

# Effectiveness of Structured Education Program on Groin Strain in Athletes: Evaluating Beliefs, Self Efficacy and Literacy Level

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**Abstract:** **Background:** A common injury in athletes who play sports like football, soccer, basketball, and hockey that require sprinting, jumping, and abrupt direction changes is groin strain. A higher incidence of groin strain has been reported among male athletes, and it is estimated to account for up to 5% of all sports - related injuries. <sup>[1]</sup> **Objective:** To know the effectiveness of structured education program on groin strains to evaluate their beliefs, self - efficacy and adult literacy among athletes. **Methodology:** 30 participants were taken from the SRM sports complex, where the pre - test was conducted with the outcome measures – IBQ, GSE, REALM, then the education program was provided with a lecture method using a laptop with a PPT presentation and then the post - test was taken immediately after the structured education program on a groin strain. **Outcome measures:** Illness behavior scale, self - efficacy scale, rapid estimate of adult literacy in medicine. **Results:** Statistical analysis was done using a paired ‘t’ test which showed a significant effect on the illness belief, self - efficacy, and literacy. **Conclusion:** The participant's illness beliefs, self - efficacy, and adult literacy significantly changed due to structured education program on groin strain. This implies that the participant's comprehension of the groin strain education session was positively impacted.

**Keywords:** Groin strain, IBQ (illness behaviour questionnaire), GSE (general self - efficacy scale, REALM (rapid estimation of adult literacy in medicine)

## 1. Introduction

Professional athletes frequently have hip and groin discomfort, which can be brought on by either a recent acute injury or a long - term, recurring trauma. It results in time lost from practice and competition and could cause an injury that ends a career. Moreover, if players are unable to resume their sport, professional sports clubs and organizations may experience a major financial effect because of this issue. Hip and groin injuries are the most intricate and contentious anatomical and biomechanical reasons in the musculoskeletal system. Due to the significant overlap of symptoms and indicators, this makes clinical distinction and subsequent care challenging. Athletes may also have one or more comorbid illnesses, which complicates diagnosis and care even further. Exertional pubic or groin discomfort that may be attributable to a variety of distinct pathologic diseases is commonly referred to in clinical practice as "athletic pubalgia." <sup>[2]</sup>

Even though studies have showed that many adductor injuries necessitate fewer than a week's absence from play, high recurrence rates is combined with the quantity of games played each week might result in many games being missed. An estimated 25 player games are lost by each team in the

NHL annually due to groin and abdomen injuries. Same results have been seen in an epidemiological study of professional soccer players, with an average of 14.0 +/- 24.3 days missing after adductor injury and an 18% reinjury rate. Researchers have evaluated imbalances between agonist/antagonist muscle groups as well as the link between hip adductors and hip abductor strength. Sports involving cutting, striding, abrupt changes in direction, and rapid acceleration and deceleration put players at risk for hip and groin injuries since their hip adduction strength is lower than their hip abductors. <sup>[3]</sup>

Injury rates significantly decreased with high compliance adductor strength exercises. Research findings that were statistically insignificant but had practical implications demonstrated a 31% decrease in adductor strain <sup>[3]</sup>. Doha Agreement diagnostic classification - Adductor - related groin strain, Iliopsoas - related groin strain, Inguinal - related groin strain, Pubic - related groin strain, Hip - related groin strain. <sup>[4]</sup> A major cause of groin pain, particularly among athletes, is adductor strain or injury. Three adductor muscles (the longus, magnus, and brevis) make up the adductor complex; the adductor longus sustains injuries most frequently. Primary adduction of the thigh is provided by all three muscles. <sup>[5]</sup>

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Previous studies have suggested that education programs that focus on proper warm - up, stretching and conditioning techniques, as well as strategies for managing pain and preventing re - injury can be effective in reducing the incidence and severity of groin strain in athletes. In addition, psychological factors such as self - efficacy and condition beliefs may also play a role in the risk of groin strain and the athlete’s ability to manage the injury effectively. This study aims for a prevention of groin strains also to know the significant changes in illness belief, self - efficacy, and health literacy. The need of the study is to develop and evaluate an education program for groin strain, and to measure the impact of the education program on physical and psychological outcomes using outcomes measures. The objective of the study was to know the effect of structured education program on athlete’s beliefs, self - efficacy, and literacy.

**2. Materials and Method**

A quasi - experimental study design with pre and post - test is conducted on 30 subjects who were athletes. It was conducted in the sports complex department, at SRM University Kattankulathur. chennai, Tamil Nadu.

Inclusion criteria include male athletes who are collegiate players and who can understand either English or Tamil are considered. The inability to participate in physical activity

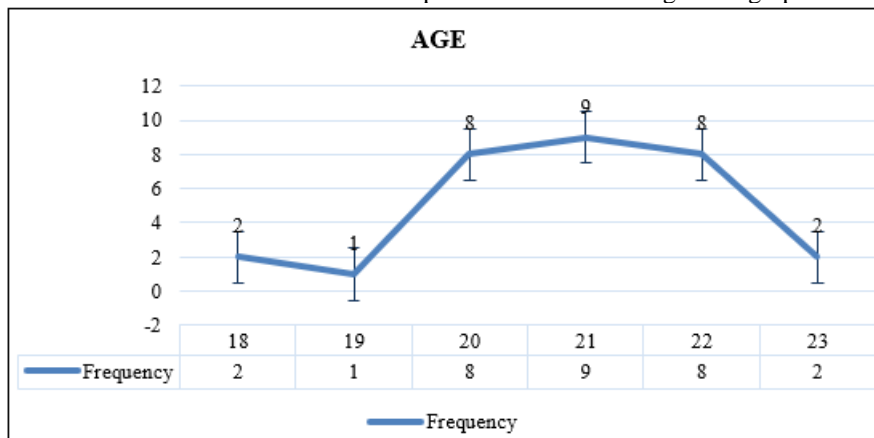
due to medical or other reasons along with participants with language barriers and who already attended education program in the past are excluded.

A structured education program which was approved by a senior physiotherapist of the orthopedic department in Hyderabad and SRM Chennai was given to the participants. PowerPoint presentation was used to educate athletes which had content regarding incidence, demographics, anatomy, biomechanical function, mechanism of injury, etiology, classification of groin strain, grades of strain, examination, investigations, exercise to prevent of groin strain, rehabilitation of groin strain, and return to sport criteria were explained in a detailed manner. Prior to program informed consent was taken. The illness behaviour scale, general self - efficacy scale, and REALM scale were the outcome measures which were used before and after the education program. Total 30 samples were selected from the SRM Sports complex and were determined by an online epi - info sample size calculator. statistical analysis done using SPSS 20 and a paired t - test was selected.

**3. Statistical Analysis**

The collected data were analysed using the IBM Statistical Package software for Social Sciences (SPSS) version 20 to assess all parameters. Paired t test was used.

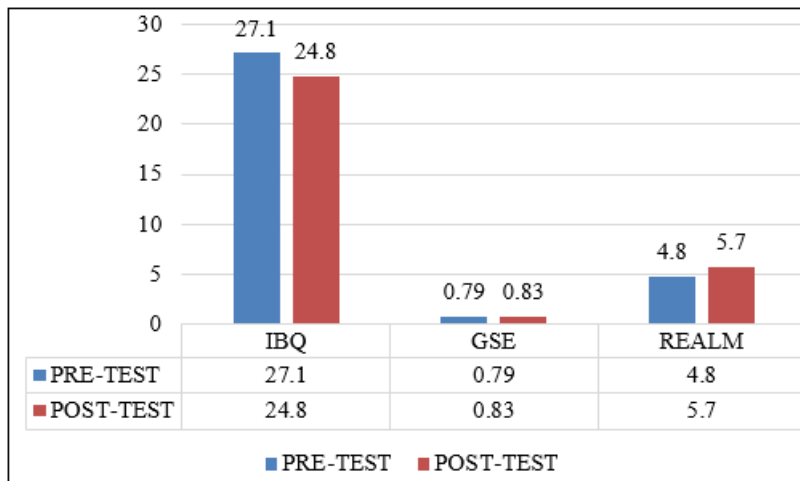
**Table 1:** Statistical Tabulation of Descriptive Statistics showing Demographics - Age



The above graph shows the frequency of the age the athletes of age 21 are highest and 18 years of age are lowest in the group.

**Table II:** Statistical Tabulation of Comparison between Pre and Post - Test Value of IBQ, GSE, Realm Scales

Outcome	Mean	SD	t TEST	Sig 2 tailed
IBQ - pre and post - test	27.1	1.5	8.2	0.000
	24.8			
GSE - pre and post - test	0.79	0.03	- 6.1	0.000
	0.83			
REALM - pre and post - test	4.8	0.86	- 5.5	0.000
	5.7			



**Bar Diagram 1:** Pre and Post - Test Values Of IBQ, GSE, Realm

The above bar diagram shows the pre and post - test values of IBQ, GSE, REALM scales

#### 4. Result

The study was to know the effects of a structured education program on participant's literacy, self - efficacy, and beliefs regarding groin strain. For all three outcomes, there were notable variations between the pre and post - test results.

First, participant's beliefs about illness by the Illness Beliefs Questionnaire (IBQ), with a mean score of 27.1 obtained before the test ( $t = 8.2$ ,  $p = 0.000$ ) compared to a post - test mean of 24.8. This proves that the educational session may have improved the participants' perspectives and understanding of groin strain, potentially leading to more knowledgeable perceptions about the condition.

Second, the participants' self - efficacy, as determined by the Self - Efficacy scale, significantly increased from a pre - test mean of 0.79 to a post - test mean of 0.83 ( $t = - 6.1$ ,  $p = 0.000$ ). This shows that participants' confidence in their capacity to handle discomfort is increased by the education program's.

Lastly, the individuals' literacy was assessed using the Adult Literacy Scale (REALM). From the pre - test mean of 4.8 to the post - test mean of 5.7 ( $p = 0.000$ ), the results demonstrated a significant deterioration. This indicates that the training may have had a favorable effect on participants' assessments of their understanding of groin strain, probably because of their increased awareness of the condition's complexity.

Overall, the results demonstrate that the organized education program had a substantial impact on participants' attitudes, self - efficacy, and literacy regarding groin strain. Further studies should look at the components of the program that made these changes possible and evaluate its long - term effects on patient outcomes and behavior.

#### 5. Discussion

The study among 30 subjects who were athletes, who met the inclusion criteria was considered in the study at the SRM

Sports Complex, SRM University, kattankulathur, Chennai, Tamil Nadu. The study concentrated on evaluating the illness beliefs, self - efficacy, and adult literacy of the athletes on groin strain. Subjects who met the inclusion criteria were taken for the education program and pre - test and post - test were taken before and after the education program respectively. The results showed significant improvement in illness belief, self - efficacy, and health literacy.

It has been shown that among competitive male collegiate soccer players, the FIFA 11+ Program statistically significantly reduces injury rates and time lost due to injury. Regular use of the program resulted in greater injury prevention benefits for the players. The results show that using a neuromuscular training program such as FIFA 11+ may give soccer players a protective advantage by assisting them in reaching their optimal physiological state of readiness for play and offering them sufficient biomechanical training to lower the risk of injuries associated with playing the game.<sup>[6]</sup>

In their systematic review, Serner et al. found that for long - term adductor - related groin pain, active physical training—which includes adductor and abdominal strengthening and coordination exercises—is superior to passive physical therapy modalities like laser, transverse friction, adductor stretching, and electric nerve stimulation.<sup>[7]</sup> The effectiveness of these programs depends critically on the patient's ability to comprehend and follow prescribed treatment procedures. Athletes who experience groin discomfort often quit exercising and develop a phobia of it. As a result, they tend to oversimplify the clinical condition and may develop pessimistic attitudes about their fellow athletes' injuries. A health literacy education program was implemented. The findings indicated a noteworthy impact on the literacy scale, sickness behavior, and self - efficacy. This educational program can reduce health care costs and provide athletes with clear information about groin strain, as they typically overlook the importance of strengthening their adductor muscles. The structured education program on groin strain among athletes has been shown to have a positive impact on their beliefs and self - efficacy.

The results suggest that illness behavior, self - efficacy, and literacy improved with the structured education given.

## 6. Conclusion

The participant's disease beliefs, self - efficacy, and adult literacy significantly changed because of the structured education program for a groin strain. This implies that the participants' comprehension of the groin strain education session was positively impacted.

## 7. Recommendations

Future research could focus on identifying the specific components of the program that contributed to these changes and explore its long - term effects on patient outcomes and behavior. Overall, the results suggest that structured education programs have the potential to improve patient understanding and management of groin strain.

### *Declaration by Authors*

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## References

- [1] Tyler TF, Silvers HJ, Gerhardt MB, Nicholas SJ. Groin injuries in sports medicine. *Sports health*.2010 May; 2 (3): 231 - 6.
- [2] McSweeney SE, Naraghi A, Salonen D, Theodoropoulos J, White LM. Hip and groin pain in the professional athlete. *Canadian Association of Radiologists Journal*.2012 May; 63 (2): 87 - 99.
- [3] Schaber M, Guiser Z, Brauer L, Jackson R, Banyasz J, Miletti R, Hassen - Miller A. The neuromuscular effects of the Copenhagen adductor exercise: a systematic review. *International Journal of Sports Physical Therapy*.2021; 16 (5): 1210.
- [4] Weir A, Brukner P, Delahunt E, Ekstrand J, Griffin D, Khan KM, Lovell G, Meyers WC, Muschaweck U, Orchard J, Paajanen H. Doha agreement meeting on terminology and definitions in groin pain in athletes. *British journal of sports medicine*.2015 Jun 1; 49 (12): 768 - 74.
- [5] Kiel J, Kaiser K. Adductor strain.
- [6] Silvers - Granelli H, Mandelbaum B, Adeniji O, Insler S, Bizzini M, Pohlig R, Junge A, Snyder - Mackler L, Dvorak J. Efficacy of the FIFA 11+ injury prevention program in the collegiate male soccer player. *The American journal of sports medicine*.2015 Nov; 43 (11): 2628 - 37.
- [7] Serner A, van Eijck CH, Beumer BR, Hölmich P, Weir A, de Vos RJ. Study quality on groin injury management remains low: a systematic review on

treatment of groin pain in athletes. *British journal of sports medicine*.2015 Jun 1; 49 (12): 813 -