CRD summary
This review concluded that exercise therapy was effective in reducing pain and function in patients with chronic low back pain, but the effects were small and it remained unclear which patients benefited most from specific types of treatment. Given that most comparisons did not favour exercise therapy over other treatments, the conclusions should be interpreted with caution.

Authors' objectives
To assess the effectiveness of exercise therapy in patients with low back pain.

Searching
An updated search of MEDLINE, EMBASE, CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL) and PEDro was undertaken up to December 2008 and included a search for eligible studies included in existing Cochrane reviews. Search terms were not reported, but the search strategy outlined by Cochrane Back Review Group was followed.

Study selection
Randomised controlled trials (RCTs) that assessed exercise therapy in adults (aged ≥18 years) with chronic (≥12 weeks) non-specific low back pain were eligible for inclusion. Eligible studies were required to assess at least one outcome of interest (pain, functional status, perceived recovery or return to work).

The review included studies identified by an earlier Cochrane review (see Other Publications of Related Interest). Included studies compared exercise therapy versus waiting list controls/no treatment, usual care, back school/education, behavioural treatment, transcutaneous electrical nerve stimulation/laser therapy/ultrasound/massage, spinal manipulation, psychotherapy or an alternative form of exercise therapy.

Two reviewers independently screened studies for inclusion.

Assessment of study quality
Study quality was assessed using the criteria: adequacy of randomisation; allocation concealment; similar baseline characteristics (including avoidance of cointerventions or use of similar cointerventions); blinding; acceptable compliance; drop-out rate; and intention-to-treat analysis. The maximum score was 11 and a score of 6 or more indicated low risk of bias.

Two reviewers independently performed the validity assessment.

Data extraction
Two reviewers independently extracted data on clinical outcomes at short-term, intermediate and long-term follow-up.

Methods of synthesis
A random-effects model was used to combine mean differences to calculate weighted mean differences (WMDs) and 95% CIs, grouped by treatment comparison and by clinical outcome.

Results of the review
Thirty-seven RCTs (n=3,957) were included in the review. Fifteen RCTs (40.5%) scored 6 or more on quality. Twenty-eight RCTs (75.7%) adequately described the method of randomisation. Criteria on the baseline characteristics, timing of outcome measures and description of dropouts were met by 50% or more of the RCTs.

Exercise therapy compared to usual care (six RCTs): Two RCTs found a statistically significant reduction in pain post-
treatment (WMD -9.23, 95% CI -16.02 to -2.43) and three RCTs found a statistically significant reduction in disability (WMD -12.35, 95% CI -23.00 to -1.69) at short-term follow-up. There were some inconsistencies between the results reported in the text and those reported in the table, but at intermediate follow-up two RCTs found that exercise therapy resulted in statistically significant reductions in disability (WMD -5.43, 95% CI -9.54 to -1.32) and one RCT found a statistically significant reduction in pain relief with exercise therapy (WMD not reported). There was no statistically significant difference in pain at long-term follow-up (two RCTs), but there was a statistically significant decrease in disability in favour of the exercise group (WMD -3.17, 95% CI -5.96 to -0.38).

Exercise therapy showed no statistically significant differences on measures of pain or disability compared to waiting list controls/no treatment (eight RCTs), back school/education (three RCTs), behavioural therapy (three RCTs), spinal manipulation (five RCTs) and psychotherapy (one RCT).

Trials that compared exercise therapy with other forms of exercise therapy could not be pooled, but nine of 11 RCTs reported no statistically significant differences between treatment groups.

**Authors’ conclusions**

Exercise therapy was effective in reducing pain and function in the treatment of chronic low back pain. However, the effects were small and it remained unclear which groups of patients benefited most from a specific type of treatment.

**CRD commentary**

The review question was clear and supported by clearly defined criteria for patients, intervention, outcomes and study design. The literature search included five electronic databases, but the search strategy was unclear in terms of the start date and search terms used. It was unclear whether language restrictions were enforced and language bias could not be ruled out completely. Publication bias was not formally assessed. The authors assessed the quality of the trials with appropriate criteria. The authors acknowledged that trial quality was generally poor, which resulted in a high risk of bias. The authors undertook study each stage of the review process in duplicate to minimise reviewer error and bias. No details on participant characteristics and study methodology were reported and it was unclear whether pooling of the results was appropriate. Forest plots were not presented for visual inspection. The authors stated that there was heterogeneity among the trials and that the findings should be interpreted with some caution. Some of the results indicated wide confidence intervals, which can affect the robustness of the results.

Most comparisons showed no statistically significant difference between treatment groups and the authors stated that the differences that were found were not clinically relevant, so their recommendation to interpret the findings with caution should be heeded.

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

**Practice:** The authors stated that the differences found in this review were small and not clinically relevant.

**Research:** The authors stated that the quality of future RCTs needed to be improved and should focus on specific populations with better descriptions of study characteristics. They stated that more research was needed to investigate the different types of exercise interventions.

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**Bibliographic details**


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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.