Back injury prevention interventions in the workplace: an integrative review

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Authors' objectives
To describe the state of knowledge about the effect of worksite back injury prevention programmes.

Searching
The following searches were performed: MEDLINE from 1966 to March 1995; CINAHL via SilverPlatter, from 1982 to December 1994; NIOSHTIC via DIALOG Information Services, from 1973 to 1994; Wilson General Science via Illinois Bibliographic Information Service (IBIS), from 1984 to April 1995; Current Contents (Clinical Medicine) from 1992 to May 1995. Relevant citations in obtained papers were also traced.

Study selection

Study designs of evaluations included in the review
True experimental (not stated if randomised) and quasi-experimental (non-equivalent control groups) were included.

Specific interventions included in the review
Four types of worksite back injury prevention programmes: back belt programmes, back school programmes, exercise and flexibility programmes, and education programmes.

Participants included in the review
Male and female workers participating in back injury prevention programmes. One study excluded all participants with current back injuries whereas 2 studies included only those with back injuries. The age of participants ranged from 16 to 45 years (from 10 studies).

Outcomes assessed in the review
Back injury and back pain rates; lost time; costs; muscle strength and flexibility; body mechanic usage; exercise behaviour.

How were decisions on the relevance of primary studies made?
Studies had to meet the following criteria: a worksite study; an experimental or quasi-experimental design; and a data-based research study published between 1966 to 1995

Assessment of study quality
The studies were assessed according to the following: inclusion criteria; sampling method; research design; analytical methods; reliability and validity of measures, methodological strengths and limitations. The authors do not state how the papers were assessed for validity, or how many of the authors performed the validity assessment.

Data extraction
A data abstraction instrument was used which included bibliographic details, sample size, type, inclusion criteria, sampling method, setting, research design, analytical methods, level of prevention, programme components, variables, variable definitions, reliability and validity of measures, results, conclusions, methodological strengths and limitations, programme strengths and alternative explanations for results. Data were summarised using frequency counts.

Methods of synthesis
How were the studies combined?
A narrative synthesis is presented.
How were differences between studies investigated?
The narrative discusses at some length the differences in samples, programme components and outcome definitions used.

Results of the review
Seven true experiments and 8 quasi-experimental design (non-equivalent control groups).

Theoretically consistent associations between intervention and outcome were found in 3 out of 4 back belt programmes (1 reached statistical significance); 5 out of 6 back school programmes (2 statistically significant); all 6 exercise and flexibility programmes (5 statistically significant); and 2 out of 3 education programmes (both statistically significant). Theoretically-inconsistent associations were found in 2 of the back belt programmes, 1 exercise flexibility programme and 1 education programme.

Cost information
The costs were measured in 6 studies. Lost time was also reported.

Authors' conclusions
Positive programme outcomes were reported in all four programme types; however, the back school and exercise flexibility training programmes were studied more frequently and demonstrated a greater proportion of positive results than the other two programme types. Conclusions should be viewed cautiously due to the small number of studies reviewed and their methodological limitations.

CRD commentary
This is a thorough review clearly based on a comprehensive search. For completeness it is unfortunate that no keywords are given. The main limitation of the search, which is acknowledged by the authors, is the inclusion of only published studies. The narrative synthesis of results appears justified in view of the heterogeneity in both programme components and outcome measures.

Implications of the review for practice and research
The authors stated the need for more rigorous studies, consistent definitions and the need to address selection bias.

Bibliographic details

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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.