

**A STUDY ON THERAPEUTIC APPROACHES ON PAIN FOR ATHLETIC PUBALGIA
AMONG TRIPLE JUMPERS****Mahisree Bharathi U. V.^{1*} (Ph.D), Charuni D.² and Senthil Selvam³ Ph.D**¹Assistant Professor, School of Physiotherapy, VISTAS, Chennai, India.²BPT Intern, School of Physiotherapy, VISTAS, Chennai, India.³Professor and HOD, School of Physiotherapy, VISTAS, Chennai, India.***Corresponding Author: Dr. Mahisree Bharathi. U. V. (PhD)**

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ABSTRACT

Athletic pubalgia is termed as disruption and or separation of the more medical common aponeurosis from the pubis, usually with some degree of adductor tendon pathology. It will most common in the athletes and is caused due to the overuse of the muscle. Hence this study aims to find out the effect of the stretching and strengthening for athletic pubalgia in triple jumpers. This is a single group Pre-Post Experimental study which includes 20 convenient samples aged between 18-25 years males. The subjects were given with stretching and strengthening exercise for 6 weeks. Star Excursion Balance Test [SEBT] is a special test used to diagnose athletic pubalgia among triple jumpers and pain intensity was measured using Numerical Pain Rating Scale [NPRS]. On comparing the Mean Values of Numerical Pain Rating Scale between pre- test and post- test values within the Experimental Group shows highly significant difference at $p \leq 0.001$. The study concluded that stretching and strengthening exercise are more effective in reducing pain and discomforts for athletic pubalgia among triple jumpers.

KEYWORDS: Athletic Pubalgia, SEBT, NPRS, Stretching, Strengthening.**INTRODUCTION**

Athletic pubalgia or groin pain in athletes is a clinical syndrome of chronic lower pelvic and groin pain, usually encountered in athletes and is more commonly seen in males. A combination of stretching and strengthening will restore coordination of the entire core to treat, manage, and prevent future injuries in the groin or abdominal wall. Also known as sports hernia, it is a bit of a misnomer since it is different from the other types of hernias.^[1] Rather than a protrusion of tissue, such as with an inguinal (groin) hernia, it simply implies that there are muscle tears in the lower abdomen or groin secondary to overexertion. This is most common in athletes but can happen with daily activities too.^[2] The main muscle which involved in the groin area are Adductor brevis which will be located on thigh this helps the leg to move to the midline and front to back. Adductor longus located on the inner side of thigh this helps to move to the midline. Adductor magnus, Gracilis, Pectineus helps the long hip adductor muscle.^[1]

The anatomy is complex, multiple pathologies often coexist different pathologies may cause similar symptoms and many systems can refer pain to the groin. Many athletes with groin pain have tired prolonged rest and various treatment regimens and receive differing opinions as to the cause of their pain.^[4] Approximately 15% (range 5-23%) of all sports injuries result in groin

pain and is more common in males.^[1] Despite the high prevalence of groin pain in athletes the cause of groin pain can be difficult to elucidate because of the complex local anatomy and the differential diagnosis.^[2] An increasingly recognized cause of chronic groin pain in athletes is athletic pubalgia. Gilmore initially describe Gilmore's groin in the early 1990s. Over the years many different names have been associated with this injury such as athletic pubalgia, pubic inguinal pain syndrome, sports men's groin, footballers groin injury complex, hockey players syndrome, athletic pubalgia, and inguinal disruption.^[6]

The common risk factors of the groin pain in the following sports are football, ice hockey, rugby. Other more important causes of groin pain must first be ruled out. The symptoms are usually very non-specific and these include tenderness on the palpation of the medial inguinal floor, tenderness on the palpation over the pubic ramus, exacerbated pain with resisted hip adduction.^[3]

Athletic pubalgia is the result of physical activity involving sudden twists and turns that may cause tear in the soft tissue of the lower abdomen or groin. Physical exertion that increases intra-abdominal pressure such as coughing or sneezing can cause pain. Athletic pubalgia is a common cause of chronic groin pain.^[1] An athletic

pubalgia usually trusted source causes pain during exercise that subsides with rest. If it results from an acute injury, some people may feel sudden, severe pain during the initial tear. The area may then be tender to the touch. Without treatment, the injury may result in disabling pain that can prevent people from resuming sporting activities. An athletic pubalgia does not cause a visible bulge in the groin area. However, it is possible for a athletic pubalgia to develop into an inguinal one.^[6]

Stretching the affected muscles around the core that may be tight and imbalanced can give some much needed groin pain relief. The focus will be on stretching the sore groin and other larger muscle groups in the hip to boost local flexibility and range of motion.^[7]

MATERIALS AND METHODOLOGY

This is a single group pre and post experimental study done among triple jumpers to find the effects of stretching and strengthening for athletic pubalgia among triple jumpers. A total of 20 athletes were selected based on inclusion and exclusion criteria.

Inclusion criteria:

- Age group 18 – 25 years.
- Only males were taken as sample.
- Complaint of pain at groin region.
- Positive sign in Star Excursion Balance Test.
- NPRS score 5-10.
- Painful movements at groin region.
- Reduced range of motion.

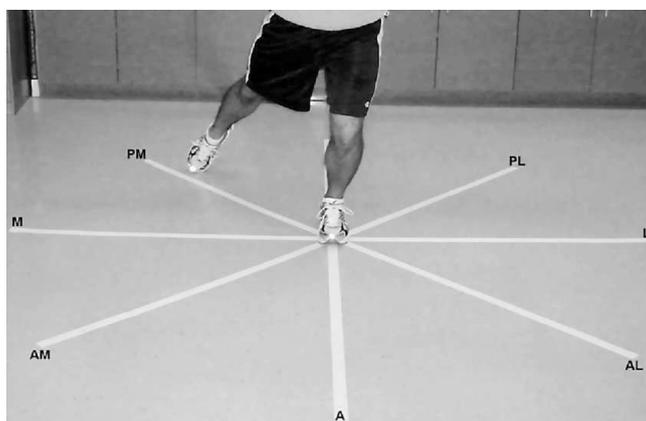
Exclusion criteria:

- Females.
- Sharp pain while doing the lower limb activities.
- NPRS: 0 - 5.
- Recent surgeries.
- Above 25 years are excluded.

Procedure

Twenty samples diagnosed with athletic pubalgia who fulfilled inclusion and exclusion criteria were taken for the study. Informed consent was obtained from the samples. Only males were taken as sample for the study. The study population consists of the individual who were aged between 18-25 years. The experimental group was given with Stretching and Strengthening exercise for 6 weeks. The star excursion balance test given to the samples and by using numerical pain rating scale, the patients were allocated for the intervention.

The SEBT is a series of single-limb squats using the nonstance limb to reach maximally to touch a point along 1 of 8 designated lines on the ground. The lines are arranged in a grid that extends from a center point and are 45° from one another. Each reaching direction offers different challenges and requires combinations of sagittal, frontal, and transverse movements. The reaching directions are named in orientation to the stance limb as anterior, anteromedial, anterolateral, medial, lateral, posterior, posteromedial, and posterolateral.



Stretching exercise:

- 1) Butterfly stretch you can use your hands or a stretch strap for this one. The focus is on the commonly sore inner thigh muscles, or hip adductors. The stretch strap is best if you can't reach your feet comfortably or you want to deepen the stretch.^[7] Hold for 30+ seconds for 2-3 sets total.
- 2) Kneeling hip flexor stretch tight hip flexors, the large muscle groups that cross the front of the hip and pelvis, can throw the entire core out of balance. A gentle hip flexor stretch can be powerful for relief and recovery.^[7] Hold for 30+ seconds for 2-3 sets on each leg
- 3) Standing quadriceps stretch this simple stretch is also a great addition to your stretching routine. The quads are notoriously tight with groin pain and can even exacerbate the issue. Hamstring stretch the hamstring tension can play a large role in groin pain because of the influence it has on the pelvis. Grab a stretch strap, towel, or belt for this stretch to get started.^[7] Hold for 30+ seconds for 2-3 sets on each leg.
- 4) Bird dog is great for training full body coordination while keeping the core activated. Plus, it works your hip muscles for an added benefit to your groin. Focus on staying relaxed and hold for 30+ seconds

for 2-3 sets on each leg.^[7]

- 5) Clamshell stretch will give the side of your butt and hip a great burn for restoring better balance in relation to the inner hip.^[7] Repeat for 10-15 repetitions for 2-3 sets on each leg.

Strengthening exercise:

- 1) A plank is always a great way to get the core, and pretty much the entire body, working all at once. This high level exercise should only be completed with good form and if it's pain free. You can start on your elbows and knees and then progress to your elbows and toes when you feel ready and in control.^[7]
- 2) The double knee to chest this basic exercise can be difficult if you are dealing with groin pain or a weak core, which is common with a sports hernia. Make

sure you understand how to master tightening your core before starting this one.^[7] Repeat for 10-15 repetitions for 2-3 sets.

- 3) Pelvic Bridging exercise is excellent for working the glutes, hamstrings and core all at once. Focus on keeping good form to boost your body's overall core stability.^[7] Hold the position for at least 15 seconds and repeat the exercise for four or five times a day.

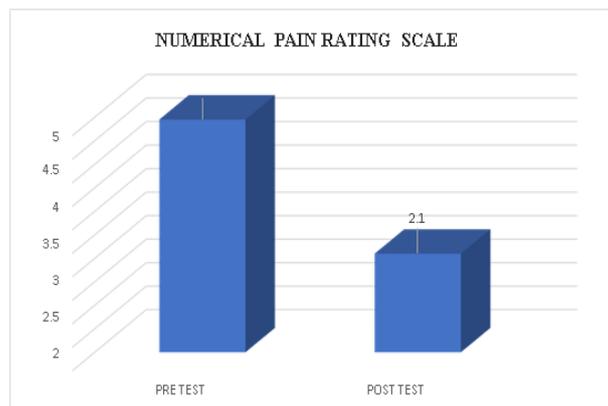
Data analysis

The collected data were tabulated and analyzed using both descriptive and inferential statistics. All the parameters were assessed using statistical package for social science (SPSS) version 24.0. Paired t-test was adopted to find the statistical difference between pre- test and post-test within the experimental group.

Table 1: Comparison of nprs between pre Test and Post test in the experimental group.

	Pre-Test		Post- Test		t-Test	Significance
	Mean	SD	Mean	SD		
NPRS	4.95	0.82	2.10	0.79	21.708	.000*

(*-P ≤ 0.001)



Graph 1: Comparison of nprs between pre Test and Post test in the experimental group.

RESULTS

In Table 1, On comparing Mean Values of Numerical Pain Rating Scale scores between pre test and post test within the Experimental Group shows highly significant difference at $p \leq 0.001$. Hence the null hypothesis is rejected.

DISCUSSION

The common symptoms of athletic pubalgia are sharp pain in the groin area, painful movements in the lower extremity, reduced range of motion, muscle spasm, swelling, tenderness, tightness. The typical characteristics seen in the athletic pubalgia are defined as weakness in the lower extremity pain commonly seen in the groin area the adductor longus and adductor brevis will be commonly affected in the athletic pubalgia. The muscles present in the groin area are classified into superficial muscle and deep muscle. The main muscle which involved in the groin area are Adductor Brevis which will be located on thigh this helps the leg to move to the midline and front to back. Adductor longus located on the inner side of thigh this helps to move to the midline.

Adductor magnus, Gracilis, Pectineus helps the long hip adductor muscle. In this study the stretching and strengthening exercise was given to the samples. The athletes usually present with the complaint of the exercise related unilateral lower abdomen and anterior groin pain which is deep and sharp that can be radiate to the proximal thigh, low back, lower abdominal muscles, perineum and scrotum. Pain can gradually decrease but 71% of the athletes will relate the recurrence to specific event. This even can include trunk hyperextension and hip hyperabduction leading to increase tension in the pubic region.

The results shows that the on comparing the Mean Values of NPRS between pre- test and post- test within the Experimental Group shows highly significant difference at $p \leq 0.001$. Hence the null hypothesis is rejected. The collected data were analyzed using both descriptive and inferential statistics. All the parameters were assessed using statistical package for social science (SPSS) version 24.0. Paired t-test was adopted to find the statistical difference between pre- test and post -test

within the experimental group.

Antonios G Angoules et al (2015) concludes that the progressive therapeutic exercise program, involving stretching, pelvic musculature strengthening, physical agents and a progressive running programme. An exercise protocol targeting strength and coordination of pelvic muscles in athletes with prolonged groin pain related to adductor muscles, produced a significantly a better result.

The movements to avoid in athletic pubalgia are Running, Jumping, Kicking a ball, Sit – ups, Crunches, Heavy weight lifting. Comparing to female, males are more prone to the athletic pubalgia. The groin pain is a common entity in athletes involved in sports that require acute cutting, pivoting, or kicking. Athletic pubalgia increasingly recognized as a common cause of chronic groin and adductor pain in athletes. The result suggested that stretching and strengthening can be used as an alternative for pain relief medicines for athletic pubalgia.

CONCLUSION

This study concludes that stretching and strengthening exercises are more effective in reducing pain and discomforts for athletic pubalgia among triple jumpers. Hence, the null hypothesis is rejected.

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