ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jun2047

Comparative Effectiveness of Myofascial Release Combined with Conventional Physiotherapy Versus Conventional Physiotherapy Alone on Pain, Disease Severity and Disability in Plantar Fasciitis

Mahima Sharma[1]; Reena Arora[2]; Lalit Arora[3]; Amarjeet Singh[4]; Harsh Bansal[5]; Tanishq Monga[6]

[1] MPT Student, University College of Physiotherapy, Baba Farid University of Health Sciences
[2] Associate Professor, University College of Physiotherapy, Baba Farid University of Health Sciences
[3] Head of Department, University College of Physiotherapy, Baba Farid University of Health Sciences
[4] Assistant Professor, University College of Physiotherapy, Baba Farid University of Health Sciences
[5] Junior Physiotherapist, University College of Physiotherapy, Baba Farid University of Health Sciences
[6] Demonstrator, University College of Physiotherapy, Baba Farid University of Health Sciences

Publication Date: 2026/07/28

Abstract:

- ***Background:***
  Plantar Fasciitis is a common cause of heel pain, most often due to weight-bearing, standing occupations, and heel injuries. However, evidence regarding the comparative effect of myofascial release with conventional physiotherapy on pain, disease severity and functional disability remains limited.

- ***Objective:***
  To compare the effectiveness of myofascial release combined with conventional physiotherapy versus conventional physiotherapy alone on pain, disease severity and functional disability in patients with plantar fasciitis.

- ***Design:***
  Randomized Controlled Trial.

- ***Setting:***
  OPD of University College of Physiotherapy, Faridkot.

- ***Method:***
  30 patients who were clinically diagnosed with plantar fasciitis were randomly assigned into Group A (MFR with Conventional physiotherapy) (n=15) and Group B (Conventional physiotherapy alone) (n=15) and given 18 sessions of treatment per individual for 3 sessions per week over 6 weeks. Outcome measures included the Foot Function Index (FFI) and the Plantar Fasciitis Pain Scale (PFPS). Assessments were performed at baseline, 3rd week, and 6th week.

- ***Results:***
  Group A showed a statistically significant improvement in all outcome measures, including FFI and PFPS, compared to Group B ($p < 0.05$).

- ***Conclusion:***
  This study concluded that Myofascial release combined with conventional physiotherapy was more effective than conventional physiotherapy alone in reducing pain, disease severity and improving functional disability in patients with plantar fasciitis.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jun2047

Keywords: *Myofascial Release; Plantar Fasciitis; Stretching.*

How to Cite: Mahima Sharma; Reena Arora; Lalit Arora; Amarjeet Singh; Harsh Bansal; Tanishq Monga (2026) Comparative Effectiveness of Myofascial Release Combined with Conventional Physiotherapy Versus Conventional Physiotherapy Alone on Pain, Disease Severity and Disability in Plantar Fasciitis. *International Journal of Innovative Science and Research Technology*, 11(6), 3952-3956. https://doi.org/10.38124/ijisrt/26jun2047

I. INTRODUCTION

Plantar fasciitis may also be called heel spur syndrome, calcaneodynia, or painful heel syndrome.[1] The plantar fascia is a key component of the foot's structural integrity. It provides stress between the proximal and distal parts of the foot and is required to sustain the medial longitudinal arch.[2] In fact, some authors have reported that PHP accounts for between 8% and 15% of foot complaints in nonathletic and athletic populations.[3] It is the most common cause of heel pain in adults, with a lifetime incidence of about 10%.[4] Plantar fasciitis (PF) shows an incidence of 0.80% in non-diabetic individuals, 1.31% in type 2 diabetes, and 0.92% in type 1 diabetes. Occupational risk is higher in prolonged standing jobs (15–22%) compared to sedentary workers (3–5%). PF may affect up to 10% of people during their lifetime, with about 83% of cases occurring in working adults aged 25–64 years.[5,6]

Plantar fasciitis is a biomechanical overuse syndrome that causes degenerative changes at the connection to the calcaneus. Histologic evaluation of samples taken from individuals undergoing plantar fascia release surgery reveals myxoid degeneration, fragmentation and degeneration of the plantar fascia and bone marrow vascular ectasia.[4] Conservative management for plantar fasciitis encompasses a range of approaches, including chiropractic adjustments, electrical modalities, patient education, massage, acupuncture, taping, night splints, stretching, cold and heat, and strengthening.[7]

Myofascial release is a soft tissue mobilization technique used in the chronic conditions that cause tightness and restrictions in the soft tissues.[1] MFR generally involves slow, sustained pressure (120–300 s) applied to restricted fascial layers either directly (direct technique MFR) or indirectly (indirect technique MFR). The MFR used in this study was the direct technique MFR (DTMFR), as promoted by Stanborough. During DTMFR, pressure is applied directly to restricted fascia; practitioners use knuckles, elbow, or other tools to slowly sink into the fascia and apply a few kilograms of force to contact the restricted fascia, apply tension, or stretch the fascia.[8] The primary objective of present study was to evaluate the effect of myofascial release and conventional physiotherapy on pain and functional outcomes in patients with plantar fasciitis in comparison to conventional physiotherapy alone.

II. METHODS

The present study was conducted at OPD of University College of Physiotherapy, Faridkot. A total of 30 patients who were clinically diagnosed with plantar heel pain were assessed for Plantar Fasciitis as per inclusion and exclusion criteria. They were included in the study after taking their informed written consent, along with an explanation of the brief study protocol. Inclusion criteria for the study were both males and females, aged 40-60 years; (1), having had heel pain more than 3 months (2) experiencing heel pain on their first step in the morning (3) positive windlass test (4) patients BMI should not exceed 25 kg/m^2. Exclusion criteria as follows: (1) patients with previous surgeries of foot and ankle joint. (2) patients with any fracture of the foot or lower tibia (3) patients with any muscle strain or stress injury on foot and ankle joint (4) Patients who are diagnosed with fibromyalgia.

The Institutional Ethical considerations were strictly used in the study. Prior to commencement of the study, approval was taken from the Institutional Ethical Committee, UCOP, Baba Farid University of Health and Sciences, Faridkot (No.BFUHS/2K25p-TH/22499). Participants were selected using consecutive sampling from the outpatient department until the required sample size was reached. They were randomly assigned to two groups (1:1) using computer-generated numbers. Allocation was concealed using sequentially numbered opaque sealed envelopes (SNOSE), opened after enrolment.

III. OUTCOME MEASURES

- *Foot Function Index (FFI)*

The Foot Function Index (FFI) is designed to assess the impact of foot problems on function, focusing on pain and disability. It is a self-administered tool with 23 items categorized into three scales: Limitation (5 items), Pain (9 items), and Disability (9 items). The FFI evaluates pain and mobility limitations caused by foot issues.[9]

- *Plantar Fasciitis Pain Scale (PFPS)*

The PFPS has been compared and validated beside the foot function index, and the 100-point VAS is included in the PFPS. However, the PFPS gives a more detailed, analytical analysis of patients‘ pain by also examining symptomatic questions used in the differential diagnosis and questions regarding pain in ADLs.[11]

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jun2047

➢ *Study Protocol*

Group A was the experimental group where Myofascial Release with Conventional Physiotherapy was given to all the patients for 6 weeks, with 3 sessions per week. Group B was the control group in which Conventional Physiotherapy was given to all the patients for 6 weeks with 3 sessions per week. The total treatment time was 45 mins. Patients in both groups were assessed at three intervals.

- *Group A*

MFR technique was applied to Gastrocnemius muscle, Soleus muscle and Plantar fascia for about 15 minutes.

- *MFR for Gastrocnemius [3]*

In prone with feet positioned for easy dorsiflexion, the elbow (flexed to 90°) was applied to the Achilles tendon. A superior line of tension was established, and tissues were gradually engaged during active dorsiflexion, focusing on the musculotendinous junction.(5 min×1).

- *MFR for Soleus [3]*

In prone with slight knee flexion to relax the gastrocnemius, the elbow was applied to the Achilles tendon. Gradual pressure was directed into the intermuscular fascia between the soleus and gastrocnemius, with a superior line of tension, while the patient actively dorsiflexed.(5 min×1).

- *MFR on Plantar Fascia [3]*

In prone with feet off the table, the knuckles engaged the soft tissue anterior to the calcaneus. An anterior line of tension was applied, progressing toward the forefoot and deeper layers while the patient performed toe flexion and extension. (5 min×1).

Participants received a conventional physiotherapy program including plantar fascia stretching, contrast bath, friction massage, and therapeutic ultrasound. The plantar fascia was stretched by dorsiflexing the toes until tension was felt in the medial arch, confirmed by palpation (30 seconds × 5 repetitions).[7] Contrast bath was administered using alternate warm (40–45°C, 3 minutes) and cold water (15–20°C, 1 minute) for 4–5 cycles, ending with warm water. Deep friction massage was applied using circular thumb pressure over the point of maximal tenderness. Ultrasound therapy was delivered over the plantar fascia in continuous mode (1 MHz, 1 W/cm²) for 5 minutes, three sessions per week.[13]

Group B received the same conventional physiotherapy as given to Group A .

➢ *Statistics*

Normality of data was assessed using the Shapiro–Wilk test and was found to be normally distributed. Descriptive statistics were expressed as mean ± standard deviation. Between-group comparisons were performed using unpaired t-test. A p-value of < 0.05 was considered statistically significant.

IV. RESULTS

All the participants (n = 30) attained 100% engagement rate to their allotted sessions. Unpaired t-test was used for comparison at 0th day, 3rd week and 6th week score measurements of PFPS between Group A and Group BPFPS, at baseline, no significant difference was observed between Group A (68.53 ± 3.31) and Group B (68.33 ± 3.30) ($p = 0.870$). At the 3rd week, Group A showed significantly lower scores (46.06 ± 2.93) compared to Group B (59.13 ± 2.55) ($p < 0.001$). At the 6th week, Group A (21.20 ± 2.93) demonstrated significantly greater improvement than Group B (48.86 ± 4.77) ($p < 0.001$).

Foot Function Index (FFI), was compared between Group A and Group B using an unpaired t-test at baseline, 3rd week, and 6th week. At baseline, no significant difference was observed between Group A (168.46 ± 5.09) and Group B (169.46 ± 6.30) ($p = 0.636$). At the 3rd week, Group A showed significantly lower FFI scores (119.46 ± 5.24) compared to Group B (146.86 ± 7.55) ($p < 0.001$). At the 6th week, Group A (74.40 ± 10.11) showed significantly greater improvement than Group B (131.20 ± 9.00) ($p < 0.001$).

Table 1 Unpaired t-test for Comparison at 0th day, 3rd week and 6th Week Score Measurements of PFPS Between Group A and Group B.

Unpaired t-test	**Comparison**					
	Plantar Fasciitis Pain Scale					
	0th day		**3rd week**		**6th week**	
	Group-A	**Group-B**	**Group-A**	**Group-B**	**Group-A**	**Group-B**
Mean	68.533	68.333	46.066	59.133	21.200	48.867
S.D.	3.313	3.309	2.939	2.559	2.932	4.778
N	15	15	15	15	15	15
M.D.	.200		13.067		27.667	
df	28		28		28	
Unpaired t-test	.165		12.984		19.111	
Tab. value at 0.05	2.05		2.05		2.05	
P value	.870		<0.001*		<0.001*	
Result	**Non-Significant**		**Significant**		**Significant**	

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jun2047

Table 2 Unpaired t-test for Comparison at 0th day, 3rd week and 6th Week Score Measurements of PFPS Between Group A and Group B.

Unpaired t-test	Comparison					
	Foot Function Index					
	0th day		3rd week		6th week	
	Group-A	Group-B	Group-A	Group-B	Group-A	Group-B
Mean	168.467	169.467	119.467	146.867	74.40	131.200
S.D.	5.097	6.300	5.249	7.558	10.112	9.001
N	15	15	15	15	15	15
M.D.	1.0		27.400		56.800	
df	28		28		28	
Unpaired t-test	0.478		11.532		16.249	
Tab. value at 0.05	2.05		2.05		2.05	
P value	0.636		<0.001*		<0.001*	
Result	Non-Significant		Significant		Significant	

V. DISCUSSION

The principal finding of the current study is that the MFR intervention combined with conventional physiotherapy trial was significantly more effective than Conventional physiotherapy alone in reducing disease severity and improving functional disability in patients with plantar fasciitis.

The present study demonstrated significant improvement in Plantar Fasciitis Pain Scale (PFPS) and Foot Function Index (FFI) scores in the intervention group compared to the control group. This indicates that myofascial release combined with conventional physiotherapy is effective in reducing disease severity and improving functional disability in patients with plantar fasciitis.

The reduction in PFPS scores reflects decreased pain levels and disease severity, while improvement in FFI scores indicates enhanced functional ability and reduced disability. These outcomes may be attributed to the effect of myofascial release in reducing fascial restrictions, improving tissue extensibility, and decreasing mechanical stress on the plantar fascia. The progressive improvement seen at 3rd and 6th weeks indicates that continued application of myofascial release may have cumulative benefits over time.

The findings of the present study are consistent with previous literature supporting the role of manual therapy techniques in managing plantar fasciitis by improving soft tissue extensibility and reducing pain. A study by Virender Kumar et.al showed that MFR group may be attributed to its direct effect on plantar fascia tissue extensibility and pain modulation, resulting in improved joint range of motion and muscle performance. The study supports the clinical effectiveness of MFR as a primary therapeutic intervention in the management of plantar fasciitis.[14] The present results are consistent with previous studies reporting that myofascial release is effective in reducing pain and improving functional outcomes in patients with plantar heel pain. Sapia Akter et.al did a randomized controlled trial comparing myofascial release with a multimodal Structural Diagnosis and Management (SDM) approach also found significant improvements in pain, function, and disability (FFI, FADI) in both groups, with greater improvement in the SDM group. Overall, the findings support myofascial release as an effective conservative treatment for plantar fasciitis.[15]

Although a few studies have reported superior outcomes with alternative techniques, the overall evidence supports Myofascial Release as a reliable and beneficial treatment approach. Variations in outcomes across studies may be attributed to differences in treatment protocols, duration of intervention, sample characteristics and outcome measures. Thus, Myofascial Release can be considered a valuable physiotherapy treatment in the management of Plantar Fasciitis.

VI. STUDY LIMITATIONS

One limitation was the lack of follow-up. We do not know if these effects would be maintained for longer periods. Secondly, the study period was shorter, and in future could be conducted for a longer study period.

VII. CONCLUSION

The findings of the present study concluded that Myofascial release combined with conventional physiotherapy is more effective in reducing disease severity and improving functional disability in patients with plantar fasciitis. than Conventional Physiotherapy alone.

REFERENCES

[1]. Patel K, Doshi H, Shah S. ―To Compare the Effectiveness of Mfr Versus Stretching of Posterior Muscles of Lower Limb Along with Ultrasound Therapy in Case of Plantar Fasciitis.‖-The Comparative Study. International Journal of Research and Analytical Reviews (IJRAR). 2019:430-5.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26jun2047

[2]. Pohl MB, Hamill J, Davis IS. Biomechanical and anatomic factors associated with a history of plantar fasciitis in female runners. Clinical Journal of Sport Medicine. 2009 Sep 1;19(5):372-6
[3]. Ajimsha MS, Binsu D, Chithra S. Effectiveness of myofascial release in the management of plantar heel pain: a randomized controlled trial. The Foot. 2014 Jun 1;24(2):66-71.
[4]. Trojian T, Tucker AK. Plantar fasciitis. American family physician. 2019 Jun 15;99(12):744-50.
[5]. Bint e Ejaz I, Iqbal MH, Khalid F, Rauf W, Zahid H. The Prevalence of Plantar Fasciitis and its Association with Posture in Salesmen with Prolonged Standing. Journal of Health, Wellness and Community Research. 2025 Jul 14:e422-.
[6]. Ni Ketut Maya Purvitagiri N. Correlation Between Prolonged Standing and Plantar Fasciitis (Doctoral dissertation, Universitas Airlangga).
[7]. Hemlata NK, Praveen S, Kumar S, Badoni N. Comparison of The Effectiveness of Myofacial Release Technique and Stretching Exercise on Plantar Fascitis. Physiotherapy and Occupational Therapy. 2019 Apr;12(2).
[8]. Renan-Ordine R, Alburquerque-SendÍn F, Rodrigues De Souza DP, Cleland JA, Fernández-De-Las-Penas C. Effectiveness of myofascial trigger point manual therapy combined with a self-stretching protocol for the management of plantar heel pain: a randomized controlled trial. Journal of orthopaedic & sports physical therapy. 2011 Feb;41(2):43 50.
[9]. The Foot Function Index with Verbal Rating Scales (FFI–5pt): A Clinimetric Evaluation and Comparison with the Original FFI MARIJKE M. KUYVENHOVEN
[10]. Delgado DA, Lambert BS, Boutris N, McCulloch PC, Robbins AB, Moreno MR, Harris JD. Validation of digital visual analog scale pain scoring with a traditional paper-based visual analog scale in adults. JAAOS Global Research & Reviews. 2018 Mar 1;2(3):e088.
[11]. Willis B, Lopez A, Perez A, Sheridan L, Kalish S. Pain scale for plantar fasciitis. Foot Ankle Online J. 2009;2(3).
[12]. Hale SA, Hertel J. Reliability and sensitivity of the Foot and Ankle Disability Index in patients with chronic ankle instability. Journal of athletic training. 2005 Jan;40(1):35.
[13]. Saeed H, Yousuf R, Javeria H, Hasan S, Perwaiz S, Lohna N. Comparison of Myofascial Release Technique and Manual Therapy for the Management of Plantar Fasciitis. Journal of Health and Rehabilitation Research. 2024 Aug 10;4(3):1-7.
[14]. Kumar V, Chopra PR, Meetu PT, Kamboj P, Singh R, Paul S, Jaiswal S. Effectiveness of Myofascial Release Techniques versus Hip strengthening Exercise along with Static Stretching in Patients with Plantar Fasciitis. Journal of Orthopaedic Diseases and Traumatology. 2024 Jan 1;7(1):115-9.
[15]. Akter S, Hossain MS, Hossain KA, Uddin Z, Hossain MA, Alom F, Kabir MF, Walton LM, Raigangar V. Comparison of Structural Diagnosis and Management (SDM) approach and MyoFascial Release (MFR) for improving plantar heel pain, ankle range of motion and disability: A randomized clinical trial. Journal of Manual & Manipulative Therapy. 2024 Jul 3;32(4):368-77.