Authors' objectives
To determine the level of evidence available regarding the efficacy of interventions for low-back pain using vocational outcome parameters.

Searching
The MEDLINE (1966 to December 1995), CLINPSYCH (1980 to December 1995) and NIOSHTIC (1966 to December 1995). The search combined the keyword 'back pain' with one of the following terms: (employee) absenteeism, (re)employment, sick leave, return to work, sickness absence, occupational disability and employment status. In addition, relevant references in the retrieved articles and in published reviews were examined. Searches were limited to those articles published in English.

Study selection
Study designs of evaluations included in the review
Randomised clinical trials (RCTs) were included.

Specific interventions included in the review
Interventions directed towards acute low-back pain patients included non-steroidal anti-inflammatory drugs (NSAIDs), bed rest, spinal manipulation, back school or back exercises, and case management methods. Interventions directed toward chronic low-back pain patients included antidepressants, NSAIDs, spinal manipulation, back school or back exercises, behavioural therapy, and case management methods. Case management involves a case manager who assesses the client's needs and ensures through a care plan, that suitable services are provided to meet their needs, within the limits imposed by the insurance company. Interventions including analgesics, muscle relaxants, epidural and intra- articular injections, traction, orthoses, biofeedback, acupuncture and transcutaneous nerve stimulation were excluded.

Participants included in the review
Individuals with acute or chronic low-back pain were included.

Outcomes assessed in the review
The following outcomes were assessed: rate of return to work, duration of sick leave or any other measure of vocational status. Studies without any evidence of efficacy in terms of pain or functional status were excluded.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

Assessment of study quality
The following criteria were used to assess the validity of studies: adequate randomisation of allocation; blinding of study participants for treatment; comparability or adjustment for incomparability of the base-line characteristics supposedly of relevance to prognosis; loss to follow-up of less than 20%; and intention-treat-analysis. Studies were awarded 1 point for each criterion judged to be adequate and 0 points for those judged to be inadequate. This resulted in a total score of between 0 and 5 points. A randomised clinical trial was considered to have a high internal validity if the score was 4 or 5, and a low internal validity if it was 3 points or less. One author assessed study validity and another author, unaware of the assessments made by the principal assessor, re-assessed a random sample of 10 studies. The reproducibility was measured using kappa statistics (kappa 0.76, 88% agreement) and was judged to be sufficient with inconsistencies mostly due to the criterion of comparability. This criterion was slightly adjusted as a result.
Data extraction
Who performed the data extraction and how extraction was carried out was. The authors do not state how the data were extracted for the review, or how many of the authors performed the data extraction. For studies that reported rates the rate difference and rate ratio with 95% CI were calculated. Rates of negative events were reported and for quantitative variables such as sick leave the statistical means and absolute differences between the means in the experimental and reference groups were described. 95% CI were calculated assuming a normal distribution.

Methods of synthesis
How were the studies combined?
The studies were divided into acute versus chronic low-back pain and then categorised into intervention type (ie NSAIDs, bed rest, spinal manipulation, back schools or exercise therapy, and case management). The data was combined in the form of a narrative, with summary conclusions presented in terms of the level of evidence available. The evidence was rated using a 4-level system adapted from that used in the US Clinical Practice Guidelines for Acute Low-back Problems in Adults (see Other Publications of Related Interest). Level ‘A’ corresponded to strong evidence (multiple high-quality RCTs) and level ‘B’ corresponded to moderate evidence (one high-quality RCT and at least one low-quality RCT). Level ‘C’ corresponded to limited evidence (one high-quality RCT or multiple low-quality RCTs) and level ‘D’ to no evidence (one low-quality RCT, no RCTs or contradictory outcomes).

How were differences between studies investigated?
No formal statistical tests for heterogeneity were reported, however the authors commented on the difficulties of meta-analysis in view of the heterogeneity between studies with regards to patient groups, intervention types, follow-up periods, and outcome parameters. A distinction was also made in the narrative synthesis, between those studies with and without adequate statistical power.

Results of the review
Thirty-three randomised controlled trials with a total of 3,758 participants were included.

Study validity: Only 1/33 studies fulfilled all of the quality criteria (ie a score of 5/5), and a further six studies scored 4/5 points. The randomisation procedure and blinding of the study participants were the two main criteria which studies failed to meet. The statistical power of the studies with negative results was rated as sufficient for only 15% of the studies.

NSAIDs in acute pain (4 studies): There was no evidence for or against the efficacy of NSAIDs for patients with acute symptoms.

Bed rest in acute pain (4 studies): The studies compared different periods of bed rest or the avoidance of bed rest with a short period of bed rest. There was moderate evidence for the efficacy of avoiding bed rest or for short periods of bed rest, in terms of the duration of sick leave after 3 months for patients with and without radiating pain.

Spinal manipulation in acute pain (6 studies): There was limited evidence for the efficacy of spinal manipulation in comparison with placebo in cases of pelvic joint dysfunction. There was moderate evidence that spinal manipulation was more effective in the short run than other conservative types of treatment like physiotherapy, at least for patients without radiating pain.

Back schools or exercise therapy in acute pain (7 studies): There was no evidence for the efficacy of back schools or exercise therapy, or that they were more effective than usual care.

Case management methods (4 studies): There was no evidence for the efficacy of case management methods or for their efficacy in comparison with conventional treatment.

Antidepressants in chronic pain (1 study): There was limited evidence of efficacy after 2 months of antidepressant therapy.

NSAIDs in chronic pain (1 study): There was no evidence for or against the effectiveness of NSAIDs.
Spinal manipulation in chronic pain (2 studies): There was no evidence for the efficacy of spinal manipulation, whether compared with placebo or other treatments.

Back schools or exercise therapy in chronic pain (5 studies): The results were contradictory and so there was no evidence that back schools or exercise therapy were more effective than usual care.

Behavioural therapy in chronic pain (3 studies): There was no evidence that cognitive-behavioural group therapy as part of progressive-relaxation training is more effective in the long term than progressive-relaxation training alone.

Case management methods in chronic pain: No studies were identified.

Authors’ conclusions
For patients with acute low-back pain limited or moderate evidence was found for the efficacy of no bed rest, a short period of bed rest and spinal manipulation. For chronic patients limited evidence was found for the efficacy of antidepressants. For the other types of intervention, studies with sufficient statistical power were lacking. Such studies are need before more detailed evidence-based guidelines can be formulated for occupational health care.

CRD commentary
This is a clearly presented review with well-defined inclusion criteria and summary conclusions. The search strategy covered a number of databases and also considered other articles referenced in the bibliographies of relevant articles. However, data may have been excluded through limiting the review to English language articles and there is also a possibility that unpublished data may have been missed. The authors were careful to present their methodology when assessing the validity of included studies but failed to explain how decisions were made on the relevance of studies. The detailed assessment of study validity and the presentation of findings according to a hierarchy of evidence levels were helpful when interpreting the review findings, and the narrative presentation of data was appropriate considering the heterogeneity between the studies. In view of the evidence presented the authors conclusions would appear to be valid.

Implications of the review for practice and research
Practice: The authors stated that 'bed rest should be limited or even avoided; normal activity should be continued as much as possible'; 'if any conservative treatment for patients with acute low-back pain is considered, spinal manipulation is the best option'; 'antidepressants can be helpful for chronic low-back pain patients'.

Research: The authors stated that 'more high-quality randomised clinical trials with sufficient statistical power and vocational outcome parameters are still needed before guidelines based on stronger evidence can be established for occupational physicians'.

Bibliographic details

PubMedID
9243726

Other publications of related interest
MeSH
Absenteeism; Acute Disease; Bed Rest /standards; Chronic Disease; Confidence Intervals; Employment /statistics & numerical data; Evidence-Based Medicine /standards; Humans; Low Back Pain /therapy; Manipulation, Orthopedic /standards; Occupational Medicine /methods /standards; Randomized Controlled Trials as Topic /classification /standards /statistics & numerical data; Research Design /standards; Sick Leave /statistics & numerical data; Treatment Outcome; Workers’ Compensation /statistics & numerical data

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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.