**Article Full Title**

Does manual therapy improve pain and function in patients with plantar fasciitis? A systematic review

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**Paper Abstract**

Objective: To assess if manual therapy (MT) in the treatment of plantar fasciitis (PF) patients improves pain and function more effectively than other interventions. Methods: A systematic review of all randomized control trials (RCTs) investigating the effects of MT in the treatment of human patients with PF, plantar fasciosis, and heel pain published in English on PubMed, CINAHL, Cochrane, and Web of Science databases was conducted. Research quality was appraised utilizing the PEDro scale. Cohen’s d effect sizes (ES) and associated 95% confidence intervals (CI) were calculated between treatment groups. Results: Seven RCTs were selected that employed MT as a primary independent variable and pain and function as dependent variables. Inclusion of MT in treatment yielded greater improvement in function (6 of 7 studies, CI that did not cross zero in 14 of 25 variables, ES = 0.5-21.5) and algometry (3 of 3 studies, CI that did not cross zero in 9 of 10 variables, ES – 0.7-3.0) from 4 weeks to 6 months when compared to interventions such as stretching, strengthening, or modalities. Though pain improved with the inclusion of MT, ES calculations favored MT in only 2 of 6 studies (3 of 12 variables) and was otherwise equivalent in effectiveness to comparison interventions. Discussion: MT is clearly associated with improved function and may be associated with pain reduction in PF patients. It is recommended that clinicians consider use of both joint and soft tissue mobilization techniques in conjunction with stretching and strengthening when treating patients with PF. Level of evidence: Treatment, level 1a.

**NIH Risk of Bias Tool**

Systematic Review

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

No

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?**

Cannot Determine, Not Reported, Not Applicable

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

Yes

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**

Manual therapy combined with routine care (stretching, strengthening, and ultrasound) was more effective in decreasing patient-reported pain associated with plantar fasciitis.

**Key Finding #2**

Patient-reported function improved with the use of manual therapy from 3 weeks to 3 months to a similar degree as those who received a corticosteroid injection.

**Key Finding #3**

The inclusion of manual therapy in plantar fasciitis treatment improves pain pressure threshold and function more effectively than comparison interventions.

**Key Finding #4**

**Please provide your summary of the paper**

This study found varying degrees of success in using manual therapy in the treatment of plantar fasciitis. It included 7 studies which utilized different forms of manual therapy, including joint mobilizations, soft tissue mobilization, and trigger point release, which may limit the external validity of this article. However, all studies included had favorable or at least comparable outcomes to their comparison treatments, suggesting that all prior listed forms of manual therapy may have some benefit in treating plantar fasciitis. The authors also found that in studies where more significant improvements in function were achieved, there were less improvements in pain. It was hypothesized that increased function lead to increased activity, which may have exacerbated pain. The authors ultimately recommended that manual therapy be included in the rehabilitation plan for plantar fasciitis in combination with stretching and exercise due to the low risk and potential benefits of its use.

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

While this paper favored the use of manual therapy in treating plantar fasciitis, the effect sizes in all but two studies were small and lacking statistical significance. However, all studies also demonstrated low risk in implementing manual therapy in addition to the routine treatment plan of stretching and exercise. Based on this and the proposed mutimodal benefits (physiological, psychological) of manual therapy, implementing manual therapy in the treatment of plantar fasciitis may be beneficial for some patients, but should not be relied on as a definitive solution.