Effectiveness of acupuncture for low back pain: a systematic review
Yuan J, Purepong N, Kerr DP, Park J, Bradbury I, McDonough S

CRD summary
This review assessed the effectiveness of acupuncture for non-specific low back pain, concluding that acupuncture versus no treatment, and acupuncture in addition to conventional care, should be advocated for the treatment of chronic lower back pain. Given the generally poor quality of the included studies, and uncertainties regarding some of the findings, the authors’ conclusions should be interpreted with caution.

Authors’ objectives
To assess the effectiveness of acupuncture for non-specific low back pain.

Searching
PubMed, EMBASE, AMED, ProQuest, CINAHL, Web of Science, and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched up to 2008 for articles published in English. Search terms were reported. In addition, reference lists from relevant reviews and randomised controlled trials (RCTs), and four key journals (Complementary Therapies in Medicine; Spine; Anaesthesia; and Clinical Acupuncture and Oriental Medicine) were searched manually.

Study selection
Randomised controlled trials (RCTs) that compared any type of acupuncture (deemed to be adequate) versus different types of control interventions in adults (aged 18 years or older) with non-specific lower back pain (as defined in the review) were eligible for inclusion. Eligible trials were required to report on at least one of the following outcomes: pain, functional disability, general health status, physiologic outcomes, a global measure of improvement, or return to work. Trials reporting inadequate acupuncture treatments (judged according to text-books, surveys, and review sources) were excluded.

Included trials were of participants aged between 17 and 75 years (where reported). Injury times ranged from two weeks to more than one year, or were described as persistent or chronic. The majority of trials were of patients with chronic lower back pain. Some patients had received previous treatments (including pharmacological, surgical, or alternative therapy). Included trials used individualised, standardised, or semi-standardised acupuncture. Control interventions included no treatment, sham interventions, conventional therapy, acupuncture, or sham acupuncture, in addition to conventional therapy. Pain measurement tools included visual analogue scales (VAS), numerical rating scales, Short-Form-36 (SF-36) bodily pain dimension, Von Korff chronic pain grading scale, and lower back pain rating scales.

Two reviewers independently screened studies for inclusion.

Assessment of study quality
Two reviewers independently assessed the quality of the trials according to previously published criteria (the Van Tulder scale), including items on randomisation, allocation concealment, comparability of groups at baseline, blinding, intention-to-treat analysis, and drop-out rates; there were 11 questions, which were scored as "yes", "no" or "don't know". To be scored as high quality, RCTs had to score 6 or more points on the Van Tulder scale, carry out between-group statistical comparison, include at least 40 patients per group, have drop-out rates less than 20% for follow-up of less than three months to less than one year (short-term follow-up), and less than 30% for up to one year follow-up (long-term follow-up).

Disagreements were resolved through referral to a third reviewer.

Data extraction
It appeared that two reviewers independently extracted means and standard deviations (SD) on pain and functional disability to calculate effect sizes (mean difference for continuous outcomes and odds ratio (OR) for dichotomous
outcomes), along with their 95% confidence intervals (CIs).

Methods of synthesis
Where possible, a random-effects model was used to plot odds ratios and mean differences (standardised mean differences) and their 95% confidence intervals for individual studies. Data were presented as a narrative synthesis, grouped by control intervention and follow-up time point.

Evidence was presented as strong (consistent findings among high quality RCTs; over 75% report similar findings), moderate (consistent findings among low quality RCTs and/or one high quality RCT), limited (one low quality RCT), or conflicting evidence (where findings were inconsistent among RCTs), or as no evidence.

Clinical significance was measured by comparing mean differences in pain and functional disability with a minimal clinically important difference. The minimal clinically important difference cut-off point was set at 2 points (0 to 10 point scale), or 20 points (0 to 100 point scale) for pain reduction (i.e. -20% of the total score); it was also set for functional disability (for example, 30% reduction of score from baseline on Roland-Morris Disability Questionnaire). Clinical significance was deemed to have been achieved when minimum and maximum 95% confidence intervals of the mean difference were greater than the minimal clinically important difference.

Results of the review
Twenty-three RCTs were included in the review (n=6,359 lower back pain patients; range 17 to 3,093). Only two RCTs were excluded as part of the search process as they were considered to provide inadequate treatment. Six RCTs were patient and assessor blind; nine were patient or assessor blinded. Sixteen RCTs (70%) scored highly on the Van Tulder scale, with six rated as high quality. Thirteen RCTs had drop-out rates of less than 20% for short-term to intermediate follow-up, and less than 30% for long-term follow-up.

Acupuncture versus no treatment (three RCTs; one high quality): There was moderate evidence to show that acupuncture was more effective than no treatment for short-term pain relief (two RCTs) and short-term functional improvement (one RCT). The evidence was conflicting for pain relief at intermediate follow-up.

Acupuncture versus sham acupuncture (eight RCTs): There were no statistically significant differences between acupuncture and sham acupuncture (four RCTs; three high quality) for pain relief (three RCTs) or functional improvement (one RCT). The evidence on acupuncture versus placebo transcutaneous electrical nerve stimulation (four RCTs; none high quality) were contradictory and reported to be unreliable.

Acupuncture plus conventional therapy versus conventional therapy alone (eight RCTs): There was strong evidence to show that acupuncture plus conventional therapy was more effective than conventional therapy alone for pain relief (seven RCTs; two high quality) and moderate evidence for functional disability (four RCTs; one high quality) at all time points.

The findings were conflicting for acupuncture versus conventional therapy (six RCTs; one high quality), and acupuncture plus conventional therapy versus sham acupuncture plus conventional therapy (two RCTs; none high quality).

The clinical significance of the findings were reported in the review.

Authors’ conclusions
Acupuncture versus no treatment, and acupuncture as an adjunct to conventional care, should be supported in the European Guidelines for the treatment of chronic lower back pain.

CRD commentary
The review question was broad, but was supported by clearly defined inclusion criteria. A comprehensive literature search was undertaken, but as articles were restricted to English, language bias could not be ruled out. There was no clear attempt to search the grey literature, so publication bias could not be ruled out. The reviewers appeared to have conducted each stage of the review process in duplicate, which minimised the risk for reviewer error and bias.
Validity was assessed using appropriate criteria, but the quality of the trials was generally poor. Pooling of the studies was not undertaken, but this was not clearly stated in the review and rationale for not pooling the data was not reported. Only a small number of studies were included in the comparison for acupuncture versus no treatment, with only one study of high quality. The evidence for acupuncture plus conventional therapy included only three high-quality studies, and the authors highlighted certain limitations with the included studies, such as high drop-outs and small sample sizes. In addition, wide confidence intervals were reported for a number of studies assessing the clinical significance of pain intensity, which questions the robustness of the findings.

Given the generally poor quality of the included studies, and uncertainty regarding the robustness of some of the findings, the authors’ conclusions should be interpreted with caution.

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

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

**Research:** The authors stated that larger, good quality research is needed; in particular, to add to the evidence comparing acupuncture alone with conventional therapies, and comparing acupuncture with physiologically active sham controls.

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