



## COMPARATIVE STUDY OF SELF STRETCHING AND ULTRA SOUND FOR PLANTAR FASCIITIS

### Physiotherapy

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### ABSTRACT

Aim of this study was to compare the self stretching and ultra sound for plantar fasciitis. For this purpose twenty (N=20) plantar fasciitis patients were selected as subjects. Based on the treatment duration the group was divided into two groups of ten each, group-I was treated Self-stretching Exercise for Plantar fascia and group-II was treated with ultra sound. Both groups were treated for a period of one week. Pain was measured before and after the treatment through numerical pain rating scale (NPRS). The data obtained from the experimental groups before and after the treatment period were statistically analyzed with Students 't' test. The results of the study found both Self-stretching Exercise and ultra sound treatment effective in pain of Plantar fascia relief. But the patient treated with ultra sound showed better pain relief than patients who received ultra sound treatment.

### KEYWORDS

Plantar fascia, Self-stretching Exercise, Ultra Sound

### INTRODUCTION

Plantar fasciitis is a disorder that results in pain in the heel and bottom of the foot (Beeson, 2014). The pain is usually most severe with the first steps of the day or following a period of rest. Pain is also frequently brought on by bending the foot and toes up towards the shin and may be worsened by a tight Achilles tendon. The condition typically comes on slowly. In about a third of people both legs are affected (Goff and Crawford, 2011).

The causes of plantar fasciitis are not entirely clear. Risk factors include overuse such as from long periods of standing, an increase in exercise, and obesity. It is also associated with inward rolling of the foot and a lifestyle that involves little exercise. While heel spurs are frequently found it is unclear if they have a role in causing the condition. Plantar fasciitis is a disorder of the insertion site of the ligament on the bone characterized by micro tears, breakdown of collagen, and scarring. As inflammation plays a lesser role, many feel the condition should be renamed plantar fasciosis. The diagnosis is typically based on signs and symptoms, and ultrasound is sometimes used to help. Other conditions with similar symptoms include osteoarthritis, ankylosing spondylitis, heel pad syndrome, and reactive arthritis (Tu P, 2011).

Most cases of plantar fasciitis resolve with time and conservative methods of treatment. Usually for the first few weeks, people are advised to rest, change their activities, take pain medications, and stretch. If this is not sufficient, physiotherapy, orthotics, splinting, or steroid injections may be options. If other measures do not work, extracorporeal shockwave therapy or surgery may be tried.

Between 4% and 7% of people have heel pain at any given time, and about 80% of these cases are due to plantar fasciitis. Approximately 10% of people have the disorder at some point during their life. It becomes more common with age.<sup>[1]</sup> It is unclear if one sex is more affected than the other (Zhiyun et al., 2013).

### METHODOLOGY

The study was conducted on twenty (N=20) plantar fasciitis patients were selected as subjects. Based on the treatment duration the group was divided into two groups of ten each, group-I was treated Self-stretching Exercise for Plantar fascia and group-II was treated with ultra sound. Both groups were treated for a period of one week. Group-I were taught self-stretching exercise of the planter fascia. Each stretching is for the duration of one minute and five stretching exercise comprises a session and there were three stretching sessions per day. Group-II was treated with ultra sound once a day. Duration of the treatment was given 5 to 7 minutes with continuous mode, 1MHZ on intensity of 0.5w/cm<sup>2</sup>. The both groups received treatment program for one week. Pain was measured before and after the treatment through numerical pain rating scale (NPRS).

The data obtained from the experimental groups before and after the treatment period were statistically analyzed with Students't' test. The results of the study found self-stretching exercise and ultra sound are

effective in pain relief. But the patient who received ultra sound showed better relief than patients who received self-stretching exercise.

### RESULTS AND DISCUSSION

The analysis of dependent't'-test on the data obtained plantar fasciitis of the subjects in the Pre-test and Post-test of self-stretching exercise and ultra sound treatment have been presented in Table-1.

**Table –1 THE SUMMARY OF MEAN AND DEPENDENT 't' TEST FOR THE PRE AND POST TESTS ON PLANTER FASCIITIS OF EXPERIMENTAL GROUPS**

| Mean           | Self-Stretching Exercise group | Ultra Sound Treatment group |
|----------------|--------------------------------|-----------------------------|
| Pre- test mean | 6.90                           | 7.30                        |
| Post-test mean | 5.10                           | 4.50                        |
| 't'-test       | 4.60*                          | 8.16*                       |

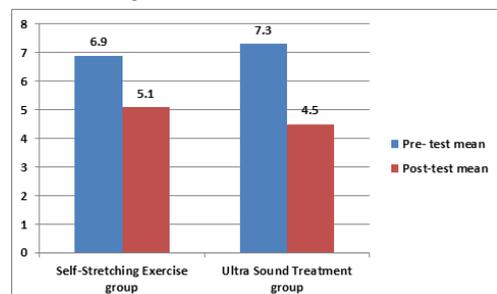
\*Significant at 0.05 level.

(Table value required for significance at .05 level for 't'-test with df 9 is 2.26)

Table -1 showed that the pre-test mean on Planter Fasciitis for self-stretching exercise group and ultra sound treatment group are 6.90 and 7.30 respectively. The post-test mean are 5.10 and 4.50 respectively. The obtained dependent t-ratio values between the pre and post test means on planter fasciitis of self-stretching exercise group and ultra sound treatment group 4.60 and 8.16 respectively.

The table value required for significant difference with df 9 at 0.05 level is 2.26. It was concluded that Experimental groups such as self-stretching exercise group and ultra sound treatment group had registered significantly decrease in Planter Fasciitis.

The pre and post mean values of self-stretching exercise group and ultra sound treatment group on Planter Fasciitis are graphically represented in the Figure -1.



**Figure-1: The pre and post mean values of self-stretching exercise group and ultra sound treatment group on Planter Fasciitis**

**CONCLUSION**

The results of the study found both self-stretching exercise group and ultra sound treatment group are effective in Planter Fasciitis relief. But the patient who received ultra sound treatment showed better relief then patients who received self-stretching exercise.

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