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Effectiveness of Cupping Therapy on Cross-sectional Area of Gastrocnemius in Patients with Plantarfasciitis: A Quasi-experimental Pilot Study

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ABSTRACT

Introduction: Plantar fasciitis, a common cause of heel pain, is often associated with muscle imbalances, particularly in the gastrocnemius. Cupping therapy, an alternative treatment, may enhance blood flow, relieve muscle tension, and support healing. This study examines the effectiveness of dynamic cupping therapy in reducing gastrocnemius muscle size and alleviating pain in plantar fasciitis patients.

Aim: The aim of this study was to evaluate the effectiveness of cupping therapy on the cross-sectional area (thickness) of the gastrocnemius muscle and pain reduction in patients with plantar fasciitis.

Materials and Methods: A quasi-experimental, pilot study with ethical approval obtained from the Institutional Ethics Committee with the registration number MMDU/IEC-2997. The trial was registered with the Clinical Trials Registry-India (CTRI) with the identification number CTRI/2024/09/073314. The study was performed on 16 participants of gastrocnemius tightness associated with plantar fasciitis, aged between 18-45 years. Participants were pre-assessed using B-mode ultrasonography for measuring the cross-sectional area and muscle thickness and pain intensity using the Visual Analogue Scale (VAS). All participants received single session of dynamic cupping therapy with pressure +1 mmHg for 10 mins. Pre-intervention (on the 1st day), and post-intervention (on the 3rd day) assessment were obtained for the outcome measures.

Results: A significant decrease in the cross-sectional area of the gastrocnemius post-treatment (mean increase of 10%, $p<0.01$) was observed along with a notable reduction in pain intensity, with a mean decrease of 3 points on the VAS ($p<0.01$). These results suggested that cupping therapy exhibited a positive effect on muscle thickness and pain relief in patients with plantar fasciitis.

Conclusion: Cupping therapy assisted the treatment of plantar fasciitis by improving blood flow, reducing pain, enhancing muscle flexibility, and supporting tissue healing, addressing issues like muscle tightness and gastrocnemius dysfunction.

Keywords: Heel pain, Dynamic cupping, Ultrasonography