**Article Full Title**

The Efficacy of Manual Therapy in Patients with Knee Osteoarthritis: A Systematic Review

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**Paper Abstract**

Background and objectives: Osteoarthritis (OA) is among the most common degenerative diseases that induce pain, stiffness and reduced functionality. Various physiotherapy techniques and methods have been used for the treatment of OA, including soft tissue techniques, therapeutic exercises, and manual techniques. The primary aim of this systemic review was to evaluate the short-and long-term efficacy of manual therapy (MT) in patients with knee OA in terms of decreasing pain and improving knee range of motion (ROM) and functionality. Materials and Methods: A computerised search on the PubMed, PEDro and CENTRAL databases was performed to identify controlled randomised clinical trials (RCTs) that focused on MT applications in patients with knee OA. The keywords used were ‘knee OA’, ‘knee arthritis’, ‘MT’, ‘mobilisation’, ‘ROM’ and ‘WOMAC’. Results: Six RCTs and randomised crossover studies met the inclusion criteria and were included in the final analysis. The available studies indicated that MT can induce a short-term reduction in pain and an increase in knee ROM and functionality in patients with knee OA. Conclusions: MT techniques can contribute positively to the treatment of patients with knee OA by reducing pain and increasing functionality. Further research is needed to strengthen these findings by comparing the efficacy of MT with those of other therapeutic techniques and methods, both in the short and long terms.

**NIH Risk of Bias Tool**

Quality Assessment of Systematic Reviews and Meta-Analyses

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

Yes

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

Yes

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

Yes

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

Yes

1. **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

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

Yes

1. **Was publication bias assessed?**

Yes

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

Cannot Determine, Not Reported, Not Applicable

**Key Finding #1**

In the short term after utilization of manual therapy, findings indicate a decrease in pain and increase in functionality.

**Key Finding #2**

In the long term, manual therapy jointly with therapeutic exercise shows a small to satisfactory decrease in pain and increase in functionality.

**Key Finding #3**

Patient’s symptoms improved when therapeutic exercise was used in combination with manual therapy as compared to a single therapeutic exercise.

**Key Finding #4**

**Please provide your summary of the paper**

This systematic review analyzed the effectiveness of manual therapy on knee OA. Research eligible for this study included randomized trials and randomized controlled trials regarding individuals with OA in one knee. The results of this study showed an improvement in patient symptoms with the use of manual therapy. However, there were limitations to this study (i.e. only English language surveys used, small number of surveys reaching the inclusion criteria, intervention duration). Therefore, additional research is needed to further determine the effectiveness of manual therapy regarding knee OA.

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

For this systematic review, the clinical interpretation is that manual therapy is effective in improving patient symptoms in those with knee OA. However, I would not fully rely on this study, as there were many limitations to it, and would look to similar studies for further evidence. With that said, the interventions used in the study included mobilizations with movement and passive mobilizations at various degrees of knee flexion and extension. This can easily to be added to a session after ROM, to determine the degree of movement for the patient.