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Groin Injuries in Footballers and Its Physiotherapy Management

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Abstract

Background: Pain in the pubic, lower abdominal, or adductor region is referred to as groin pain and can be unilateral, bilateral, or both. Injuries in the groin area as well as pain over the groin area are quite common in footballers and ice hockey players which includes both men and women athletes. The very recognised reason of hip and groin accidents are muscle lines, different reasons can be like sports activities hernia, labral tears osteitis pubis, dislocation of hip, bursitis, snapping hip syndrome. An excessive running loads, sprinting, abrupt direction changes, and kicking are often regarded as potent groin injury mechanism.

Method: databases search included were PubMed, Google Scholar studies also published as of July 2022 and also using college library. Full text articles along with articles of English abstract which have been published up to 2022 were included. Data about patient characteristics, diagnostic procedures, treatment procedures and their outcome measures were contemplated.

Results: In total 14 articles were included. Management in aspect of physiotherapy include stretching manoeuvres, strengthening manoeuvres, adductor strengthening mainly. Endurance and high intensity training to improve the strength of the muscles showcase a positive outcome to avoid and improve groin injuries. Groin pain and injuries are mostly seen in footballers but it can also be seen in other athletes as well as people having pathological conditions which involves pelvis.

Conclusion: In our study we conclude that groin injuries can be minimized and can be prevented by physiotherapy management and players can get back to their quality of performance by using intensive training in order to strengthen their adductor group of muscles followed by appropriate stretching initiated by RICE protocol (rest, ice, compression and elevation).

Keywords: football players, groin injuries, adductor strain, groin pain, Physio therapy management.

Introduction

The most well-known sport in the world, football is played by males and females, teenagers and adults, and players of all skill levels. Analytical, tactically, intellectual, and physiologic issues are only a few of the factors that have an impact on football players' overall effectiveness.⁽¹⁾

A complex region situated halfway between the stomach and the thigh is the groyne. A variety of anatomical structures that cross the groyne region, either separately or in combination with other nearby structures, can cause groyne pain in athletes.⁽⁶⁾ Groin pain in soccer gamers is described as an ache in the pubic, lower abdominal, or adductor's location that can single stance and double stance. High graveness galloping, trotting and modifications of decree are all thought to be conceivable groyne damage mechanisms.⁽⁶⁾ In 2015 Doha agreement was introduce in order to simplify the understanding of terminology and classification of groin pain in athletes which is under three sub major categories mentioned below⁽²⁾:

- 1) Groin ache associated to unique musculoskeletal structure
- 2) Groyne ache associated to pelvic joint disease
- 3) Groyne ache related with different clinical fettle⁽²⁾

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Further four sub categories related to specific anatomical region which are as follows:

- a. The abdominoinguinal
- b. The pubic
- c. The iliopsoas
- d. The adductor area ⁽²⁾

Epidemiology and incidence

Groin accidents recital for about 2% to 5% of football injuries. The most common musculoskeletal cause of discomfort is an adductor sprain. ⁽⁴⁾ The adductor strain is said to be the usual injury in sports activities. Incidence rate of groin injury among football players has been estimated to be between 10% and 18%. Sports-related injuries were documented in 5% to 9% of secondary school pupils, in addition to professional athletes. Groin injuries account for 10% of all injuries, according to statistics. ⁽⁹⁾

Mechanism of injury and its muscle work

- Symphysis pubis

The symphysis pubis is an amphiarthrodial joint made up of the combined pubic bones and an articular disc that runs between them. The inter-pubic disc is a fibrocartilageous tissue that is essential to the pubic symphysis' function. Located between the ridges and grooves it serves to imbibe and dispel axial and shear forces encountered to joint during normal mobility. It stabilises the antecedent pelvis while permitting a small amount of mobility. ⁽³⁾

Muscles of symphysis pubis

The symphysis is the junction of several musculotendinous links that work together to dynamically support the position of the antecedent innominate bone. The anterolateral abdominal muscle and the thigh adductor muscles link to the symphysis. The rectus abdominis and the adductor longus are the most powerful and essential for persevering the stability of the antecedent pelvis. ⁽³⁾

Biomechanics of pubic symphysis

During twirling and extension from the waist, the rectus abdominis and adductor longus muscles are antagonists. In presence of normal abdominal wall tone, curtailment of the rectus abdominis muscle produces a backward and upper impel on the pubis, elevating the pubic region. Trans-section of the rectus abdominus muscle origin generates an abnormal downhill tilt of the anterior pelvis, resulting in an augment in coercion in adductor portion, according to cadaveric investigations. The fibres of the rectus abdominis and adductor longus origins blend in conjunction to unite a usual aponeurosis that links to periosteum of the antecedent position of the pubic body. ⁽⁷⁾

Management

Assessment

Individual postural evaluation to serve as the foundation for a pre-rehabilitation and rehabilitation programme.

Range of muscle test are done in certain ways:

- Hip
- Muscle extent
- Myofascial pathways

Sturdiness test:

Gluteus medius strength tests

- Gluteus maximus strength tests
- Transversus abdominis strength tests ⁽¹³⁾

Physiotherapy management

Week 1 of the rehabilitation programme includes education on the postoperative exercise routine.

Pre-rehabilitation sturdiness programme for: gluteal muscle, transverse abdominis, Erector spinae, lateral abdominals, hip flexors, and hamstrings. Swiss balls, core sturdiness, medicine balls, cables are all used in this workout. Increase the flexibility and lengthening of muscles and myofascial structures. dynamic postural control while standing, sitting, and performing functional tasks. Muscles around the pelvis that are hypertonic (overactive) and hypotonic (underactive) will need to be re-educated. ⁽⁸⁾

- 1) Initiation of functional rehabilitation program
 - Isometric hip flexors,
 - extensors,
 - abductors,
 - adductors and
 - rotators
 - Spinal mobilisation programme
- 2) Escalate strolling by 5 minutes each day, using time as the limiting factor. Continue isometric exercises and active spinal work; perform 10 reps of each exercise four times per day. Mobility exercises, both active and passive, stability exercises, cardiovascular hydrotherapy, swimming, and cycling are all used in neurological gymnastics. Start a new session and work your way up to anaerobic over the following three weeks. If you have isokinetic hip work or a 25% or lower limb deficit, start active concentric training. Start out at fast speeds (220) and work your way down to slower speeds (40) based on your daily assessment.
- 3) In order to retrain the concentric/eccentric functional pattern, return to active assisted work. Running forwards, backwards, cutting, and sprinting are examples of early sport- or occupation-specific rehabilitation. Professional soccer restoration Return to play or work in accordance with technical evaluation. ⁽¹¹⁾

Methodology

Protocol: the definitions were guided by the checklist for the participants, interventions, comparisons outcome and study design. The candidates were the research concerning about the groin injuries in Football players and focusing on physiotherapy management for groin injuries.

Outcome of interest include

To reduce adductor strain and adductor weakness To improve the strength of lower limb muscles To improve soft tissue extensibility of lower limb To reduce the recurrence of groin injuries To improve their athletic performance

Research Question

how much is the prevalence of groin injuries in football players?

Information Sources

Search was conducted on Pubmed, Google Scholar, Research Gate, Cochrane Library.

Study Selection Process

To recognize and gain suitable research for this review, key literature databases were explored methodically using precise keyword relevant to this topic. The primary keywords of this literature search included “groin” followed by word such as “injuries”, “prevalence”, “Football players”, and “quality of life”. The review and selection basis for the documents were attained in trilogy stages:

- 1) Review of appellative
- 2) Review of notional
- 3) Review of full staple

Accrual criteria

- Articles published between 2018-2021
- Studies conducted on football players
- Male and Female players
- Age 18-35

Exclusion criteria

- Studies published in vernacular other than English.
- Studies with unreachable abstract
- Studies with inaccessible full text
- Studies conducted on sports other than football players
- Studies including injuries other than groin

Results

In total 14 articles were included. Management in aspect of physiotherapy include stretching manoeuvres, strengthening manoeuvres, adductor strengthening mainly. Endurance and high intensity training to improve the strength of the muscles showcase a positive outcome to avoid and improve groin injuries. Groin pain and injuries are mostly seen in footballers but it can also be seen in other athletes as well as people having pathological conditions which involves pelvis.

Discussion

The most ordinary groin injury is groin ache in football players and its recurrence is quite expected.⁽⁶⁾ The previous researches states that non modifiable risk factors such as age and precursory groin injuries are not notably responsible for the risk of upcoming groin injuries. However, the results of our reports from previously considered studies states that previous groin have a major contributing factor of having future groin injuries whereas on the other hand age is not an exceptional factor for upcoming groin injuries. Adductor weakness is a noteworthy factor in having groin injuries in football players as football players require a remarkable adductor strength. Treatment is single stance adductor sturdiness activities in open and close chain kinematics.

Athletic group which are involved in activities such as lateral hitting stroke, shearing, sudden accelerating and abrupt directional changes shows adductor sprains. Biomechanical disorders of lower limb such as extreme

pronation leg-length difference as well as muscle fatigue affects the adductor range of motion. Treatment includes stretching, strengthening, escalating agility, neuromuscular control activities, isolated hamstring strengthening, massage and RICE protocol and mainly focusing on eccentric strengthening exercises.

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