Unloaded movement facilitation exercise compared to no exercise or alternative therapy on outcomes for people with nonspecific chronic low back pain: a systematic review

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CRD summary
This review concluded that there is strong evidence that unloaded movement facilitation exercise improves pain and function for people with non-specific chronic low back pain compared with no exercise, and that its effectiveness appears comparable to other types of exercise. Conclusions about the benefits of the intervention appear justified, but may be overoptimistic given the small number of studies.

Authors' objectives
To assess the effects of unloaded movement facilitation exercises for people with non-specific chronic low back pain (LBP).

Searching
MEDLINE, EMBASE, CINAHL, the Cochrane Database of Systematic Reviews, the Cochrane CENTRAL Register, PEDro, Current Contents, Expanded Academic ASAP, Australian Medical Index and SPORTDiscuss were searched from inception to August 2006; the search terms were reported. The authors also conducted manual searches of the McKenzie International Institute reference list and the bibliographies of relevant systematic reviews. Studies had to have an English language abstract to be eligible for inclusion.

Study selection
Controlled trials comparing unloaded exercise that was likely to facilitate movement of the lumbar spine with other treatment, or no treatment, in patients over the age of 16 years with a current LBP pain episode of 8 weeks' duration or more, with or without a history or back surgery, were eligible for inclusion. LBP was defined as pain below the scapulae and above the buttck fold, with or without lower extremity radiation. Studies of patients with medical conditions such as osteoporosis, neoplasm, infection, inflammatory arthritis, multiple sclerosis or pregnancy were not eligible for inclusion.

In studies that combined unloaded movement facilitation exercise with other types of therapy, those studies in which the effects of unloaded exercise could be separated from the effects of the other types of therapy were eligible for inclusion. Studies of passive forms of manual techniques performed on a patient by a clinician were not eligible for inclusion, nor were studies that combined unloaded exercise with either resisted exercises or behavioural or cognitive programmes. Studies had to assess at least one of the following outcomes to be eligible for inclusion: functional capacity, pain, work status, satisfaction with treatment.

The participants in the included studies were out-patients with either LBP of longer than 8 weeks' duration, or patients with a shorter duration of LBP and a history of recurrent LBP. The specific interventions assessed were the 'classification based' McKenzie method or yoga (viniyoga or iyengar). Most of the comparison groups included another form of loaded exercise therapy, alone, or in conjunction with education booklet and chiropractic manipulation. Other comparison groups were usual general practitioner care, no exercise, or self-care book, education booklet and no exercise. Further details of the intervention and comparison programmes were reported.

A standardised form was used to select studies for inclusion. However, the authors did not state how many reviewers performed the selection. One paper was excluded from the review because it was unobtainable.

Assessment of study quality
A modified version of the 10-item PEDro scale was used to assess methodological quality. The criterion in the PEDro scale that related to therapist blinding was replaced with a question about cointerventions.

The authors did not state how the quality assessment was performed, other than that four of the included studies were
also assessed by two independent PEDro reviewers.

Data extraction
Outcome data were collected at baseline, at the end of the intervention, and at short-term (less than 12 weeks from randomisation), medium-term (12 to 52 weeks) and long-term (52 weeks or longer) follow-up. The standardised mean difference (SMD) was calculated, along with 95% confidence intervals (CIs). When inadequate data were reported, the study authors were contacted for additional information, or data were estimated from graphs, as appropriate.

The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
When data were sufficient for pooling, a random-effects model was used to calculate a pooled SMD with 95% CI. The results of individual trials were also reported.

Results of the review
Six randomised controlled trials (RCTs; n=830) were included in the review.

All 6 RCTs were classed as high quality, with a mean quality assessment score of 7.7 out of a possible 10.

McKenzie therapy was found to be more effective than other exercise for short-term pain (SMD 0.38, 95% CI: 0.14, 0.61; 2 trials, n=289), but not short-term function (SMD 0.10, 95% CI: -0.20, 0.40; 2 trials, n=289).

Yoga was found to be more effective than education, self-care and no exercise for medium-term pain (SMD 0.92, 95% CI: 0.47, 1.37; 2 trials, n=88) and medium-term function (SMD 0.95, 95% CI: 0.50, 1.40; 2 trials, n=88).

McKenzie therapy and yoga combined was found to be more effective than other exercise for short-term pain (SMD 0.36, 95% CI: 0.15, 0.58; 3 trials n=336) and medium-term pain (SMD 0.39, 95% CI: 0.16, 0.61; 2 trials, n=309).

There were no statistically significant differences in terms of short- or medium-term function.

McKenzie therapy and yoga combined was found to be more effective than education, self-care and no exercise for medium-term pain (SMD 0.53, 95% CI: 0.12, 0.94; 4 trials, n=251) and medium-term function (SMD 0.51, 95% CI: 0.00, 1.02; 4 trials, n=309).

Authors’ conclusions
There is strong evidence that, compared with no exercise, unloaded movement facilitation exercise is effective for improving pain and function for people with non-specific chronic LBP. The effects of unloaded movement facilitation exercise appear comparable to other types of exercise, including effort-intensive trunk strengthening and time-intensive specific stabilisation.

CRD commentary
The review question and inclusion criteria were stated clearly. The search strategy was extensive, but only trials with an English abstract were eligible for inclusion and minimal efforts were made to locate unpublished research, thereby increasing the potential for language and publication bias. The study selection, validity assessment and data extraction processes were not fully reported, thus the potential for reviewer bias and error cannot be excluded. Validity was assessed using a slightly modified version of a published checklist and the results of this assessment reported. Adequate details of the included trials were presented. The authors do not appear to have assessed statistical heterogeneity before pooling the trials, however, there are sufficient details of the results of individual trials to enable the reader to assess the level of heterogeneity. The statistical pooling appears appropriate, although many of the meta-analyses were based on the pooling of only 2 or 3 trials, with relatively small numbers of included participants. Overall, the authors’ conclusions about the effects of unloaded movement facilitation exercise appear justified. However, the lack of adequate reporting of review methods makes it difficult to assess the reliability of the conclusions, and describing the evidence level as ‘strong’ may be overoptimistic given the small numbers of studies and patients.
Implications of the review for practice and research
Practice: The authors stated that exercise is recommended for LBP. However, since comparable effects were found between unloaded movement facilitation exercise and trunk exercise with tissue loading or external resistance, it is reasonable to question the appropriateness and necessity of vigorous exercise requiring exercise equipment, supervision, motivation and compliance over a prolonged period in patients with non-specific chronic LBP.

Research: The authors stated that further empirical studies are recommended, and that future research should report sufficient details of interventions to facilitate replication, and consistently report outcomes relating to return to work, recurrence rates and patient experience. They also stated that the role of motivation strategies for trunk strengthening interventions in movement facilitation programmes should be assessed.

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