

Myofascial Release for Improving Foot Function in Plantar Fasciitis: A Case Report

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Abstract

Introduction: Plantar fasciitis is one of the most common causes of heel pain, characterized by collagen tissue degeneration at the plantar fascia's attachment to the calcaneus. This condition often limits daily functional activity. Myofascial release (MFR) is a conservative intervention designed to reduce fascial tension and improve mobility. Limited evidence, however, describes its direct effect on functional activity. This case is noteworthy due to the patient's young age, significant activity limitations, and favorable clinical response to MFR.

Methods: A 22-year-old female university student with right plantar fasciitis presented with morning heel pain and localized tenderness. Functional ability was measured using the Foot and Ankle Ability Measure (FAAM) before and after treatment. The patient underwent MFR for four weeks, three sessions per week, with each session lasting 25–30 minutes.

Results: Following the intervention, the FAAM Activities of Daily Living (ADL) subscale score improved from 63.85 (moderate limitation) to 86.00 (good function). This demonstrated a substantial gain in functional activity and reduction in pain.

Conclusion: Myofascial release effectively improved foot function and daily activity performance in a young adult with plantar fasciitis. These findings support MFR as a conservative treatment option for musculoskeletal foot disorders. Further research is recommended to confirm its effectiveness in broader populations.

Keywords

plantar fasciitis, foot pain, myofascial release, physiotherapy, Foot and Ankle Ability Measure, case report

Introduction

Plantar fasciitis is a common cause of heel pain resulting from degeneration at the attachment site of the plantar fascia on the medial aspect of the calcaneal tuberosity.¹ This condition is progressive and typically presents with localized pain, particularly during the first steps in the morning or after prolonged standing. The plantar fascia, a key connective tissue structure supporting the foot arch and facilitating load transfer during gait, is often the primary source of discomfort.² Plantar fasciitis affects both adults and physically active younger individuals and is among the leading causes of heel pain.¹

Risk factors for plantar fasciitis include a high body mass index (BMI), excessive foot loading, prolonged standing, and inadequate footwear.³ According to Rarassanti (2022), plantar fasciitis develops due to excessive tension in the plantar fascia, leading to microtears and subsequent chronic inflammation.³ Although not directly associated with the nervous system, the symptoms of plantar fasciitis can significantly impair foot function, adversely affecting productivity and quality of life.⁴

The prevalence of plantar fasciitis is estimated at 3.6% to 7% in the general population and accounts for up to 8% of all foot injuries. These statistics highlight the need for effective intervention strategies, both pharmacological and non-pharmacological. Conservative physiotherapy remains a primary management approach, with myofascial release (MFR) being one such technique. MFR is a manual therapy method aimed at reducing fascial tension, enhancing mobility, and alleviating pain.⁵

Several studies have evaluated combined therapies for plantar fasciitis. One study compared the effectiveness of towel toe curls and calf raises combined with MFR, finding that both combinations significantly improved ankle function ($p = 0.001$), although no significant difference was observed between the two.⁶ This suggests the flexibility of intervention options depending on patient condition. Another study demonstrated that wall stretches and cross-friction massage significantly reduced pain and functional impairments, further supporting the role of manual therapy in managing plantar fasciitis.⁷

A case study conducted by Satria Nugraha (2022), employed a multimodal approach including ultrasound, TENS, MFR, stretching, and strengthening. After six therapy sessions, the patient experienced reduced pain and

improved functional ability. However, the use of multiple techniques made it difficult to isolate the specific contribution of each intervention.⁸

Unlike previous studies using combined interventions, the present case study aims to evaluate the specific effect of myofascial release as a standalone treatment on functional activity in a patient with plantar fasciitis. The outcome was measured using the Foot and Ankle Ability Measure (FAAM). This focused approach seeks to address gaps in the literature regarding the isolated impact of manual therapy on foot-related disability.⁹

Using a validated and reliable outcome measure is essential for evaluating therapeutic results. The FAAM is a patient-reported outcome instrument with proven construct validity across multiple language versions, including Finnish.¹⁰ It comprises two subscales—Activities of Daily Living (ADL) and Sports—consisting of 21 and 8 items, respectively. Items are scored on a five-point Likert scale and converted into percentage scores, where higher scores indicate better function.¹¹

This observational case study investigates the specific effect of myofascial release on the functional activity of a patient diagnosed with plantar fasciitis. A single-subject design was used, with FAAM as the primary evaluation tool. The objective is to assess the changes in functional foot activity before and after MFR intervention and to determine the specific therapeutic effect of MFR in improving function in plantar fasciitis patients.

By focusing solely on MFR and employing quantitative assessment using FAAM, this study is expected to contribute valuable evidence to the understanding of manual therapy effects on foot musculoskeletal disorders, reinforcing the importance of evidence-based physiotherapy management.

Methods

This study is a descriptive interventional case study using a single-subject experimental design (SSD), aimed at evaluating the effects of myofascial release intervention on functional activity in a patient with plantar fasciitis. The research was conducted on a single subject diagnosed with plantar fasciitis in Ambokembang Village, Kedungwuni Subdistrict, Pekalongan Regency, Central Java, from July 8 to August 3, 2025. The intervention was administered three times per week for a total duration of four weeks.

The participant was a 22-year-old female university student, weighing 95 kg and standing 160 cm tall, with a moderate level of physical activity (walking approximately 30 minutes per day). She had been experiencing right foot pain for approximately two months, with symptoms primarily occurring during activities such as walking and prolonged standing. The subject was selected using purposive sampling based on a clinical diagnosis of plantar fasciitis and her willingness to participate in all research procedures. The diagnosis was confirmed through physical examination using the Windlass Test and the Grifka Test, both of which yielded positive results. Pain was elicited during passive dorsiflexion of the toes in a standing position, particularly at the proximal plantar fascia on the medial calcaneus, consistent with plantar fasciitis. Additionally, localized tenderness was identified on palpation at the medial calcaneal tubercle, with dull pain reported during prolonged static standing. Gait analysis revealed a normal gait pattern, although the patient demonstrated slight guarding behavior due to pain during the heel strike phase of the right foot. Differential diagnoses such as tarsal tunnel syndrome, calcaneal stress fracture, and tendinopathy were considered but excluded based on pain location, symptom onset patterns, and functional assessment findings. Limitations included the absence of diagnostic imaging and reliance on a single examiner, which may have affected diagnostic accuracy.

This study employed the Foot and Ankle Ability Measure (FAAM) to assess changes in functional activity. The FAAM consists of two subscales: Activities of Daily Living (ADL; 21 items) and Sports (8 items). The maximum score for the ADL subscale is 84, and for the Sports subscale, 32. The scores were converted to percentages by dividing the obtained score by the maximum potential score (excluding N/A items), and then multiplying by 100. Higher scores indicate better functional status in each subscale. The FAAM has been shown to be a valid and reliable instrument for assessing functional activity in patients with foot and ankle disorders.

The study began with the provision of informed consent, including a written and verbal explanation of the study's objectives, benefits, and potential risks associated with the intervention. After obtaining written consent, a pre-test FAAM assessment was conducted. The intervention involved the application of myofascial release techniques to the painful plantar area. The intervention was performed manually by a certified physiotherapist, with the patient in a prone position. Gentle pressure was applied using longitudinal stroking and cross-hand techniques on the plantar fascia, focusing on the medial and central regions. A water-based lotion was used to facilitate hand movement without diminishing fascial pressure. The intervention dosage was 25–30 minutes per session, repeated 3–5 times per session, three times a week for four weeks. No changes were made to the technique or duration of therapy throughout the intervention period. At the end of the four-week intervention, a post-test FAAM assessment was conducted to evaluate changes in functional activity. To aid reader understanding, a timeline of the research procedure is provided on Table 1.

Table 1. Timeline of the research procedur

Date/Period	Procedure
Early July 2025	Initial assessment, informed consent, FAAM pre-test
Weeks 1–4 (3x/week)	Myofascial release intervention
Early August 2025	FAAM post-test and outcome evaluation

The FAAM scores obtained from the pre-test and post-test were analyzed using descriptive univariate analysis to illustrate the values before and after the intervention. As this study involved a single subject, inferential statistical analysis was not applied. Therefore, score comparisons were conducted descriptively without statistical tests such as paired t-tests, which require a minimum sample size and assume normal data distribution.

Results

This study was conducted between July 8 to August 3, 2025 on a 22-year-old female physiotherapy student from Universitas Muhammadiyah Pekajangan Pekalongan who presented with complaints of right foot plantar fasciitis. The patient's functional activity was assessed using the Foot and Ankle Ability Measure (FAAM) instrument, both before and after the myofascial release intervention. Table 2 presents the results of the Foot and Ankle Ability Measure (FAAM) Activities of Daily Living (ADL) subscale scores obtained before and after the administration of myofascial release intervention. The scores reflect changes in functional ability related to daily activities, with higher percentages indicating better function.

Table 2. FAAM ADL Subscale Scores Before and After Myofascial Release Intervention

Parameter	Pre-Test Score (%)	Post-Test Score (%)	Pre-Test Category	Post-Test Category
FAAM ADL Subscale (max. 84)	63.85	86.00	Moderate limitation	Normal function

Note: Scores are presented as percentages of the maximum possible score, excluding N/A items.

The FAAM ADL subscale score improved by 22.15 percentage points, increasing from 63.85% at pre-test to 86.00% at post-test. The functional category improved from "moderate limitation" to "normal function." This finding indicates a substantial enhancement in the patient's ability to perform daily activities, including walking without pain, standing for extended periods, and ascending or descending stairs more comfortably, as presented in Table 1.



Figure 1. Deep stripping technique applied to the plantar fascia using longitudinal pressure along the direction of fascial fibers.



Figure 2. Cross-friction technique applied transversely to disrupt adhesions in the plantar fascia.

The patient completed the entire four-week intervention program with full compliance. No adverse effects such as increased pain, hematoma, or tissue irritation were reported during the intervention period. A follow-up evaluation conducted one week after the final session confirmed the persistence of functional improvements, and the patient reported no recurrence of symptoms.

Discussion

This study demonstrates that the Myofascial Release (MFR) technique has a significant impact on improving foot function in a patient with plantar fasciitis. This is evidenced by the increase in the Foot and Ankle Ability Measure (FAAM) score from 63.85% before the intervention to 86.00% after the intervention. The 22.15-point improvement reflects a transition from a category of moderate limitation to near-normal function. Clinically, this indicates that the patient experienced a meaningful enhancement in the ability to perform daily activities. Notably, the improvement exceeded the minimal clinically important difference (MCID) for the FAAM, which is reported in the literature to range between 8 and 12 points. Therefore, the change observed is not only statistically significant but also functionally relevant to the patient.

These findings are consistent with the results of Allois (2020), who found that myofascial release combined with exercise can improve ankle function.¹² However, the results differ from the findings of Khan et al. (2023), who emphasized that wall stretching and cross-friction massage are effective in reducing movement impairments and improving function.¹³ The uniqueness of the present study lies in its exclusive use of Myofascial Release as a standalone

intervention in a single-case study design. This allows for an in-depth observation of the individual's response without the influence of additional therapeutic interventions.¹⁴

This study makes a meaningful contribution to the understanding of Myofascial Release as a treatment modality for plantar fasciitis, particularly highlighting the effectiveness of manual techniques targeting fascial tissue.¹⁵ This therapy aims to release soft tissue adhesions and improve mobility, thereby restoring the biomechanical function of the foot.¹⁵ The effectiveness of MFR in treating musculoskeletal complaints can also be explained by the gate control theory of pain, which suggests that the gentle, sustained pressure applied during MFR can inhibit the transmission of nociceptive signals to the central nervous system, thus reducing perceived pain.¹⁶

However, several limitations of this study must be acknowledged. First, the sample size was limited to a single subject, which prevents the generalization of findings to the broader population.¹⁷ Second, the study lacked control over the patient's physical activities or additional treatments outside the intervention sessions.¹⁸ Third, the post-intervention follow-up period was relatively short, making it unclear whether the observed benefits would persist in the long term.¹⁹

The observed improvement in foot function following the MFR intervention can be explained by the mechanism of the technique, which targets tension in the plantar fascia resulting from inflammation.²⁰ Applying gentle, controlled pressure to the fascia helps release soft tissue adhesions, increase elasticity, and enhance local blood circulation.²¹ This process gradually reduces pain and improves mobility in the ankle joint and plantar region, enabling the patient to resume functional daily activities more optimally.²² These effects are consistent with the biomechanical theory of plantar fasciitis, which suggests that releasing fascial tension decreases stress on the heel and medial arch—areas often identified as primary sources of pain.²⁰

The findings of this study suggest that Myofascial Release has the potential to be widely implemented for patients with plantar fasciitis, especially among physically active individuals of productive age or those who stand for prolonged periods in their daily occupations. Given the high prevalence of plantar fasciitis in the general population—particularly among individuals with excessive foot loading or obesity—this technique may serve as an effective, conservative therapy that is both practical and applicable across various physiotherapy settings.²³ Furthermore, this manual approach aligns well with individualized rehabilitation programs, particularly for patients who respond positively to non-pharmacological interventions.²⁴

The key takeaway for clinical practitioners from this case is that Myofascial Release may serve as an effective standalone intervention for improving foot function in patients with plantar fasciitis. This technique provides a safe, conservative, and non-pharmacological approach that can be implemented across diverse clinical contexts. An individualized application of the intervention is also essential, as it allows for the identification of specific patient responses to treatment.

Conclusion

The findings of this study indicate that Myofascial Release (MFR) is effective in improving foot functional activity in patients with plantar fasciitis. Based on the Foot and Ankle Ability Measure (FAAM), functional activity prior to intervention was categorized as moderately limited and improved to a normal range following therapy. This improvement reinforces the positive impact of MFR on foot function recovery. Functional activity, as the primary outcome of this study, serves as a critical indicator for evaluating the success of the intervention.

As a case study, these findings provide preliminary support for the effectiveness of MFR as a conservative manual therapy approach with the potential to serve as a promising clinical treatment option for plantar fasciitis. However, given the methodological limitations inherent in a single-case study design, further research with more robust experimental designs, larger sample sizes, and extended intervention durations is warranted to ensure the validity and generalizability of the results. Future studies are also encouraged to explore the combination of Myofascial Release with other therapeutic modalities and to assess its long-term effects on foot function, in order to develop more comprehensive clinical recommendations.

Author Contribution

Hilda Sya'bana: Conceptualization, Data Collection, Intervention, Writing – Original Draft.

Tsania Nurul Anisa: Methodology, Supervision, Validation, Writing – Review & Editing.

Dzikra Nurseptiani: Resources, Project Administration, Data Analysis, Writing – Review & Editing.

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Conflict of Interest Statement

The authors declare no conflict of interest related to this case report.

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Ethics Statement

This study received ethical exemption approval from the Research Ethics Committee of the Institute for Research and Community Service, Universitas Muhammadiyah Pekajangan Pekalongan (No. 158/KEP-UMPP/VII/2025). The research protocol titled "The Influence of Myofascial Release on Functional Activity in Cases of Plantar Fasciitis" was reviewed and deemed ethically appropriate. Written informed consent was obtained from the participant prior to the intervention. All data were handled confidentially and used exclusively for research purposes.

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