**Article Full Title**

Osteopathic manipulative treatment for low back and pelvic girdle pain during and after pregnancy: A systematic review and meta-analysis

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**Paper Abstract**

Background: Low back pain (LBP) is a common complaint during pregnancy. This study examined the effectiveness of osteopathic manipulative treatment (OMT) for LBP in pregnant or postpartum women. Methods: Randomized controlled trials unrestricted by language were reviewed. Outcomes were pain and functional status. Mean difference (MD) or standard mean difference (SMD) and overall effect size were calculated. Results: Of 102 studies, 5 examined OMT for LBP in pregnancy and 3 for postpartum LBP. Moderate-quality evidence suggested OMT had a significant medium-sized effect on decreasing pain (MD, -16.65) and increasing functional status (SMD, -0.50) in pregnant women with LBP. Low-quality evidence suggested OMT had a significant moderate-sized effect on decreasing pain (MD, -38.00) and increasing functional status (SMD, -2.12) in postpartum women with LBP. Conclusions: This review suggests OMT produces clinically relevant benefits for pregnant or postpartum women with LBP. Further research may change estimates of effect, and larger, high-quality randomized controlled trials with robust comparison groups are recommended.

**NIH Risk of Bias Tool**

Quality Assessment of Systematic Reviews and Meta-Analyses

**Is the review based on a focused question that is adequately formulated and described?**

Yes

**Were eligibility criteria for included and excluded studies predefined and specified?**

Yes

**Did the literature search strategy use a comprehensive, systematic approach?**

Yes

**Were titles, abstracts, and full-text articles dually and independently reviewed for inclusion and exclusion to minimize bias?**

Yes

**Was the quality of each included study rated independently by two or more reviewers using a standard method to appraise its internal validity?**

Cannot Determine, Not Reported, Not Applicable

**Were the included studies listed along with important characteristics and results of each study?**

**Was publication bias assessed?**

Yes

**Was heterogeneity assessed? (This question applies only to meta-analyses.)**

Yes

**Key Finding #1**

Out of five studies seven comparison groups and 677 participants, four of the seven comparison groups had significant effects in favor of OMT for pain on LBP during pregnancy. Also, four of seven comparisons had significant effects in favor of OMT in relation to functional status.

**Key Finding #2**

There was moderate quality evidence that OMT had a significant medium-sized effect on decreasing pain and increasing functional status in women with LBP during pregnancy.

**Key Finding #3**

Three additional studies with three comparisons and 180 participants were analyzed for the effect of OMT on postpartum LBP and pelvic girdle pain and were found to have significant effects in favor of OMT for pain and functional status.

**Key Finding #4**

The size of these effects were medium and clinically relevant, with low risks of bias.

**Please provide your summary of the paper**

This study examined the effects of OMT for pregnancy-related LBP, analyzing LBP during pregnancy and postpartum LBP with pelvic girdle pain. The main premise of this study focuses on the short-term benefits, and in the short-term, hypoalgesic effects of manual techniques are well reported to result in reduced pain and pressure pain sensitivity. It is also likely that pain modulation from manual techniques works by neurophysiological mechanisms, such as improvements in pain leading to better neuromuscular control and improved psychological outlook, but these mechanisms require further investigation. There were multiple different osteopathic techniques used, such as soft tissue manipulation, stretching, joint mobilizations, muscle energy techniques, spinal manipulations, etc. Due to this, it became difficult to know how comparable treatments study to study were. Overall, it was found with moderate-quality evidence that OMT had a significant medium-sized effect on decreasing pain and increasing functional status for women with LBP during pregnancy. It was also found with low-quality evidence that OMT had a significant large-sized effect on decreasing pain and increasing functional status for women with postpartum LBP. Due to these conclusions, it is suggested that OMT may be beneficial to individuals with these conditions.

**Please provide your clinical interpretation of this paper. Include how this study may impact clinical practice and how the results can be implemented.**

This review helps to guide clinicians in the review of performing OMT for patients with LBP during pregnancy and postpartum LBP with pelvic girdle pain to decrease pain and increase functional status. Since this review focuses on short-term benefits of OMT, if long-term effects are further studied, there may be additional benefits from these manual techniques. Due to small sample sizes, different comparison groups, statistical heterogeneity, and lack of long-term follow-up, additional RCTs are warranted to provide more confident findings, as this is something to consider when using evidence from this study.