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Effects of Myofascial Trigger Point Release in Plantar Fasciitis for Pain Management

Irsa Allaudin[1], Nafeesa Ishfaq[2], Dr Rimsha Gulraiz[3], Hafiza Hina Ilyas[4], Muhammad Faisal[5], Usama Javaid[6]

[1] DPT, Clinical physical therapist Superior university Lahore, Irsaallaudin.official@gmail.com

[2] Lecturer, Department of Physical therapy, Faculty of Allied health sciences, Kohat University of Science and Technology, Kohat 26000 KP Pakistan. Email: drnafeesapt@gmail.com

[3] Doctor of physical therapy, Superior university Lahore. rimshagulraiz86@gmail.com

[4] DPT, University of South Asia Lahore. hinaaqasim@gmail.com

[5] Bachelor in physiotherapy, UMT Lahore. learners396712@gmail.com

[6] DPT, Superior university Lahore. Usamajavaid21@gmail.com

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Abstract

Background

The fascia beneath the foot is called plantar fascia. It helps in the support of arch of foot and on bearing weight it under tension. Plantar fasciitis is an inflammation of thick tissue which is plantar fascia present on the base of foot that play role in causing heel pain, pain under the foot, metatarsalgia and other disabilities. **Objective**: The object of this study was to measure the effectiveness of active myofascial trigger point release and the kinesio taping VS conventional physiotherapy treatment of planter fasciitis for pain management. **Methodology**: This Study design was RCT. Study was conducted in as per availability area, institute and hospital. The 36 patient both male and female recruited for this study. Scales that were used included Foot Function Index Scale, Plantar fasciitis pain/disability scale. They were randomly divided into two groups. Experimental group treatment was having only myofascial trigger point release and kinesiotaping treatment only. Group A control group treatment: - Control group was set to fall under the regular conventional treatment that is heating therapy, cold therapy, ultrasound and infrared varying upon the patient severity. Group B experimental treatment: - Experimental group went under only myofascial Tigger point release also with kinesio taping treatment only. **Results**: Paired sample test used for the group analysis of four pairs compared, pre and post foot function index, pre and post VAS (PEPS) and pre and post planter fasciitis pain scale shows significance difference in each control and experiment group. Kinesio taping and myofascial trigger point release is better than conventional treatment for planter fasciitis pain management. **Conclusion**: Experimental group treatment shows more effective results as compare to conventional treatment group.

Keywords Plantar Fasciitis, Myofascial Trigger Point Release, Kinesiotaping, Conventional Group, Pain Management.

Introduction

Pain in the heels, calves and beneath the foot could be due to several reasons but the musculoskeletal issue could be muscle shortening, trigger points, tender points, weak musculature etc. Kinesiology tape use for the release of such pains and how it helps in releasing fascia and allowing the muscle to work. The fascia beneath the foot is called as plantar fascia. It acts as a tie

rod which helps in the support of the arch of foot and on bearing weight it under goes tension. On account of some biomechanical view point it carries almost around 14% of total foot load(1)
Plantar fasciitis (PF) is an inflammation of the thick tissue which is plantar fascia present on the base of the foot which is the one playing role in causing heel pain, pain under the foot pain metatarsalgia and other disabilities. Pain at heel's lower side is caused by plantar heel pain or plantar fasciitis (2) The medial and lateral arches of the foot are supported by plantar fasciitis, which distributes approximately around 14% of the all forces throughout the plantar surface, and helps propel the body during the late stance and toe-off phases of walking.(3, 4).
In the presence of aggravating factors, the repetitive movement of walking or running can cause micro-tears in the plantar fascia. The affected site is frequently near the origin of the plantar fascia at the medial tuberosity of the calcaneus.(5). PF occur almost 10% of the total population. During activity, there is no pain while this condition could worsen during rest. Some literature shows that Planter heel pain ranges 8% and 15% of the foot complaints in non-athletics and athletics population respectively.(6) Riddle DL et al (2003) observed that individuals with a body mass index (BMI) >30 kg/m^2 had an odds ratio of 5.6 for plantar fasciitis compared to those with a BMI <30kg/m^2.(7)
Rob Greive conducted a study on patients having plantar fasciitis with limited dorsiflexion. He then put in a trigger point release treatment on soleus muscle that is present at the back of the leg. On treatment results showed that the range of motion of dorsiflexion of the participants got improved.(8) research done by Ajimsha on 66 plantar fasciitis patients and gave them myofascial trigger point release on plantar fascia, calcaneus and calf muscles for a period of 4 weeks. This treatment showed significant results on pain alleviation and improvement on functional foot index scale after all respective treatment.(9)

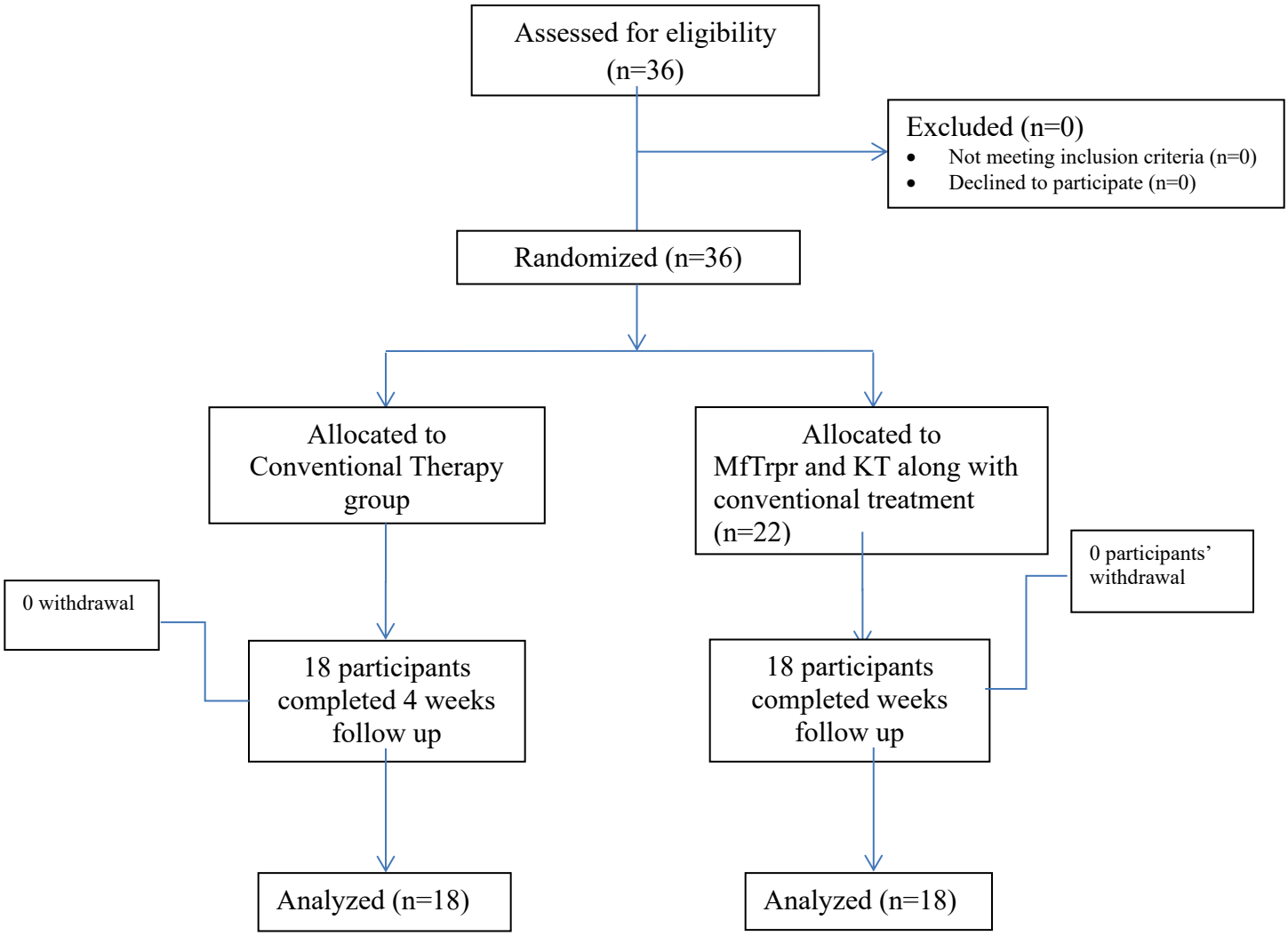
Materials and Methods

This was single blinded randomized controlled trial. Study was conducted in as per availability area, institutions and hospitals also patients who randomly contacted the practitioners were also considered under all treatment procedures after consent. Duration of the study was 2 months after the approval of synopsis. Study was conducted in Lahore. Was based on the eligible people or people getting enrolled for the respective treatment protocol for PF. Using the data of previous studies, the sample size was calculated using plantar fasciitis pain disability scale as an outcome measurement tool with μ1-μ2. $\mathbf{N = [(z\ \alpha/2 + z\beta)2\ x\ \{2\ (\sigma)^2\}]\ (\mu1-\mu2)2}$. Z α/2 is dependent on level of the level of significance, for 5 % it is 1.96. zβ is dependent on power, for 80 % it is 0.84. My sample size or number of participants turned out to be 34, 36 and 38 we took 3 sample sizes and will be working up on 38 participants. Sampling technique used was Simple Random Sampling.
Inclusion criteria: *includes* 20 years and more of age, Non diabetic , heel pain , difficulty walking , sesamoiditis , metatarsalgia , difficulty in weight bearing , sole pain or stiff fascia , flat foot , calf pain associated with trigger points / tender points.
Exclusion criteria: *includes* Diabetes, Patients below 20 years, Any pre foot surgery, Fractures, Edema and Peripheral artery diseases. Data was collected from patients with plantar fasciitis foot disability after the approval letter from HOD and ethical committee. Data was collected after consent of all subjects. All data was kept confidential Control group was set to fall under the regular .conventional treatment that is heating therapy, cold therapy, ultrasound and Infrared varying upon patient's severity. Patients were given conventional treatment for 4 weeks and 2-3 treatments per week. Conventional treatment included IR, hot pack, ultrasound and massager. Experimental group went under only myofascial trigger point release and kinesio taping treatment along with conventional treatment for 4 weeks and 2-3 treatments per week. Trigger point were released

manually by deep pressing into the trigger knots and moving your fingers clockwise and anti-clockwise until the point is soften down or released. Kinesio tape was cut into three 'I' shape strips one strip was longer which was placed vertically same as the plantar fascia is present under the foot and rest of the 2 were placed horizontal to the first strip to secure the first strip and to also built more pressure. Kinesio tape was applied for 2-3 days. Study population were the people falling under inclusive criteria of PF and were further taken under treatment process after consent.

Consort Diagram

"Consort Flow chart showing enrollment, intervention allocation and follow up of the patients"



Results

Within Group Analysis

Paired Samples Test				
Scales/tools	**Paired Differences**			**p- value**
	Mean	**Std. Deviation**	**Std. Error Mean**	
Pre & Post Pain (Foot Function Index)	4.83333	1.64751	.27458	.000
Pre & Post Foot Function Index	77.94444	23.20092	3.86682	.000
Pre & Post VAS (PFPS)	4.40000	.99369	.16562	.000
Pre & Post Plantar Fasciitis Pain Scale	26.33333	9.05539	1.50923	.000

Paired Samples Test used for within group analysis of four pairs compared Pre & Post Pain (Foot Function Index), Pre & Post Foot Function Index, Pre & Post VAS (PFPS) and Pre & Post Plantar Fasciitis Pain Scale shows significance difference in each group.

Between Group Analysis

Paired Samples Test					
Conventional Physiotherapy Treatment Protocol(Control), Myofascial Trigger Point Release And Kinesiotaping(Experimental)		Paired Differences			P- value
		Mean	Std. Deviation	Std. Error Mean	
Control	Pre & Post Pain(Foot Function Index	4.50000	1.00000	.50000	.003
	Pre & Post VAS (PFPS)	4.80000	.97980	.48990	.002
	Pre & Post Plantar Fasciitis Pain Scale	23.50000	3.31662	1.65831	.001
Experimental	Pre & Post Pain(Foot Function Index	5.87500	1.12599	.39810	.000
	Pre & Post VAS (PFPS)	4.05000	.89283	.31566	.000
	Pre & Post Plantar Fasciitis Pain Scale	24.00000	8.48528	6.00000	.156

Paired Samples Test used for between group analysis of four pairs compared Pre & Post Pain (Foot Function Index), Pre & Post Foot Function Index, Pre & Post VAS (PFPS) and Pre & Post Plantar Fasciitis Pain Scale shows significance difference in each control and experimental group.

Discussion

The primary purpose of this study was to determine that whether the myofascial trigger point release and kinesio taping is more effective or conventional treatment is more effective for pain management in plantar fasciitis. The main object of this study was to analyze the effectiveness of the active myofascial trigger point release and the kineso tapping VS conventional physiotherapy treatment of planter fasciitis for pain management. The Table shows the Frequency of 36 participants where 17 were males and 19 were females.

Frequency of 36 participants randomly divided in two groups Each group contain 18 participants 18 participants for Myofascial Trigger Point Release & Kinesio taping and 18 participants for Conventional Physiotherapy Treatment Protocol. According to the statistics of 36 participants where mean age of participants was 27.333. Test of Normality shows that data is distributed normally. Most values in Kolmogorov-Smirnova and Shapiro-Walk are (P-Value>0.05). Within group analysis Paired Samples Test used for with in group analysis of four pairs compared Pre & Post Pain (Foot Function Index). The mean and standard deviation value (4.83333, 1.64751), Pre & Post Foot Function Index (77.94444, 23.20092) Pre & Post VAS (PFPS) (4.40000, .99369) and Pre & Post Plantar Fasciitis Pain Scale (26.33333, 9.05539) It shows that the significance difference in each group. Between the group analysis Paired Samples Test used for between control and the experimental group analyses of four pairs compared. The mean and standard deviation value of Control group of Pre & Post Pain (Foot Function Index), (4.50000, 1.00000),Pre & Post Foot Function Index, (78.00000, 16.85230), Pre & Post VAS (PFPS) (4.80000, .97980) and Pre & Post Plantar Fasciitis Pain Scale (23.50000, 3.31662,) The mean and standard deviation value experimental group of Pre & Post Pain (Foot Function Index), (5.87500,1.12599) Pre & Post Foot Function Index, (79.00000, 1.41421) Pre & Post VAS (PFPS), (4.05000, .89283) and Pre & Post Plantar Fasciitis Pain Scale, (24.00000, 8.48528). It shows the significance difference in each control and experimental group. It is proved that kinesio tapping and myofascial trigger point release is better than conventional treatment.

Conclusion

Conclusion of the study is that kinesio taping and myofascial trigger point release is better than conventional treatment for plantar fasciitis pain management.

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