

Effectiveness Of Instrument Assisted Soft Tissue Mobilization For Tibialis Posterior Tendinitis Among Football Players

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Abstract:

Background: Tibialis posterior tendinitis is a common condition seen in football players. Tibialis posterior tendinitis is a well-known source of pain and progressive acquired flat foot deformities that may lead to painful gait disturbances in football players. So in this present study, an attempt was made to find the effectiveness of Instrument Assisted Soft Tissue Mobilization for football players with tibialis posterior tendinitis.

Purpose: To find the effectiveness of Instrument Assisted Soft Tissue Mobilization for Tibialis posterior tendinitis among football players.

Study design: Pilot study

Method: 30 football players with tibialis posterior tendinitis condition were selected based on the selection criteria from Hawks football club (Pondicherry). Instrument Assisted Soft tissue Mobilization is given to the patient for six weeks. The outcome measures Foot Functional Index and Single Leg Heel Raise test were measured in pre and post-test for 6 weeks.

Result: The statistical analysis was done using paired test with the values of the significance of ($p < 0.001$). The group analysis of post values shows that the study is significant. After the statistical analysis, it shows that there is improvement in reducing pain and functional limitation. This shows that it proves to be an effective tool for efficiency.

Conclusion: The 6 weeks study concludes that Instrument Assisted Soft Tissue Mobilization technique shown more effective in reducing pain and functional limitation in individuals with tibialis posterior tendinitis.

Key words: Tibialis Posterior tendinitis, Foot functional index, Single leg heel raise test, Instrument Assisted Soft Tissue Mobilization.

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I. Introduction

Football game is said to be the most important secondary event in the world, there occurs a various number of injuries during the game. Lower limb injuries are most commonly seen in football players especially tibialis posterior tendinitis which is a common tendon injury that occurs during the game.¹ Instrument Assisted Soft Tissue Mobilization is a popular intervention used in myofascial restricted conditions which is based upon the rationale introduced by James Cyriax.^{2,3} Instrument Assisted Soft Tissue Mobilization technique provides a mobilizing effect to the soft tissues that decrease pain and improve range of motion and function.² IASTM technique reduces pain and improve the functional limitations in many inflammatory conditions. So, therefore this study focused on finding out the effectiveness of IASTM for tibialis posterior tendinitis among football players and the valid outcome measure used to assess the Tibialis Posterior tendinitis is the Single Leg Raise test and Foot Functional Index.

II. Material And Methods

This pilot study was carried out on football hawks club, Puducherry. A total 30 male football players at of aged 18-40 years were included in this study.

Study Design: Pilot study

Study location: Hawks Club, Puducherry, 605 107.

Study Duration: 6 months

Sample Size: 30 football players

Subjects & selection method: The study included 30 football players with tibialis posterior tendinitis for 6 months.

Inclusion criteria

1. Age group: 18– 40 years.
2. Gender: Male football players
3. Patients who are willing to participate.
4. Tibialis posterior Tendinitis Grade 1 and 2

Exclusion criteria

1. Players who have undergone surgery in the lower limb in past 6 months.
2. Any lower limb fractures and dislocations.
3. Cancer patients
4. Osteoporosis
5. Presence of open wounds
6. Thrombophlebitis
7. Any skin infections in the limb
8. Myositis ossificans

Procedure methodology:

Single leg heel raise test:

A single leg heel raise test was performed by the subjects to assess the tibialis posterior tendinitis. In this test, the subjects were asked to raise the heel as much as possible from the ground by shifting their weight on the ball of their foot while maintaining knee extension. The subject contralateral foot was held above the ground and they were asked to maintain the balance while standing on one leg by touching the wall with their hands. The arm should be placed away from the body.



Fig -1 Single leg heel raise test

IASTM TECHNIQUE

Therapist position: Walk standing position.

Patient position: Prone lying position.

PROGRAM	PROTOCOL
Warm-up	10 – 15 minutes
IASTM	Applied at a 30-60 degree angle for 40- 120 seconds
Stretching	3 repetitions with 30 second hold time
Cryotherapy	20 minutes

Table - 1 Technique protocol



Fig- 2 IASTM technique for tibialis posterior tendinitis

Statistical analysis:

In this study, pre and post-intervention differences within the group were analyzed using paired ‘t-tests and between the two groups were analyzed using an unpaired ‘t-test for each of the outcome measures. Statistical significance was set at $p < 0.001$. The paired “t” test is formulated as $t = \frac{d}{s/\sqrt{n}}$

III. Result

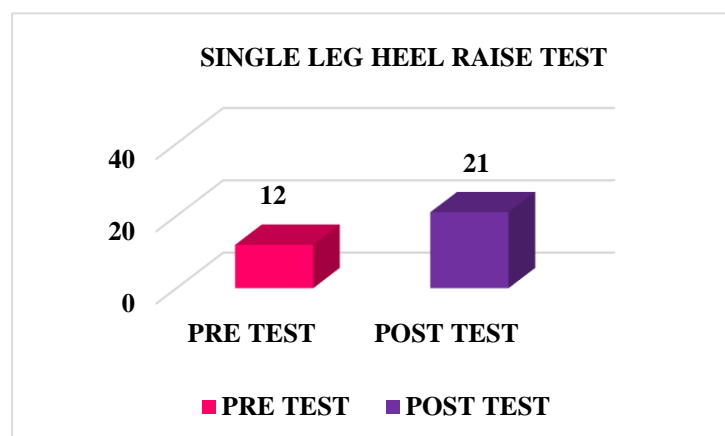
The group analysis post values show that the study is significant. After the statistical analysis, it shows that there is an improvement in reducing the symptoms of tibialis posterior tendinitis. This shows that it proves to be an effective tool for efficiency.

The group analysis of single-leg heel raise test scores

The pre-test and post-test differences of the single leg heel raise test within the group analysis of mean and standard deviation were analyzed statistically tested by paired t-test.

	Mean	SD	t – value	p-value
Pre-test	12	1.55	45.4	<0.001
Post-test	21	1.60		

Table – 2 shows the pre-test and post-test values of the SLHR test (paired t test)



Graph - 1 Shows the pre-test and post-test values of the SLHR test

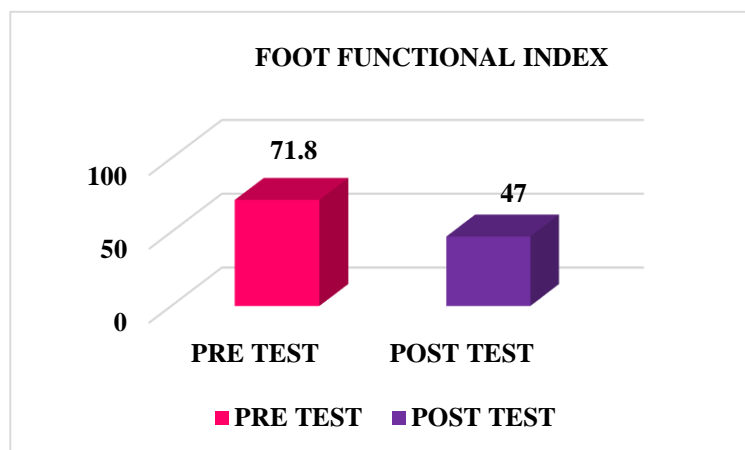
THE GROUP ANALYSIS OF FFI SCORES

The pre-test and post-test differences of FFI within the group analysis of mean and standard deviation were analysed and statistically tested by paired t test.

	Mean	SD	t – value	p-value
Pre-test	71.86	3.49	46.6	<0.001
Post-test	47.1	4.05		

Table – 3 shows the pre-test and post-test values of FFI (paired t-test value)

Graph- 2 Shows the pre-test and post-test values of FFI



IV. Discussion

The present pilot study has been conducted to find out the effectiveness of Instrument Assisted Soft Tissue Mobilization for tibialis posterior tendinitis among football players. This study was selected for the purpose to reducing the pain and functional limitations in individuals with tibialis posterior tendinitis by using the Instrument Assisted Soft Tissue Mobilization technique.

Tibialis posterior tendinitis is a well-known source of pain and progressively acquired flat foot deformities that may lead to painful gait disturbances in the sports population. The prevalence for tibialis posterior tendinitis in the general population is approximately 3.3% and often results in adult-acquired flat foot deformity. A common tendon injury associated with football players however is Tibialis Posterior Tendon.

Douglass Black conducted a report on the Treatment of Knee arthro fibrosis and quadriceps insufficiency after patellar tendon repair with the use of the Graston technique. The Graston technique is an Instrumented Assisted Soft Tissue Mobilization technique. The overarching treatment rationale for the GT is based on the manual soft tissue mobilization rationale proposed by Cyriax. The application of heavy pressure using instruments has been demonstrated to promote a greater fibroblastic response. In this, they reported that when Five sessions of IASTM were applied over a 4-week period in patients who sustained patellar tendon injury from the basketball, their Lower Extremity Functional Scale [LEFS] score improved by 23%-44% and there was a clear improvement in the range of motion and quadriceps activity and function.

Lambert M, et al, conducted a study on the effects of Instrument-assisted soft tissue mobilization compared to other interventions on pain and functions. They included randomized clinical trials on patients with musculoskeletal impairments. They reported the results of the seven qualified studies based on their search criteria. The researchers concluded IASTM may be an effective treatment intervention for reducing pain and improving function over a treatment span of fewer than 3 months for several different conditions of the spine, upper extremity, and lower extremity.

In this study, 30 subjects were taken. The subject was selected on the basis of inclusion criteria and they were assessed using the outcome measure such as Foot Functional Index and single leg heel raise test.

The result of the study showed that there is a significant improvement in reducing the symptoms of tibialis posterior tendinitis after the treatment when compared to before-treatment values. None of the participants reported aggravates of the symptoms during the treatment sessions.

V. Conclusion

This study concludes that six weeks of intervention with Instrument Assisted Soft Tissue Mobilization technique was shown more effective in reducing the pain and the functional limitation in football players with tibialis posterior tendinitis. Therefore, the null hypothesis was rejected.

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