A systematic review of physical activity promotion strategies

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Authors' objectives
To review randomised controlled trials (RCTs) of physical activity promotion in apparently healthy, free-living adults.

Searching
MEDLINE, Excerpta Medica, a sports database and SciSearch were searched from 1966 to 1996 for English language publications, using the keywords 'exercise', 'physical activity' and 'randomised controlled trial'. References lists from two reviews were also examined.

Study selection
Study designs of evaluations included in the review
RCTs of physical activity promotion in apparently healthy free-living adults were included if they fulfilled the following criteria: trials contained a control group, participants were randomly assigned to control or intervention, trials tested a single-factor intervention to increase activity, trials were of a minimum of 12 weeks in duration, and exercise behaviour was the dependent variable.

Specific interventions included in the review
The interventions studied include: reinforcement, defined as rewarding participants for successful completion; variable frequencies of self-monitoring by keeping personal records of exercise performed; and relapse prevention training in which participants learned to cope with situations that prompt inactivity, and which prevented a missed session leading to a return to pre-intervention inactivity. Intervention periods ranged from 5 weeks to 2 years. Telephone prompting was used to maintain contact with home-based participants. Prescribed exercise included walking, swimming, games, exercise to music classes, gym-based 'endurance activity' and jogging. Prescribed activity was located 'at home', defined as in proximity to the participant's home, and at sessions or groups at a local fitness centre or indoor track.

Participants included in the review
The participants were mostly volunteers who had responded to advertisements to take part in a physical activity programme. Participants were mainly white, middle-aged and well educated. Ages ranged from 18 to 72 years with a mean age of 49 years. Males and females were equally represented.

Outcomes assessed in the review
The outcomes assessed included: self-reported walking level, frequency of exercise, number of exercise sessions per month and jogging hours per week. Outcomes were assessed for home-based and facility-based activities.

How were decisions on the relevance of primary studies made?
Each paper was read and assessed using a shortened version of the EPI-Centre Review Guidelines (see Other Publications of Related Interest).

Assessment of study quality
The authors do not report the method used to assess validity, or how the validity assessment was performed. Studies analysed by intention-to-treat were specified.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction.
Methods of synthesis
How were the studies combined?
The studies were combined in a narrative review.

How were differences between studies investigated?
The authors do not state how differences between the studies were investigated.

Results of the review
Seven RCTs were used to assess interventions on home-based exercise (N=1,101), whilst 5 RCTs were used to assess interventions on facility-based exercise (N=598).

It was considered that a formal meta-analysis was inappropriate in view of the incompatible data and varying quality of the primary studies.

Home-based activities: 5 of the 7 studies reported a positive outcome.

Facility-based activities: 2 of the 5 trials showed a significant difference between intervention participants and controls.

Authors' conclusions
Interventions that encourage walking and do not require attendance at a facility are most likely to lead to sustainable increases in overall physical activity. The small number of trials limits the strength of any conclusions and highlights the need for more research.

CRD commentary
As the authors mention in the discussion, all the participants were volunteers recruited through media advertisements in the USA, and consequently, results may differ in different populations. Suggestions for future research include trials in the United Kingdom which involve groups other than middle-aged middle class whites, such as the over-75 age group, and trials evaluating the effectiveness of exercise advice by general practitioners (GPs) and of GP exercise prescription schemes.

Limiting the literature search to English language articles may have omitted some relevant studies. Criteria for inclusion of studies are defined but there are no details of the methodology used to select studies, assess validity or to extract data. Other than analysis by intention-to-treat, no other validity criteria were mentioned or considered. More comprehensive details of the primary studies would have been welcome, e.g. baseline comparison of treatment groups, method of randomisation, withdrawals, intervention strategies and details of the outcome measures used. Some indication of the reliability of the self-reported exercise measures used as outcomes would have been useful. The potential for bias in the included studies is unclear given the limited information of the methodology of the included studies, and the discussion does not mention any methodological flaws in the primary studies. There was no discussion on the possible sources of the heterogeneity reported among studies. Given the lack of validity assessment of the primary studies and other relevant factors mentioned above, no comment can be made about the effectiveness of physical activity promotion strategies.

Implications of the review for practice and research
Well-designed studies are required to determine the most cost-effective strategies for promoting physical activity in different populations and age groups.

Bibliographic details
Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

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Adult; Exercise; Health Promotion /methods; Humans; Physical Fitness; Randomized Controlled Trials as Topic

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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.