**Article Full Title**

Effectiveness of Myofascial Trigger Point Manual Therapy Combined With a Self-Stretching Protocol for the Management of Plantar Heel Pain: A Randomized Controlled Trial

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**Paper Abstract**

STUDY DESIGN: A randomized controlled clinical trial OBJECTIVE: To investigate the effects of trigger point (TrP) manual therapy combined with a self-stretching program for the management of patients with plantar heel pain. BACKGROUND: Previous studies have reported that stretching of the calf musculature and the plantar fascia are effective management strategies for plantar heel pain. However, it is not known if the inclusion of soft tissue therapy can further improve the outcomes in this population. METHODS: Sixty patients, 15 men and 45 women (mean +/- SD age, 44 +/- 10 years) with a clinical diagnosis of plantar heel pain were randomly divided into 2 groups: a self-stretching (Str) group who received a stretching protocol, and a self-stretching and soft tissue TrP manual therapy (Str-ST) group who received TrP manual interventions (TrP pressure release and neuromuscular approach) in addition to the same self-stretching protocol. The primary outcomes were physical function and bodily pain domains of the quality of life SF-36 questionnaire. Additionally, pressure pain thresholds (PPT) were assessed over the affected gastrocnemii and soleus muscles, and over the calcaneus, by an assessor blinded to the treatment allocation. Outcomes of interest were captured at baseline and at a 1-month follow-up (end of treatment period). Mixed-model ANOVAs were used to examine the effects of the interventions on each outcome, with group as the between-subjects variable and time as the within-subjects variable. The primary analysis was the group-by-time interaction. RESULTS: The 2 x 2 mixed-model analysis of variance (ANOVA) revealed a significant group-by-time interaction for the main outcomes of the study: physical function (P = .001) and bodily pain (P = .005); patients receiving a combination of self-stretching and TrP tissue intervention experienced a greater improvement in physical function and a greater reduction in pain, as compared to those receiving the self-stretching protocol. The mixed ANOVA also revealed significant group-by-time interactions for changes in PPT over the gastrocnemii and soleus muscles, and the calcaneus (all P&lt;.001). Patients receiving a combination of self-stretching and TrP tissue intervention showed a greater improvement in PPT, as compared to those who received only the self-stretching protocol. CONCLUSIONS:This study provides evidence that the addition of TrP manual therapies to a self-stretching protocol resulted in superior short-term outcomes as compared to a self-stretching program alone in the treatment of patients with plantar heel pain. LEVEL OF EVIDENCE: Therapy, level 1b. J Orthop Sports Phys Ther 2011;41(2):43-50. doi:10.2519/jospt.2011.3504 KEY WORDS: ankle plantar flexors, plantar fasciitis, triceps surae

**NIH Risk of Bias Tool**

Quality Assessment of Controlled Intervention Studies

1. **Was the study described as randomized, a randomized trial, a randomized clinical trial, or an RCT**

Yes

1. **Was the method of randomization adequate (i.e., use of randomly generated assignment)?**

Yes

1. **Was the treatment allocation concealed (so that assignments could not be predicted)?**

Yes

1. **Were study participants and providers blinded to treatment group assignment?**

No

1. **Were the people assessing the outcomes blinded to the participants' group assignments?**

No

1. **Were the groups similar at baseline on important characteristics that could affect outcomes (e.g., demographics, risk factors, co-morbid conditions)?**

Yes

1. **Was the overall drop-out rate from the study at endpoint 20% or lower of the number allocated to treatment?**

Yes

1. **Was the differential drop-out rate (between treatment groups) at endpoint 15 percentage points or lower?**

Yes

1. **Was there high adherence to the intervention protocols for each treatment group?**

Cannot Determine, Not Reported, or Not Applicable

1. **Were other interventions avoided or similar in the groups (e.g., similar background treatments)?**

Yes

1. **Were outcomes assessed using valid and reliable measures, implemented consistently across all study participants?**

Yes

1. **Did the authors report that the sample size was sufficiently large to be able to detect a difference in the main outcome between groups with at least 80% power?**

Yes

1. **Were outcomes reported or subgroups analyzed prespecified (i.e., identified before analyses were conducted)?**

Cannot Determine, Not Reported, or Not Applicable

1. **Were all randomized participants analyzed in the group to which they were originally assigned, i.e., did they use an intention-to-treat analysis?**

Yes

**Key Finding #1**

Patients who received the self-stretching program in addition to trigger point manual therapy experienced a greater improvement in physical function and a greater reduction in pain in comparison to the group who only had the self-stretching program.

**Key Finding #2**

Patients who received the self-stretching program in addition to trigger point manual therapy demonstrated a greater improvement in pressure pain threshold over the gastrocnemius and soleus in comparison to the group who only had the self-stretching program

**Key Finding #3**

There were significant group-by-time interactions for general health and emotional role found within the group who received the self-stretching program in addition to trigger point manual therapy.

**Please provide your summary of the paper**

The results of this study suggests that trigger point manual therapy intervention in addition to a self-stretching program can be beneficial for patients with plantar fasciitis/plantar heel pain. Each patient went to physical therapy 4 days a week for 4 weeks, with the difference being the type of intervention they received. The self-stretching program consisted of stretching the gastrocnemius, soleus, and plantar fascia 2 times per day, holding each stretch for 20 seconds followed by 20 seconds of rest. Trigger point manual therapy was personalized to the patient based on the location of their trigger points, however, each patient received a trigger point release technique over the gastrocnemius muscles if indicated. This form of manual therapy was performed for 90 seconds and repeated 3 times.

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

The results of this study suggested that trigger point manual therapy intervention in addition to a self-stretching program can be beneficial for patients with plantar fasciitis/plantar heel pain. However, there are some limitations to the study. Despite giving the patients instructions on how often to perform the self-stretching program, there was nothing in the study that mentioned patient adherence to the stretching program. This could potentially affect the results seen from the self-stretching only group. Additionally, even though the combination group (manual + self-stretching) showed more improvement, these improvements have been short-term. Moving forward, I believe it would be useful to research long-term solutions for individuals with plantar fasciitis/plantar heel pain to help improve their overall quality of life and reduce any healthcare costs associated with the diagnosis.