



## A COMPARATIVE STUDY ON EFFECTS OF POSITIONAL RELEASE VERSUS TAPING TECHNIQUE IN PLANTAR FASCITIS

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### ABSTRACT

**Objective of the study:** To compare the effect of positional release technique versus Taping technique to reduce pain in patient with plantar fasciitis. **Background of the study:** HARLAPUR.A.M Comparison of myofascial release and positional release technique in plantar fasciitis" both myofascial release and positional release technique along with ultrasound therapy for chronic plantar fasciitis showed improvement following ten days of treatment as per significant decrease pain. **Methods and materials:** The 40 subjects with plantar fasciitis are taken for the study. The subjects are divided into two groups. Group A(n=20) treated with positional release technique, group B (n=20) treated with taping technique to reduce pain. The outcome measure for pain is Visual Analogue Scale is used. The outcome measure compared between the two groups. Materials used are Adhesive kinesio tape. **Results:** For group A the pretest mean value-6.5, posttest mean value-5.40. For group B the pretest mean value-7.43, posttest mean value-3.9. **Conclusion:** From this study both the groups show effect in reducing pain. but group B (Taping technique) shows more effect in reducing pain when compared to group A (Positional release technique)

### KEY WORDS

Plantar fasciitis, Visual Analogue Scale, Taping technique, Positional release technique.

### INTRODUCTION:

Plantar fasciitis is a disorder that results in pain in the heel and bottom of the foot. Pain is also frequently brought on by bending the foot and toes towards the shin and may be worsened by a tight Achilles tendon. Plantar fasciitis has been experienced by 10% of the population [3] Plantar fasciitis is often characterized by

progressive pain with weight bearing especially the first few steps in the mornings. The plantar fasciitis is mainly aggravated due to presence of the repetitive movement of walking or running can cause micro tears in the plantar fascia. The affected side is frequently near the origin of the plantar fascia at the medial tuberosity of the calcaneus. [2]



Plantar fasciitis is one of the common cause of foot pain and degenerative changes can cause acute and chronic inflammation, calcification at the origin of plantar fascia, bony traction and spur formation. <sup>[1]</sup> The plantar fascia is a thick fibrous band of connective tissue that originates from the medial tubercle and anterior aspect of the heel bone. From there the fascia extends along the sole of the foot, before inserting at the base of the toes and supports the arch of the foot. A subcalcaneal pain syndrome in athletes is thought to be brought on by an overload of the plantar fascia. <sup>[4]</sup>

However, the mechanism of this overload is debated. Overload causes micro-tears at the fascia bone interface of the calcaneus or within the substances of the plantar fascia alone. The central band of the fascia is primarily affected where a hyper-cellular, an inflammatory response occurs within the fibers of the fascia, leading to degenerative changes <sup>[9]</sup>. Risk factors of plantar fasciitis are Abnormal inward twisting or rolling of the foot. High arches or flat foot. Repetitive activities such as jobs that require prolonged walking tight calf muscles or tight tendons at the back of the heel. Walking or standing on hard or irregular surfaces or sports such as running, extra stress on the feet. Overweight or wearing shoes that are poorly cushioned. In rare cases, a single injury to the foot. <sup>[6,8]</sup>

Positional release is a very specialized technique focusing on treating protective muscle spasm in the body. The patient will experience decreased pain, fascial tension, joint stiffness and swelling. This technique involves finding a tender point in the patient's body <sup>[10]</sup>. Then, moving the patient's body part away from the restricted motion barrier and towards the position of greatest comfort. Once in this position of comfort, the point should no longer be tender. During this time period, the patient can feel heat, vibration, pulsation

and can even reproduce their symptoms. Once the release is complete, the heat, vibration, pulsation and pain will diminish and there will be a sense of lengthening and relaxation in the tissues. <sup>[7,11]</sup>

Taping is often used as a method of treatment to alleviate stress on the plantar fascia ligament since it limits the movement of the fascia. It can relieve some pain and inflammation associated with plantar fasciitis, heel spurs, and other inflammation related foot pain. In effect the taping unloads some of the strain on the plantar fascia allowing the tissues to heal. <sup>[12]</sup>

#### METHODOLOGY:

- Study type : comparative study
- Sampling technique : convenient sampling
- Sample size : 30 subjects (15 in each group)
- Study duration : 4 weeks
- Study setting : K.M Physiotherapy clinic (K.K nagar)

#### INCLUSION CRITERIA:

- Age group : 20-25 Years
- Gender : Both male and female
- Participants with clinical diagnosis of plantar fasciitis.

#### EXCLUSION CRITERIA:

- Neurological pain like sciatica
- Ankle ankylosis, congenital deformity, arthritis
- Lower extremity surgery
- Lower extremity fracture
- Burns over the foot
- Corticosteroids injection in heel in past 3 months.

## OUTCOME MEASURE:

### VAS - Visual Analogue Scale

It is a measurement that tries to measure a characteristics or attitude that is believed to range across a continuum of values and cannot easily be directly measured. It is often used in epidemiologic and clinical research to measure intensity or frequency of various symptoms.

### TOOL USED:

- KINESO TAPE



### PROCEDURE:

All the participants with clinically diagnosed as plantar fasciitis were screened after finding their suitability as per as the inclusion and exclusion criteria were requested to participate in the study and were briefed about the nature of the study and the intervention. This is followed by objective assessment of the involved foot for tenderness, temperature, and swelling, pain on plantar fascia stretch and pain intensity in terms of the visual analogue scale [VAS].

Following, the study populations are divided into two groups

- GROUP A (n=15): Positional release technique
- GROUP B (n=15): Taping method

### GROUP A: [Positional release technique]

The participants were made lie supine with the affected limb out of the plinth and then application of brief mechanical pressure on tender point with one fingertip in order to determine tenderness. The foot should then be positioned, most probably into pure plantar flexion and gentle fine-tuned by rotation, until the tender point has reduced by at least 70%. This position is held for 90 secs with 3 repetitions. This

technique is done twice in a week for duration of one month.

### GROUP A: [POSITIONAL RELEASE TECHNIQUE]

PICTURE-1



PICTURE-2

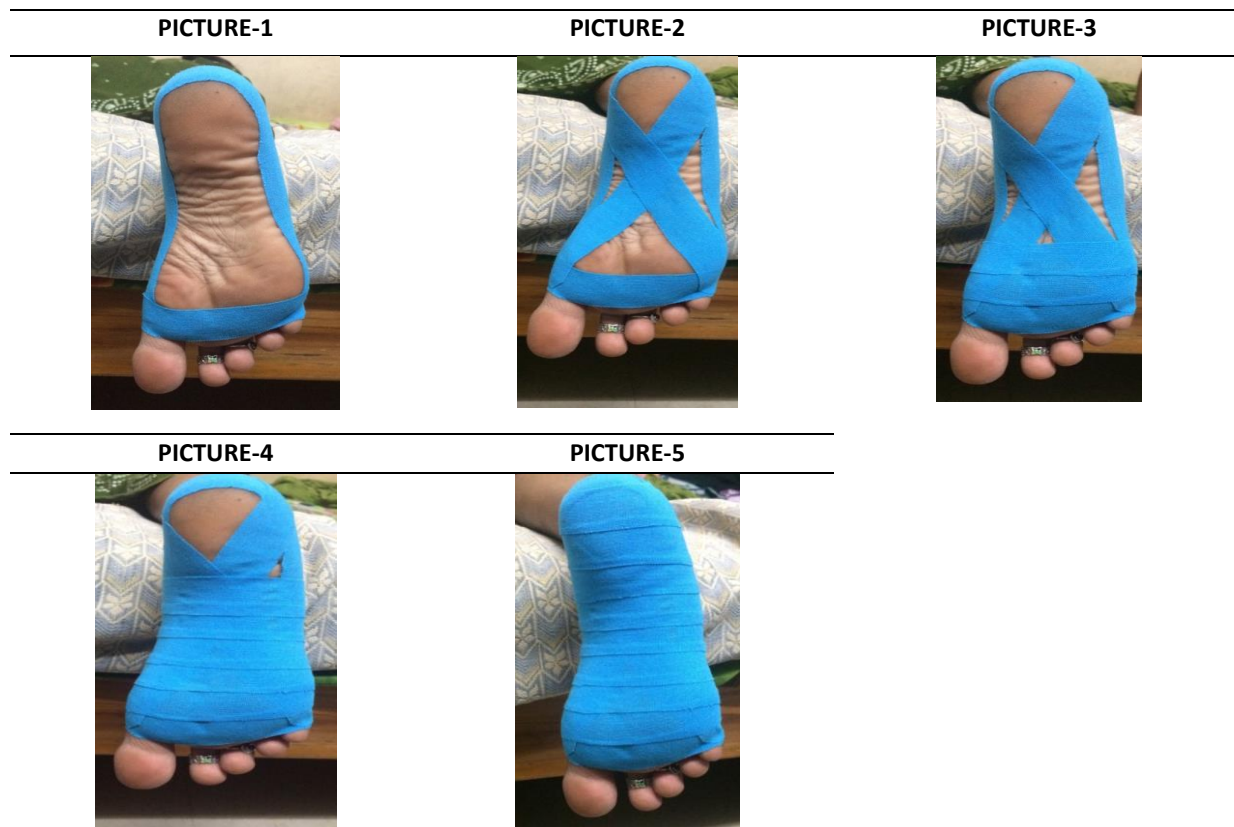


### GROUP B: [Taping method]

1. Start by taping around the ball of the foot [metatarsal] area. next, wrap another piece of tape around the heel and attach it to the tape around the tape around the ball of the foot.
2. Place a strip of tape around the metatarsal region and across the mid-foot diagonally before wrapping it around the heel and crossing the mid-foot. This is going to make an X-shape across the mid-foot and will be responsible for giving support to the plantar fasciitis.
3. Finish the taping by applying tape horizontally across the foot to cover the previous strips. When this is finished the bottom [plantar] surface of the foot should be almost entirely covered from the metatarsal region to the heel. The taping is

removed and worn again after 2 days and it is repeated for one month.

#### GROUP B: [TAPING TECHNIQUE]



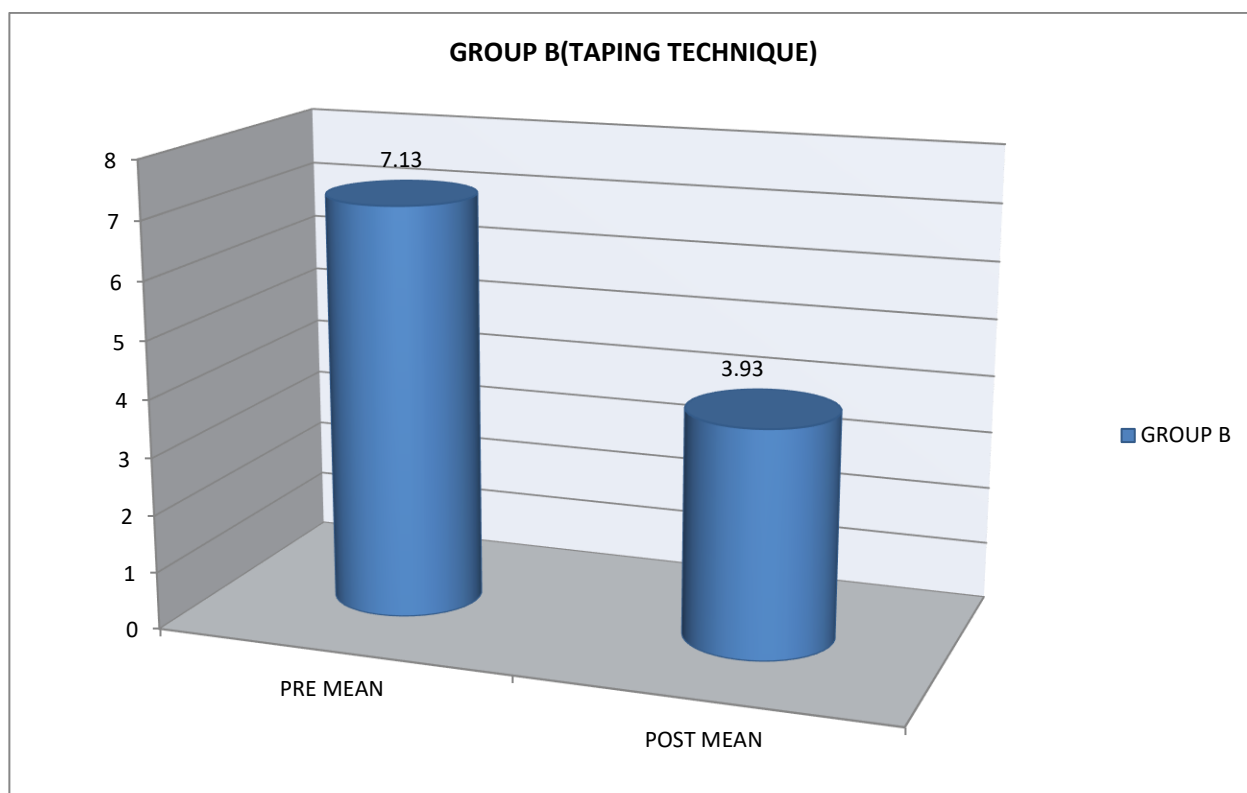
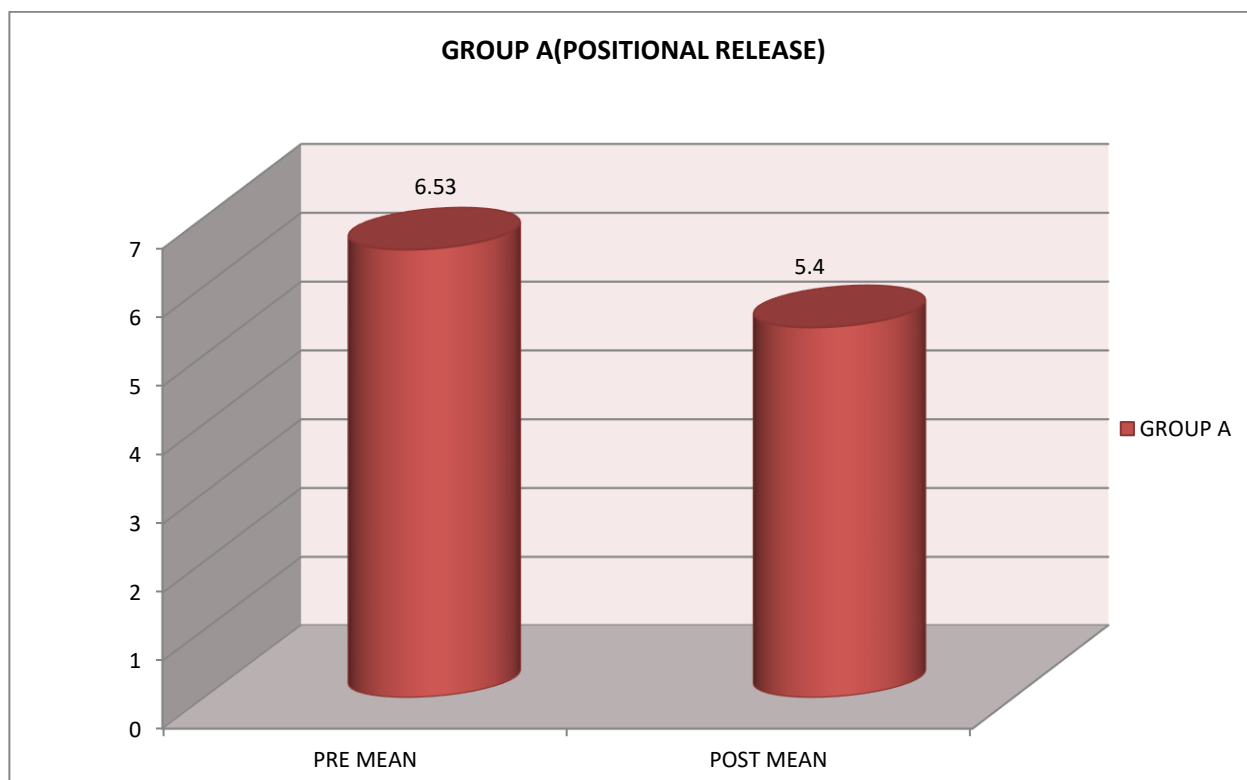
#### STATISTICAL ANALYSIS:

##### GROUP A: [POSITIONAL RELEASE]

OUTCOME MEASURE	MEAN VALUE		STANDARD DEVIATION		STANDARD ERROR	t-VALUE	p-VALUE
VAS	PRE-TEST	POST TEST	PRE-TEST	POST TEST	0.398	2.8444	0.0082
	6.53	5.40	1.13	1.06			

##### GROUP B: [TAPING TECHNIQUE]

OUTCOME MEASURE	MEAN VALUE		STANDARD DEVIATION		STANDARD ERROR	t-VALUE	p-VALUE
VAS	PRE-TEST	POST TEST	PRE-TEST	POST TEST	0.461	6.938	0.0001
	7.13	3.93	1.19	1.33			





## RESULT:

The above pre-test and post-test mean value tables show that the group B had significant improvement in reduction of pain in adults with plantar fasciitis. The p-value of group A is (0.008) and group B is (<0.0001).

**GROUP A:** pre-mean value (6.53) post value (5.40) and standard error value (0.398)

**GROUP B:** pre-mean value (7.13) post value (3.93) and standard error value (0.461)

## DISCUSSION:

The main goal of this study was to determine whether positional release technique and taping technique would reduce the pain in adults with plantar fasciitis.

HARLAPUR A.M both MFR and PRT along with ultrasound therapy for chronic plantar fasciitis showed improvement following ten days of treatment as per significant decrease in pain (VAS)

Dr. SHEFALI MEHTA Both groups received 2 sessions of kinesiо and mulligan taping on every 3rd day respectively. Along with taping the patient followed the conventional physiotherapy protocol for plantar fasciitis. Patients were reassessed after 6 days of treatment. This study demonstrates that both the techniques are effective in relieving pain. However; Mulligan Taping Technique showed better results to alleviate pain and improve functional measures. The tape is applied in such a way that therapeutic glide is maintained presumably taking off the force from plantar fascia and hence reducing pain.

From the analyzed data comparing positional release technique versus taping technique was found to be effective than the positional release. Taping seems to be simple method used to help relieving pain in plantar fasciitis. The pre mean of group A is (6.53) and post mean (5.40) compared with pre mean of group B is (7.13) and the post mean (3.93).

And further studies can be done with myofascial trigger release, stretching techniques and ultrasonic massage can be done.

## CONCLUSION:

From the analysis of this study, both the techniques significantly reduce pain in patients with plantar fasciitis, but taping technique (GROUP B) found to be effective compared to (GROUP A) Positional release technique.

## LIMITATION OF THE STUDY:

- Limited duration of the study.
- Small sample size.
- There was no long term follow up.

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