ORIGINAL RESEARCH PAPER
Volume - 11 | Issue - 05 | May - 2022 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

# EFFECT OF DRY NEEDLING IN PATIENT WITH TIBIAL STRESS SYNDROME (SHIN PAIN) IN ATHLETES UNIVERSITY PLAYER

Physiotherapy

**Dr. Piyush Jain** PhD scholar, Jaipur Physiotherapy College, Maharaj Vinayak Global University, Jaipur, India.

**Dr.Anand Misra** PhD, Professor, Sri Aurobindo Institute of Allied Health &Paramedical Sciences, Indore.

**Dr. Priyanka Tiwari** Assistant Professor, Sri Aurobindo Institute of Allied Health & Paramedical Sciences, Indore.

**Dr. Akshay Pal*** Assistant Professor, Sri Aurobindo Institute of Allied Health & Paramedical Sciences, Indore. *Corresponding Author

## ABSTRACT

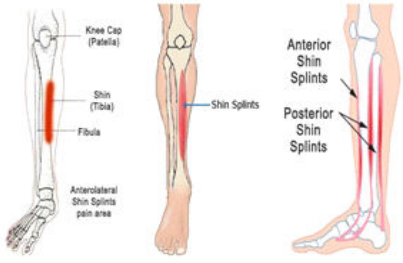
40 Patient With tibial stress syndrome (shin splints) in Athletes ages of 18-45 year with tibial stress syndrome (shin splints), were analysis using subjective questioning based on a ten point Likert pain scale that was used to assess pain level. The Likert pain scale ranged start from none (1) to Distressing (5) to Unbearable (10). The athletes were divided into 2 treatment groups: conventional Sports physiotherapy (N=20), Dry needling (N=20). The treating practitioners were certified and patient is athletic trainee at DAVV University. The study took place over a 6 week period, with each participant filling out an initial questionnaire (Intake) prior to the first week of treatment and After 6 week treatment).Participants answered questions concerning intensity and duration of pain during and between activities, in addition to dosages taken of anti-inflammatory medications (NSAID). All Subjects of groups taken a minimum of 2 treatments sessions per week. The 2 treatment groups compared to each other: conventional Sports physiotherapy (A), Dry needling along with conventional sports physiotherapy (B). All athletes reported an increase in effectiveness of treatment after 6 week. Regardless of the treatment group they were in. The perception of pain, pain relief, and effectiveness was significantly improved for athletes in the both Group. Athletes in the B Groups received the most pain relief, were least blocked by pain during sporting and non-sporting activities, and felt overall that the treatments were more effective than A Group.

## KEYWORDS

dry needling, tibial stress syndrome, Shin splints, medial Tibial stress injury, and athlete.

### Introduction

From personal to professional, recreational sports, running is a common activity in which tibial stress syndrome becomes a primary complaint of lower leg pain. The research described below was designed to answer the basic question: Over the duration of the study, did athletes who received dry needling perceive a decrease in shin splint pain and rise in activity level to differ to athletes who go through standard treatment?




**1. from bit.ly/1Qcs9ef**

Tibial Stress Syndrome (Shin Splints) is most common lover limb injury that is changing so many Athletes in running sports. Shin splint is indistinct term used broadly with a invariability of definition. It is one and the same with anterior or medial tibial stress syndromes (MTSS), tendoperiostitis, tibial periostitis, and tibialis tendinitis, all of which denote different degrees of soft tissue and ossified changes. It is an over use damage and inflammatory condition of the tibia and fibula in which micro level tears develop in the muscles myotendinous place of origin located the bone shaft. The constant action of dorsiflexion/plantar flexion pulls the muscle away from its attachment on the bone causing periostitis. This problem is mostly seen when Athlete speedup mileage, change to practice on a harder running surface or adds hill running. Pain usually start after the onset of running and can last into resting days. Often, athletes will make small successful changes to relieve their pain such as wear different running shoes and include various strengthening and stretching exercises. When these changes do not improve the pain, commonly uses over-the-counter anti-inflammatory medications and, at times, taken excessively. Unluckily in many cases a runner who "runs through" the pain or masks the pain with medications sometime develop bony stress reactions or stress fractures (medullary line or cortical abnormality) from the repetitive stress.

Localized tenderness is clear indication for tibial stress syndrome. In more severe cases, physical examination may find redness, swelling or thickening of the periosteum and/or adjoining soft tissue. This mark may be show at the site of a stress fracture in which the diagnosis is mostly made from clinical examination. Anyhow, if the diagnosis is unknown, various imaging techniques may be used to confirm skeletal changes as seen on a X-rays or bony scan.

### Types of Tibial Stress Syndrome

Tibial stress syndrome (TSS) is an overuse injury or repetitive-stress injury of the shin area. Numerous stress reactions of the tibia and nearby musculature occur when the body is incapable to heal accurately in reaction to repetitive muscle contractions and tibial strain. Tibial Stress Syndrome includes the tibialis posterior muscle and regularly occurs in people who are moderately to severely pronated (distorted medial arch or flat feet), thus placing tension on this posterior muscle and tendon. Pain and tenderness are normally found on the posterior medial aspect of the tibia.

Anterior Tibial Stress Syndrome includes the tibialis anterior muscle. This muscle is accountable for 80% of foot dorsiflexion and performances as a solid decelerator for plantar flexion. Continually, anterior shin splints arise in racers overtraining on hills from the time when a both uphill and downhill running need continues firing of the tibialis anterior muscle. Indications are usually worse while running downhill as the tibialis anterior is responsible for slow down the forefoot after heel strike (eccentric contraction). Consequently, a tight Achilles tendon may be found in this syndrome, resisting appropriate range for the tibialis anterior to purpose and leading to friction and swelling. Pain and tenderness are generally present medial to the anterior edge of the tibia between the tibialis anterior muscle and bone.

### Review of Literature

The usefulness of acupuncture in treating skeletal conditions is becoming apparent by the rise amount of research concentrating toward it. In ground work for this study, a past review of any related research was needed. A restricted amount of information was found regarding the use of acupuncture on tibial stress syndromes.

According to Schulman defined his effective case study on treatment tibial shin splint pain with a single acupuncture session. He further

noted, in searching for evidence on acupuncture and tibial stress syndromes using the MEDLINE data base from 1966 to the 2000, that he found only one article telling a case of a therapeutic acupuncturist creating a needle-induced compartment syndrome. Chronic tibial stress syndromes are noted as complications that can lead to compartment syndromes. Long-standing soft tissue inflammation that may occur in chronic tibial stress syndromes can raise the pressure within a fascial compartment compromise the flow and function of the contents in that space. Signs and symptoms among these two syndromes can be alike although, clinical assessment can differentiate. All subjects in this study were screened for compartment syndromes.

One clear identifier of MTrP is the twitch reaction that arises when the trigger point is treated upon with device such as MFR deep friction massage, or needling of the tight band of muscle (Ziaeifar et al., 2014). This twitch reaction is the result of an uncontrolled spinal cord reflex response that forces the tight muscle fibers to contract. While numerous treatment procedures have been used to treat people with muscular pain related to MTrPs, no one treatment modality has been proven as definitively superior over the others (Ziaeifar et al., 2014). The history and theory of MTrP dry needling its scientific effects, and its paired result along with several treatment modalities like a ultrasound therapy, manual pressure techniques, and therapeutic exercise will be debated in this research, with the purpose of deciding the efficiency of dry needling (DN) along with traditional physical therapy practices

**Objective of the study**

- To asses Effectiveness of Dry Needling in Patient with Tibial Stress Syndrome (Shin Pain) In Athletes University player.
- To propose suitable suggestions to dry needling on shin pain (tibial stress syndrome).

**Research Methodology**

Forty athletes were diagnosed with tibial stress syndrome. Diagnosis is based on physical examination of subjects involved in sports athletes. Exclude the Stress fractures and compartment syndromes by examination. All subjects were examined by using subjective questioning based on a Likert Pain Scale. They were divided into 2 treatment groups: conventional Sports physiotherapy (A), Dry needling along with conventional sports physiotherapy (B).) Treatment group descriptions are as follows.

**Conventional Sports physiotherapy (A):** Using a standard form of treatment, the athletic trainee used modalities such as ultrasound, strengthening exercises and stretching in adding to cryotherapy. Pulsed ultrasound and cryotherapy were used to improve flow and decrease inflammation and pain. Proprioceptive Neuromuscular Facilitation (PNF) stretching and strengthening exercises were mostly used and directed toward the affected leg. Other stretching and strengthening exercises were given with the aim of reducing the tension on the affected musculature.

**Dry needling along with conventional sports physiotherapy (B):** consent filled by Participants for dry needling Treatment for shin splints with dry needling involves using small needles to reduce myofascial trigger points in the affected muscles and edge of the tibia where micro level tearing of the affected muscle takes place. The anterior edge was treated when the tibialis anterior involved, with the medial edge treated when the tibialis posterior muscle was involved. Dry needles were interlacing transverse-oblique and subcutaneously sideways the edge of the tibia between the soft tissue and bone (Fig. 2).

Motor points of the soleus, gastrocnemius, and tibialis anterior were also used, A motor point is defined as the site where the motor nerve go in the muscle and the skin located directly above this area.

Along with conventional treatment such as ultrasound, strengthening exercises and stretching in adding to cryotherapy. Pulsed ultrasound and cryotherapy were used to improve flow and decrease inflammation and pain. Proprioceptive Neuromuscular Facilitation (PNF) stretching and strengthening exercises were mostly used and directed toward the affected leg. Other stretching and strengthening exercises were given with the aim of reducing the tension on the affected musculature.

**Questionnaire**

The study took take place over a six week period. Each participant filled out an initial questionnaire prior to the first week of treatment and after 6th week of treatment filled up questionnaires. Athlete answered questions about intensity and duration of pain through and between activities, in additional to doses taken of anti-inflammatory medications (NSAID). Subjects received a lowest of two treatments session per week. The results of the subjective questioning were analysis using a multi-component analysis of variance (MANOVA). The dependent measurements for this study were the subjects self-report of the items listed below by question number

1. Frequency of primary sport
2. Pain level during sporting activities this past week
3. Pain level during non-sporting activities this past week
4. Pain level now
5. Affect of pain on sport activity performance
6. Hindered by pain after sport activity
7. Effectiveness of treatment on pain
8. Dosage of anti-inflammatory medications (milligrams per tablet and amount taken per day)

**Method of data collection**

The present study is based on both primary and secondary data The study took place over a 6 week period, with each participant filling out an initial questionnaire (Intake)( prior to the first week of treatment and After 6 week treatment) at DAVV University Indore.

**Results**

The independent variable was Treatment Groups (group A and group B). Each of the dependent measures was assessed two times (Pre-treatment data and post data). Comparisons were made at each time (Initial, and post 6th week treatment) to evaluate intra group differences. Results reported by following question.

**1. Frequency of primary sport:** There were no differences between Treatment Groups ($F(4,70)=4.0$, $p=.79$) for Sport Frequency. This shows that athletes in each group participated in their sport at around the same level of activity.

**2. Pain level during sporting activity this past week:** During the course of the study, reported pain levels were different for each Group. Athletes in the Dry-needling (B) group had significantly less pain than did athletes in the Conventional Sports physiotherapy (A) ($F(2,36)=8.1$, $p<.05$). In addition, athletes in the B group also reported lower pain levels than athletes in the A group ($F(2,36)=10.1$, $p<.05$). A reduction in pain level was reported by 100% of the athletes in the both groups.

**3. Pain level during non-sporting activities this past week:** Pain level during non-sporting activities significantly decreased for athletes in the B ($F(2,35)=4.5$, $p<.05$) and A ($F(2,35)=18.2$, $p<.05$. A reduction in pain level was reported by 90% of the athletes in the B group.

**4. Pain level now:** The current level of pain significantly decreased for athletes in the B ($F(2,37)=11.9$, $p<.05$) and A ($F(2,37)=9.3$, $p<.05$) groups,. A reduction in pain level was reported by 100% of the athletes in the B group, 90% of the A group.

**5. affect of pain on sport activity performance:** Fewer drawbacks by pain during sport activity performance were reported by 100% of the athletes in the B Group, 72.7% in the A Group. The affect of pain on activity significantly decreased from Initial and after post 6th week treatment, but the amount of decrease was different for each Group ($F(2,37)=8.9$, $p<.05$). While the B group showed the greatest improvement.

**6. Hindered by pain after sport activity:** Less interference by pain after sport activity was reported by 91.7% of the athletes in the B Group, 72.7% in the A Group. The affect of pain after sports activities significantly decreased from Initial and after post 6th week treatment, but the amount of decrease was different for each Group ($F(2,37)=5.0$, $p<.05$). Athletes in the B group reported the least interference by pain,

**7. Effectiveness of treatment on pain:** All athletes reported an increase in effectiveness of the treatment from Initial and after post 6th week Treatment Group they were in ($F(1,37)=10.6$, $p<.05$). However, athletes in the B Group reported significantly more improvement than A Group ($p<.05$)..

**8. Dosage of anti-inflammatory medications (milligrams per tablet & amount taken per day):** Medications reported by all treatment groups Over the course of the study, athletes in the A ($F(2,17)=15.7$, $p<.05$) and B ($F(2,17)=13.1$, $p<.05$) The number of tablets taken by both groups declined over time while the amount taken by participants. Dosage decreased for 80% of the athletes in the A group, 60% in the B group.

## Conclusion

Dry-needling appears to be an effective for relieving pain associated with tibial stress syndrome (shin splints) and for reducing reliance on anti-inflammatory medication. Dry needling group received the most pain relief, were least interference by pain during sporting and non-sporting activities, and felt that the treatments were effective. The perception of pain, pain relief, and effectiveness was generally unchanged for athletes in the Conventional Sports physiotherapy Group. Anti-inflammatory medication use decreased over the duration of the study in the both groups.

Limitations: Due to the less population involved in this study, the results show only preliminary tendencies. A larger no. of people would need to be investigated in order to accomplish validity. The use of Sports Physiotherapy alone has fruitfully cured thousands of athletes with this condition and is used as a prime treatment source in western based clinics in the World. However, this study does indicate enough statistically significant Evidence to view the use of Dry-needling as a viable treatment source.

## References:


1. Acupuncture for Tibial Stress Syndrome (Shin Splints) https://www.sportsmedicineacupuncture.com/acupuncture-for-tibial-stress-syndrome-shin-splints/
2. Acupuncture-needle-induced compartment syndrome,May 1986West J Med, D L Smith ,M H Walczyk, S Campbell
3. Common leg injuries of long-distance runners: anatomical and biomechanical approach. Gallo RA, Plakke M, Silvis ML.Sports Health. 2012 Nov;4(6):485-95. doi:10.1177/1941738112445871.PMID: 24179587.
4. www.sportsmedicineacupuncture.com › acupunctureAcupuncture for Tibial Stress Syndrome (Shin Splints)
5. www.ncbi.nlm.nih.gov › pmc › articlesMedial tibial stress syndrome: conservative treatment options, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2848339//
6. https://digitalcommons.liberty.edu/cgi/viewcontent.cgi?article=1956&context=honors/,digitalcommons.liberty.edu › cgi › viewcontentRunning head: TRIGGER POINT DRY NEEDLING 1 The Pairing of ...
7. [Normal and pathological structural variations of the myoneural junction], Nov 1955, C COERS
8. blog.lhasaoms.com › acupuncture-needles › howHow Acupuncture Treats Shin Splints: A Study by ... - Lhasa OMS
9. https://www.jcm.co.uk/clinical-study-acupuncture-tibial-stress-syndrome-shin-splints.html
10. Shin splints, is a term for pain in the leg that occurs below the knee. bit.ly/1Qcs9ef
11. Increased medial longitudinal arch mobility, lower extremity kinematics, and ground reaction forces in high-arched runners. Williams DS 3rd, Tierney RN, Butler RJ.J Athl Train. 2014 May-Jun;49(3):290-6. doi: 10.4085/1062-6050-49.3.05. Epub 2014 May 19.PMID: 24840580