewer studies modified the work environment (such as cafeteria, exercise facilities) to promote healthy choices. Included studies addressed the interventions: cardiovascular disease reduction; diabetes control; weight loss; physical fitness; healthy lifestyle; and health promotion. The main outcome measure was weight change based on weight in pounds or kilograms, BMI (body mass index) or percentage body fat. Half of the included studies were undertaken in USA and the rest in Europe, Iceland, Canada, Australia, New Zealand, Japan and India.

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

Assessment of study quality
Study quality was assessed according to the Community Guide review process using the following criteria: description of study population and intervention; sampling; exposure and outcome measurement; data analysis; interpretation of results; and other biases. Studies with one or no limitations were rated good, those with two to four limitations were rated fair and those with five or more limitations were rated limited in study execution; studies with limited execution were excluded from the review.

The authors did not state how the validity assessment was performed.

Data extraction
Two authors independently extracted weight change (expressed as mean number of pounds or kilograms or change in
BMI); disagreements were resolved by consensus.

Methods of synthesis
Effect sizes were combined using a random-effects model. Heterogeneity was assessed using the Q statistic (p<0.01). Subgroup analyses were undertaken to assess the impact of the sample population, intervention features, study design and length of follow-up.

Results of the review
A total of 47 studies (n=at least 76,941) were included in the review (n=63,732 in one study); these comprised 24 randomised controlled trials (RCTs), seven cluster randomised controlled trials, 12 non randomised trials, three cohort studies and one time series.

Work site nutrition and physical activity programmes were considered to achieve modest improvements in employee weight status at six to 12 months of follow-up. Based on RCTs, the interventions resulted in a decrease of -2.80 pounds (95% CI -4.63 to -0.96; nine studies) and a reduction in BMI of -0.47 (95% CI -0.75 to -0.19; six studies) compared to control; there was no evidence of significant heterogeneity. Subgroup analyses revealed no association between-programme effectiveness and focus of the programme or behavioural focus.

Cost information
The cost-effectiveness of programmes ranged from $1.44 to $4.16 per pound loss of body weight in three studies.

Authors' conclusions
Work site nutrition and physical activity programmes achieved modest improvements in employee weight status at six to 12-month follow-up.

CRD commentary
The review question was clear and was supported by specific inclusion criteria. The authors searched a number of relevant databases, but the decision to limit the review to published studies reported in English increased the chances of publication and language biases and the possibility that relevant studies were omitted. Efforts were made to minimise errors and bias in the data extraction of studies; it was unclear whether such safeguards were in place when initially selecting studies for the review. Although the authors reported on validity criteria there was no discussion of whether studies were of good or fair quality in the results. Suitable methods were used for pooling the RCTs and appropriate methods were used to assess statistical heterogeneity. The authors conclusions appeared to reflect the evidence, but given the uncertain study quality and potential for bias during study selection, these should be interpreted with caution.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that further studies were required to assess the economic efficiency of obesity prevention programmes.

Funding
Two authors were funded by the Oak Ridge Institute for Scientific Education.

Bibliographic details

PubMedID
19765507
Record Status
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.