A systematic review of efficacy of McKenzie therapy for spinal pain
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CRD summary
This reasonably well-conducted review evaluated the efficacy of McKenzie therapy for the treatment of spinal pain. It concluded that short-term pain and disability were reduced in people with low back pain, compared with standard treatments. However, some limitations in the review process and the quality of the included studies may reduce the robustness and reliability of the results.

Authors' objectives
To investigate the efficacy of McKenzie therapy for the treatment of spinal pain.

Searching
MEDLINE, EMBASE, CINAHL, PEDro, the Cochrane Database of Systematic Reviews, the Cochrane CENTRAL Register and DARE were searched to September 2003 without any language restrictions; the search terms were reported. Members of the McKenzie Faculty were contacted and the reference list of the McKenzie Institute was checked for additional studies. Unpublished studies were eligible for inclusion.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) or quasi-randomised trials were eligible for inclusion.

Specific interventions included in the review
Studies evaluating the McKenzie method or McKenzie treatment compared with no treatment, sham treatment, or another treatment, were eligible for inclusion. To be included, the trials had to specify individualised patient treatment according to the McKenzie principles. All included studies compared the McKenzie method with standard treatment. Standard treatment included non-steroidal anti-inflammatory drugs, education booklet, back massage, back care advice, strength training, spinal mobilisation and mobility exercises.

Participants included in the review
Studies of participants of any age or gender, whose primary complaint was non-specific low back pain or neck pain for any duration, with or without radiation to the extremities, were included. Studies of people with cauda equina syndrome, cord compression, infection, fracture, neoplasm, inflammatory disease, headache, whiplash-associated disorders, vertigo or dizziness, vertebral-basilar insufficiency, or who were pregnant or symptom free at the time of the trial, were excluded. All but one of the included studies were of patients with low back pain. Where reported, the participants in the included studies had suffered pain for between 7 days and over 8 weeks.

Outcomes assessed in the review
The trials had to report pain, disability, quality of life, work status, global perceived effect, medication use, medical visits or recurrence to be included. The outcomes were classified as short term (less than 3 months), intermediate (3 to 12 months) and long term (longer than 12 months). If multiple eligible time points were reported, the time point closest to 6 weeks was chosen for short-term outcomes, 6 months for intermediate outcomes, and 12 months for long-term outcomes. Details of the measures used to assess these outcomes were reported.

How were decisions on the relevance of primary studies made?
A single reviewer screened titles and abstracts, while two independent reviewers screened the full papers.

Assessment of study quality
Study quality was assessed using the PEDro scale, which evaluates eligibility criteria, randomisation, allocation
concealment, comparability at baseline, blinding, follow-up, point estimates and variability, and statistical analysis used. PEDro scores were extracted from the PEDro database; when a trial had not been scored, it was scored by an experienced PEDro rater.

Data extraction
Two reviewers independently extracted the data using a standardised form. Any disagreements were resolved by consensus. For trials with two or more treatment arms, data for the treatment thought to be most relevant to current Australian physiotherapy practice were used in the analysis.

Pain and disability scores were transformed to a score ranging from 0 to 100. The mean difference (continuous data) or relative risk (dichotomous data) and 95% confidence intervals (CIs) were extracted for each study. The standard deviation was either extracted or calculated from the CI; if this was not possible it was estimated as one quarter of the range.

Methods of synthesis
How were the studies combined?
The pooled mean effect sizes (scale of 0 to 100) and 95% CIs were calculated using a random-effects meta-analysis.

How were differences between studies investigated?
Heterogeneity was assessed statistically, but the method used was not reported. Study details were tabulated and differences between the studies were discussed in the text. The meta-analysis was repeated after including 3 trials that did not provide individualised treatment.

Results of the review
Six RCTs were included in the review (the number of participants was not reported).

Quality.
All 6 RCTs used random allocation, had groups comparable at baseline, and used between-group statistical analyses. Five studies reported eligibility criteria, point measures and variability, 4 studies reported allocation concealment and at least 85% follow-up, and 2 studies used blinded assessors and an intention-to-treat analysis. None of the RCTs reported blinding of the patients or therapists. Therefore, out of a possible 11 points, one RCT scored 4 points, one scored 5, three scored 6 and one scored 8.

Efficacy.
McKenzie therapy resulted in less short-term pain (mean effect -8.6, 95% CI: -13.7, -3.5; 3 RCTs) and disability (mean effect -5.4, 95% CI: -8.4, -2.4; 5 RCTs) in comparison with other treatments. There was no statistically significant difference in intermediate disability or intermediate work absence between McKenzie therapy and other treatments. When 3 trials that did not provide individualised treatment were included in the analyses, the results did not significantly alter: the mean effect was -11.4 (95% CI: -17.2, -5.6; 5 RCTs) for short-term pain and -5.6 (95% CI: -8.3, -2.9; 6 RCTs) for disability. None of the tests for heterogeneity were statistically significant (P > 0.1).

Authors' conclusions
McKenzie therapy reduces short-term pain and disability in people with low back pain more than other standard treatments. There were insufficient data to draw conclusions on longer term outcomes for people with lower back pain, and for people suffering with neck pain.

CRD commentary
The review question was clear in terms of the intervention, participants, outcomes and study design. Several relevant sources were searched without language restrictions for published and unpublished data, thus minimising the potential
for publication and language bias. Methods were used to minimise errors and bias in the extraction of data. However, a single reviewer performed the initial screening of titles and abstracts and the assessment of validity for some studies, and this might have led to errors and bias. Relevant criteria were used to assess study quality, and the results for each criterion for each study were reported. Neither the number of participants included in the trials nor the severity of symptoms experienced by the participants at baseline were reported, therefore the generalisability of the results is unclear. There was no evidence of statistical heterogeneity between the studies when pooled, although there was clinical heterogeneity in relation to the comparators used in the studies. On the whole, this was a reasonably well-conducted review, but some limitations in the review process and the quality of the included studies may reduce the robustness and reliability of the results.

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

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

Research: The authors stated that research is needed to determine whether treatment is more effective when patients are sub-classified based on directional preference prior to randomisation and individualised treatment is provided during the study. They also stated that research comparing the McKenzie technique with placebo or no treatment, and on longer term outcomes and patients with neck pain, is required.

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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.