A systematic review of workplace health promotion interventions for increasing physical activity

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CRD summary
This review concluded that there was some evidence that workplace physical activity interventions could be effective, but overall the results were inconclusive and there was a need for further well-designed trials. This conclusion reflects the results of the trials included in the review, but its overall reliability is uncertain.

Authors’ objectives
To assess whether workplace interventions to promote physical activity had a positive impact on staff’s physical activity levels. The review also aimed to explore the types of interventions and their characteristics, and to evaluate the quality of the identified studies; this abstract focuses on the effectiveness of the interventions.

Searching
Six databases, including MEDLINE, EMBASE and PsycINFO, were searched, for studies published in peer-reviewed journals and reported in English, up to April 2011. Search terms were reported. The references of included studies and relevant reviews were checked.

Study selection
Quasi-randomised or randomised controlled trials (RCTs) that assessed the impact of interventions, conducted in the workplace, and designed to increase energy expenditure among employees, were eligible for inclusion. Trials had to assess the level of physical activity. Those that only included employees with existing health problems were excluded.

In the included trials, a mixture of individual and cluster randomisation was used; a few trials had a controlled before-and-after design. Most trials examined health promotion messages or information; some assessed physical activity or exercise interventions, or counselling and support. Various workplaces, in the public and private sectors, were studied. A few trials enrolled only women or only men. The outcomes were assessed using a range of self-reported measures, including specially developed questionnaires and standardised tools (details in the paper). Some trials also used objective measures, such as step counts using a pedometer.

Two reviewers independently assessed the trials for inclusion in the review. A third reviewer checked the final selection.

Assessment of study quality
The trials were assessed for quality based on the description of the recruitment method, randomisation, reporting of eligibility criteria, initial similarity of groups, blinding of investigators, reporting of loss to follow-up (attrition) and completion rates, and use of intention-to-treat analysis.

Two reviewers independently assessed the trials.

Data extraction
The data were extracted on the intervention characteristics, including the identified behaviour change techniques, and the theoretical basis of the interventions, as well as the physical activity outcomes.

One reviewer extracted the data using a standardised form.

Methods of synthesis
The trial data were combined in a narrative synthesis, grouped by the type of intervention.

Results of the review
Fifty-eight trials were included in the review. The quality of trials varied; blinded outcome assessment and intention-to-
treat analysis were seldom reported. Follow-up ranged from two weeks to five years. A few studies reported the initial similarity of groups; all but one physical activity or exercise trial reported this. Attrition rates varied from 1% to 65%; for physical activity or exercise trials the rates ranged from 9.2% to 10%.

**Physical activity or exercise:** There were six trials, with 1,672 individuals. Four trials found some improvement in physical activity, which was statistically significant, compared with control, in two trials. A workplace walking programme resulted in increased step counts, compared with control, and a mandatory physical activity intervention increased weekly physical activity, compared with control.

**Counselling or support:** There were 13 trials, with 7,377 individuals. Ten trials indicated some improvement in physical activity, and eight of them showed a statistically significant increase, compared with control. A range of interventions was effective.

**Health promotion messages or information:** There were 39 trials, with 28,567 individuals. Twenty-nine trials indicated some improvement in physical activity, which was statistically significant in 22 of them, compared with control. There were greater improvements when the state-of-change levels were matched to the intervention, than when they were mismatched (six trials).

**Authors' conclusions**
There was some evidence that workplace physical activity interventions were effective, but overall the results were inconclusive and further research was needed.

**CRD commentary**
The review addressed a clear question, supported by explicit inclusion criteria. The search was reasonably extensive, but limited to published, peer-reviewed trials in English, which may have omitted relevant evidence. The authors reported methods designed to reduce reviewer bias and error, for most stages of the review, but not for data extraction.

The quality assessment used appropriate criteria, but the results did not appear to be used in the synthesis of effectiveness data; factors affecting the overall reliability of the evidence were discussed. A narrative synthesis was reasonable in view of the differences between the trials, but a vote-counting approach was adopted for some aspects, with some exploration of the characteristics of trials showing positive results. The reporting of the number of trials with positive effects does not take account of their size or quality, and could therefore be misleading.

The authors' overall conclusion does not seem unreasonable, based on the trials included in the review, but the trials' variable quality and the nature of the synthesis, mean that there is some concern over its reliability.

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

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that there was a need for further well-designed trials to identify the best types of intervention, and to evaluate their long-term effectiveness. Research should use valid and reliable self-reported measures and, where possible, combine these with objective measures, such as step counts. The feasibility and acceptability of different types of intervention should be explored, as should the value of different theories of behaviour change in designing the interventions.

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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.