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# Benefits and Harms of Treatments for Chronic Non-Specific Low Back Pain Without Radiculopathy: Systematic Review and Meta-analysis

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## Abstract

**Background context:** Currently, there are no published studies that compare non-pharmacological, pharmacological and invasive treatments for chronic low back pain in adults and provide summary statistics for benefits and harms.

**Purpose:** The aim of this review was to compare the benefits and harms of treatments for the management of chronic low back pain without radiculopathy and to report the findings in a format that facilitates direct comparison (Benefit-Harm Scale: level 1 to 7).

**Design:** Systematic review and meta-analysis of randomized controlled trials, including trial registries, from electronic databases up to 23rd May 2022.

**Patient sample:** Adults with non-specific chronic low back pain, excluding radicular pain in any clinical setting.

**Outcome measures:** Comparison of pain at immediate-term (≤2 weeks) and short-term (>2 weeks to ≤12 weeks) and serious adverse events using the Benefit-Harm Scale (level 1 to 7).

**Methods:** This was a registered systematic review and meta-analysis of randomized controlled trials. Interventions included non-pharmacological (acupuncture, spinal manipulation only), pharmacological and invasive treatments compared to placebo. Best evidence criteria was used. Two independent reviewers conducted eligibility assessment, data extraction and quality appraisal.

**Results:** The search retrieved 17,362 records. Three studies provided data on the benefits of interventions, and 30 provided data on harms. Studies included interventions of acupuncture (n = 8); manipulation (n = 2); pharmacological therapies (n = 9), including NSAIDs and opioid analgesics; surgery (n = 8); and epidural corticosteroid injections (n = 3). Acupuncture (standardized mean difference (SMD) -0.51, 95%CI -0.88 to -0.14, n = 1 trial, moderate quality of evidence, benefit rating of 3) and manipulation (SMD -0.39 (96%CI -0.56 to -0.21, n = 2 trials, moderate quality of evidence, benefit rating of 5) were effective in reducing pain intensity compared to sham. The benefit of the other interventions was scored as uncertain due to not being effective, statistical heterogeneity preventing pooling of effect sizes, or the absence of relevant trials. The harms level warnings were at the lowest (e.g. indicating rarer risk of events) for acupuncture, spinal manipulation, NSAIDs, combination ingredient opioids, and steroid injections, while they were higher for single ingredient opioid analgesics (level 4) and surgery (level 6).

**Conclusions:** There is uncertainty about the benefits and harms of all the interventions reviewed due to the lack of trials conducted in patients with chronic non-specific low back pain without radiculopathy. From the limited trials conducted, non-pharmacological interventions of acupuncture and spinal manipulation provide safer benefits than pharmacological or invasive interventions. However, more research is needed. There were high harms ratings for opioids and surgery.

**Registration:** This review was registered on the International Prospective Register of Systematic Reviews.

**Keywords:** chronic low back pain; meta-analysis; non-surgical treatment; randomized controlled trial; spine surgery; systematic review.



## LinkOut - more resources

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