**Article Full Title**

Comparison of Compressive Myofascial Release and the Graston Technique for Improving Ankle-Dorsiflexion Range of Motion

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**Paper Abstract**

Context:  Restricted dorsiflexion (DF) at the ankle joint can cause acute and chronic injuries at the ankle and knee. Myofascial release and instrument-assisted soft tissue mobilization (IASTM) techniques have been used to increase range of motion (ROM); however, evidence directly comparing their effectiveness is limited. Objective:  To compare the effects of a single session of compressive myofascial release (CMR) or IASTM using the Graston Technique (GT) on closed chain ankle-DF ROM. Design:  Randomized controlled trial. Setting:  Laboratory. Patients or Other Participants:  Participants were 44 physically active people (53 limbs) with less than 30° of DF. Intervention(s):  Limbs were randomly assigned to 1 of 3 groups: control, CMR, or GT. Both treatment groups received one 5-minute treatment that included scanning the area and treating specific restrictions. The control group sat for 5 minutes before measurements were retaken. Main Outcome Measure(s):  Standing and kneeling ankle DF were measured before and immediately after treatment. Change scores were calculated for both positions, and two 1-way analyses of variance were conducted. Results:  A difference between groups was found in the standing (F2,52 = 13.78, P = .001) and kneeling (F2,52 = 5.85, P = .01) positions. Post hoc testing showed DF improvements in the standing position after CMR compared with the GT and control groups (both P = .001). In the kneeling position, DF improved after CMR compared with the control group (P = .005). Conclusions:  Compressive myofascial release increased ankle DF after a single treatment in participants with DF ROM deficits. Clinicians should consider adding CMR as a treatment intervention for patients with DF deficits.

**NIH Risk of Bias Tool**

Quality Assessment of Controlled Intervention Studies

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

Yes

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

Yes

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

Yes

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

No

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

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

Yes

**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

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

No

**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**

Compressive Myofascial Release may be an effective treatment for those with dorsiflexion range of motion restrictions.

**Key Finding #2**

A single treatment of Compressive Myofascial Release appears to be more effective than a single treatment of the Graston Technique at increasing dorsiflexion ROM.

**Key Finding #3**

More research is needed to evaluate the effectiveness of the two techniques over several treatment sessions.

**Please provide your summary of the paper**

This paper compared the effects of a single treatment of compressive myofascial release (CMR) vs the Graston Technique (GT) on improving closed chain ankle dorsiflexion range of motion. The study included 44 individuals (53 limbs) with the criteria of closed chain dorsiflexion ROM less than 30 degrees. Eligible limbs were randomly assigned to either CMR, GT, or a control group which did not receive any treatment. Each treatment lasted 5 minutes and the control group sat for 5 minutes before any measurements were retaken. The CMR and GT treatments included an assessment of the area and treatment of specific areas of restriction. Closed chain dorsiflexion measurements, both standing and kneeling, were taken before and after treatment using a digital inclinometer. A significant difference was seen in post-treatment standing dorsiflexion ROM with the CMR group compared to both the GT and control groups. Significant difference was seen in post-treatment kneeling dorsiflexion range of motion between the CMR group and the control group. This study demonstrates that a single treatment of CMR may be more effective than a single treatment of GT on improving closed chain dorsiflexion range of motion. More research should be done to observe the effect of the two treatments over several sessions.

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

This randomized controlled trial demonstrates the acute effects of two techniques on increasing closed-chain dorsiflexion in those with limited DF-ROM (<30 degrees). Based on this particular study, a single treatment of compressive myofascial release appears to be more effective than the Graston technique on increasing DF-ROM. The clinical significance of this data is limited to the acute timeframe directly after treatment since there is no data to evaluate the effects of the treatments beyond the session. I believe this study does demonstrate that CMR could be used at the beginning of a PT visit to improve dorsiflexion ROM for increased tolerance to therapeutic exercise interventions such as squats or lunges which may have previously been limited by restricted ankle ROM. There are several limitations to this study which may hinder its clinical significance. As previously stated, only one treatment session was applied and the long-term effects of the two techniques could not be analyzed. Furthermore, the same therapist did not perform both techniques and this could have interfered with the effectiveness of the treatments. The pressure applied during each treatment was likely dependent on the therapist performing the intervention. Based on these limitations, I believe more evidence is needed to prove one treatment is more effective than the other. Although CMR may be an effective tool for therapists looking to improve immediate dorsiflexion ROM, each clinician can and should experiment to determine the effectiveness of these two techniques on patients with DF restrictions.