



**The groin in
sport**

Akhtar Rasul

Outline

- This chapter will review the functional anatomy of the groin and Hip and explain the causative factors of acute soft tissue injuries of the Groin and Hip
- Discuss the differences between acute and chronic injuries of the Groin and Hip.
- The chapter will further provide an overview of common soft tissue injuries of the Groin and Hip by detailing the assessment, management, and rehabilitation strategies and protocols

- The groin consists of the structures deep to the anterior and medial intersection of the leg and the lower abdomen, and includes the structures of the perineum.
- Movement of the hip underlies and effects the groin structures
- The groin, therefore, particularly includes:
 - The lower rectus abdominis musculature
 - The inguinal region
 - The symphysis pubis
 - The upper portions of the adductor muscles of the thigh
 - The genitalia, including the scrotum in males

Groin pain in sport

- Groin pain is one of the most poorly understood syndromes in clinical sports medicine despite its relatively common occurrence
- Sports Medicine literature discussion:
 - A single pathology, presenting in various ways
 - One of multiple distinct entities that need to be accurately diagnosed and treated differently
 - several merging pathologies that coexist, resulting in a similar syndrome that requires almost the same treatment, no matter what the presenting symptomatology

- Unsatisfactory causal and diagnostic opinions, lies in the complex anatomy of the groin.
- The groin is a relatively unstable area, acting as the link between structures that generate large forces through it.
- Groin pain can therefore be related to several different joints particularly:
 - The lumbar spine
 - Sacroiliac
 - Hip and pubic symphysis
 - The adductor
 - Hip flexor
 - Gluteal
 - Abdominal and lumbar extensor muscle groups
 - The obturator, Ilioinguinal and Genitofemoral neural structures

Functional anatomy

- Pelvis is a ring of bone with the symphysis pubis joint anteriorly and the two sacroiliac joints posteriorly.
- Gluteal muscles
- Hip flexor muscles
- Hip adductor muscles
- The rectus abdominis, internal and external oblique and transversus abdominis abdominal muscles all combine to perform pelvic movement and contribute towards stability
- The quadratus lumborum muscle

- o The biomechanics around the pelvis is such that dysfunction and imbalance of any one or more of these anatomical structures →→ disconnection in the chain of movement, especially in the complex and stressful environment of sport
- o Several related pathologies

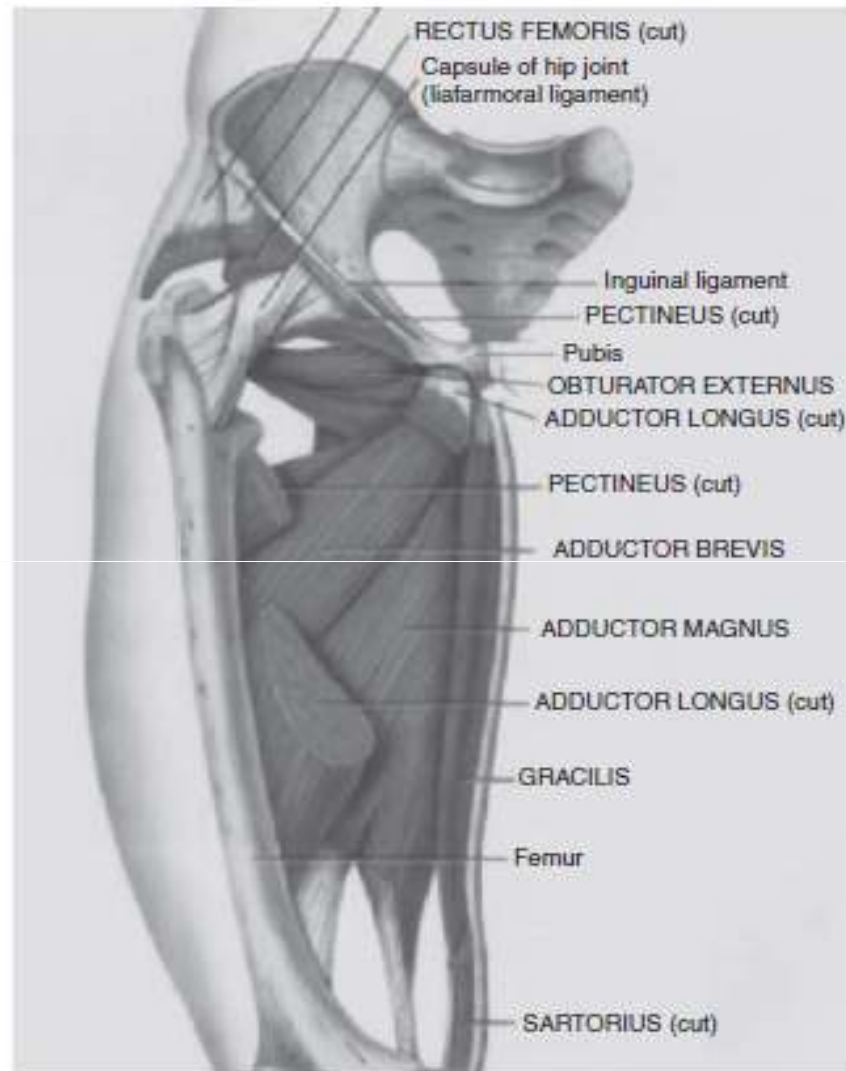
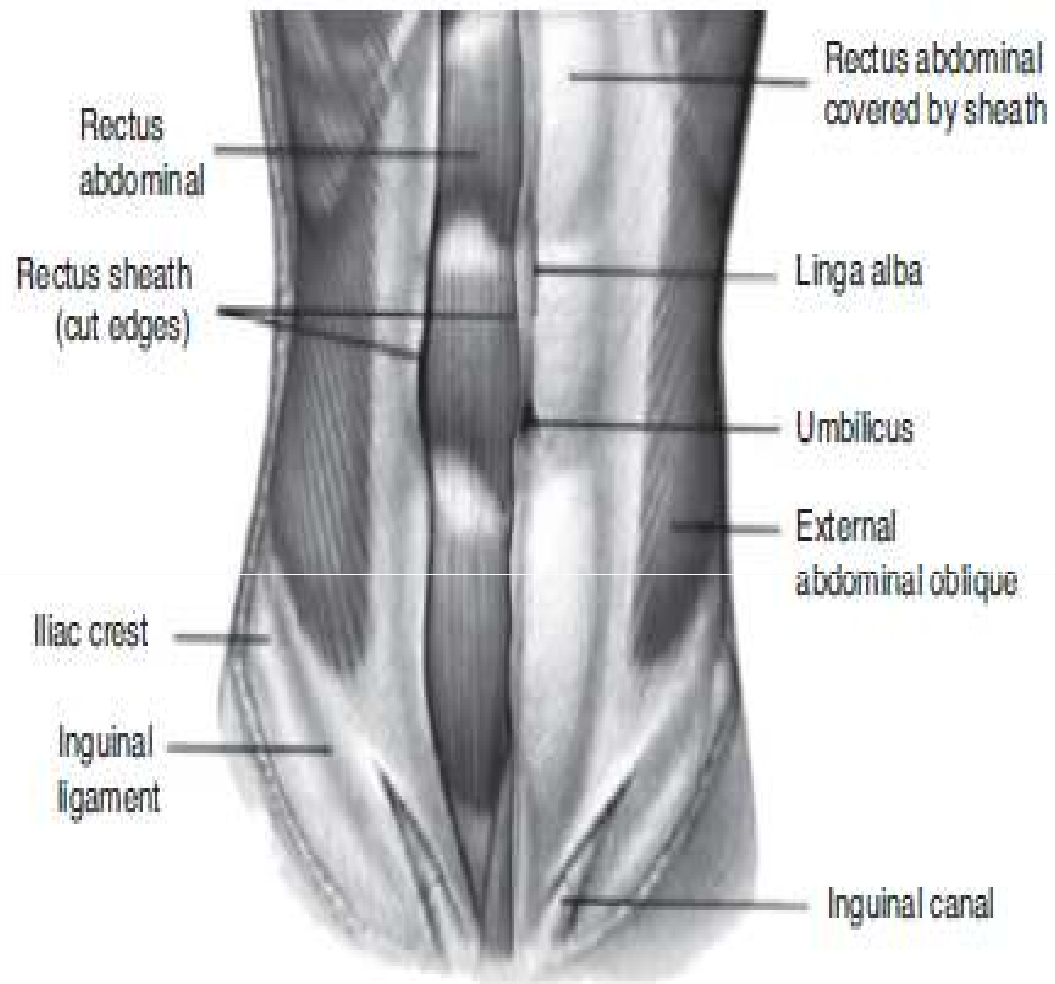


Figure 20.1 Groin and surrounding anatomy.



Groin and surrounding anatomy.

Overview of groin injuries

- Groin pain can be difficult to examine and assess for a variety of reasons
- The history and location of pain is often ambiguous, therefore the history and examination should be approached methodically
- Discussion of factors that aggravate or reduce pain, especially relating to the specific aspects of the athletes sport, is essential.
- For general guidance only, histories of duration longer than several months or one season are usually hip joint related, whereas less than three months can be various pathologies

o Histories must include:

o Duration

o Location

o Onset details

o Predisposing factors

o Response to rest and treatment so far

o Investigation history e.g. X-ray, ultrasound, MRI, CT, bone scan.

- Incorporated within the varied clinical tests used, assessment must ideally include:
 - **Inspection** for asymmetry and anatomical irregularity, including poor habitual posture
 - Assessment of the **range of motion** of the joints near the area and particularly movement of the hip joint and pubic symphysis stress tests
 - Observation for discrepancy of **leg length**
 - Evaluation of **gait**, including if possible the individual's specific sport activities that exacerbate the symptoms and training load
 - **Muscle** length and strength tests including adductor weakness, abdominal/ gluteal control and load transfer failure
 - **Palpation** of the affected area

Differential diagnosis of groin injuries

- Pain that is aggravated with activity and alleviated with rest suggests a structural problem.
- Constant pain suggests an infectious, inflammatory, or neoplastic (abnormal growth) process.
- Differential diagnosis must take into consideration medical conditions that affect the groin in all individuals, not just athletes

- Referred pain from lumbar spine pathologies
- Hip joint disorders like osteoarthritis, Perthes disease, slipped epiphysis, Osteochondritis desiccans
- Intra-abdominal disorders like appendicitis
- Genitourinary abnormalities like urinary tract infections; sexually transmitted diseases

Impact injuries

- Impact injuries, such as those that occur during football, hockey, or other contact sports, may result in **contusions**.
- However, such injuries may cause fractures of the pelvis; exacerbate previously asymptomatic inguinal hernias; and, in rare cases, produce bladder, testicular, or even urethral injuries.
- Any patient with lower abdominal or pelvic impact injury that causes severe groin pain, loss of function, or blood in the urine should be immediately medically investigated

Hip pointer

- The hip pointer can arise from both direct contusion causing impact and indirect strain injuries of the hip, primarily in contact sports.
- Forced extension of the hip, by for example a tackle from behind in rugby, may result in a sprain or avulsion of the Sartorius muscle at its iliac crest attachment.
- These injuries are severely painful and make leg movement very painful, taking from one to several weeks to rehabilitate, depending on severity.
- Pain may be felt when walking, laughing, coughing, or even deep breathing.
- Direct contusions to the anterior superior iliac crest may also involve the attachment of the Sartorius muscle.

Thanks