Stabilisation exercises for low back pain: a systematic review
May S, Johnson R

CRD summary
The authors concluded there might be a role for specific stabilisation exercises for some patients with chronic low back pain, but they were no more effective than other active interventions. The authors' cautious conclusion reflects the evidence presented and is likely to be reliable, but potential language and publication bias should be considered.

Authors' objectives
To evaluate the effectiveness of stabilisation exercises for the treatment of pain and dysfunction in patients with low back pain.

Searching
PubMed, CINAHL, AMED, PEDro, and the Cochrane Library databases were searched for articles published in English, up to October 2006. The search terms were reported and the reference lists of retrieved articles were scanned.

Study selection
Randomised controlled trials (RCTs) evaluating specific stabilisation exercises, compared with an alternative intervention, were eligible for inclusion if they were of adults (18 years or older) with low back pain of any duration. The primary outcome measures were any measure of pain and/or functional disability. The definitions of stabilisation exercises were reported.

In most of the included trials, stabilisation exercises were combined with therapy, including manual therapy with or without advice, other exercises, orthosis, or back education. Control groups included active treatments, such as general exercise, manual therapy, stretching and strengthening exercises, manipulation, acupuncture, and McKenzie method, or inactive ones, such as education, medical management, laser treatment, orthosis, standard treatment, and no treatment. Participants had back pain categorised as acute, subacute, or chronic. Several trials included patients with specific types of back pain, such as first-time unilateral low back pain with multifidus asymmetry, spondylolysis or spondylolisthesis, pregnancy-related pain, sciatica, and after lumbar discectomy.

The titles and abstracts, from electronic searches and reference lists, were screened by one reviewer and the full copies of potentially eligible papers were retrieved. The included trials were selected, from these papers, by two reviewers.

Assessment of study quality
Trial validity was assessed using the PEDro scale. Trials scoring six or more out of ten points were considered to be of high quality. Two reviewers independently assessed validity and disagreements were resolved through consensus.

Data extraction
Pain and disability scores were used to calculate the mean differences and effect sizes, together with 95% confidence intervals, for each trial, grouped according to severity of pain. Where the median rather than the mean was reported, it was used if the distribution was normal. Where numerical data were not available, they were interpolated from available graphs. The effectiveness of treatment was categorised as short term (three months or less from randomisation), medium term (more than three months, but less than twelve months), or long term (twelve months or more), in accordance with the Cochrane Collaboration Back Review Group definitions.

The data were extracted independently by two reviewers and disagreements were resolved through consensus.

Methods of synthesis
As there was evidence of heterogeneity, the trials were combined in a narrative synthesis. The evidence was classified as strong, moderate, limited, conflicting, or none, based on the levels of evidence described by the Cochrane Collaboration Back Review Group.
Results of the review

Eighteen trials (n=1,827 patients, range 22 to 286) were included and 12 were considered to be of high quality.

Treatment for acute and subacute back pain (four RCTs): There was conflicting evidence on the effectiveness of stabilisation exercises. One poor-quality trial reported significantly better pain scores in the stabilisation group compared with laser treatment alone. One high-quality trial found no significant differences in the short-term pain scores and another high-quality trial found no significant differences in either short- or long-term pain scores for functional disability, while a third high-quality trial reported significantly better function scores, in the control patients who received manipulation treatment.

Treatment for chronic back pain (12 RCTs): The short-term outcomes of five trials (most of high quality) showed significant differences for pain and function, with stabilisation exercises compared with medical management, manual therapy, and exercises, or no intervention. One high-quality trial found a significant difference in function favouring the control group who received general strengthening exercises. Three trials of poor quality reported no significant differences for pain and function between stabilisation exercises and manual therapy, McKenzie method, or Education.

The medium-term outcomes of two high-quality trials showed significant differences in pain and function favouring stabilisation exercises over medical management, but three trials found no significant differences for pain and two found none for function. The long-term outcomes significantly favoured stabilisation exercises for pain (four trials) and function (five trials) compared with medical management, manual therapy and exercises, or manual therapy; most of these trials were of high quality. No significant differences were reported for pain (four trials) and function (three trials) compared with manual therapy and exercises, manual therapy, education, or orthosis; these were mainly poor-quality trials.

Treatment for pain of unclear duration: Two short-term trials reported results that mainly favoured stabilisation exercises compared with control groups.

Authors' conclusions

Specific stabilisation exercises might be effective for some patients with chronic low back pain, but they were no more effective than other active interventions. Most of the trials involved a combination of interventions, which makes it impossible to conclude that stabilisation exercises were the effective element.

CRD commentary

The review question was clear and the inclusion criteria were appropriate. Some relevant sources were searched, but only published trials in English were selected and there was potential for language and publication bias. Trial validity was assessed, using an established checklist, but only the total score was reported. Appropriate methods were used to reduce reviewer error and bias in the selection of trials, the assessment of validity, and the extraction of data. A narrative synthesis, informed by the trial quality, was appropriate given the variation in participants, disease severity, interventions, and comparators. The authors appropriately stated that many of the included trials used co-interventions, which makes it difficult to attribute the treatment effect solely to stabilisation exercises. They also stated that the difference in pain score between groups might not have been clinically meaningful.

The authors' cautious conclusion reflects the evidence presented and is likely to be reliable, but potential language and publication bias should be considered.

Implications of the review for practice and research

Practice: The authors stated that for patients with chronic low back pain, stabilisation exercises were not likely to produce outcomes that differ much from those of other active exercise or manual therapy interventions.

Research: The authors stated that further high-quality research was needed to evaluate the efficacy of stabilisation exercises versus active and inactive controls. These studies should measure the instability before stabilisation exercises and assess whether these exercises were sufficiently specific to improve the instability. They also recommended that economic outcomes should be considered.
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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.