Groin Pain in Athletes

Stefan Fröhlich

SAMM Congress 2022

Balgrist Universitätsklinik

University of Zurich

Groin pain – a common problem in athletes

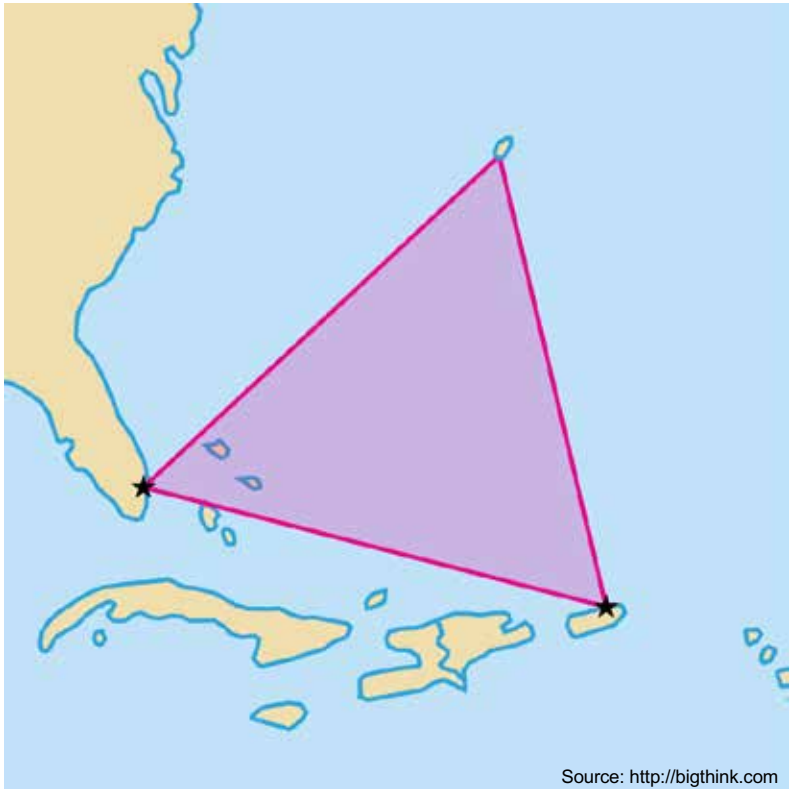
- up to 19% of all male football injuries
- up to 14% of all female football injuries

Walden M et al: The epidemiology of groin injury in senior football: a systematic review of prospective studies. Br J Sports Med. 2015;49(12):792-7

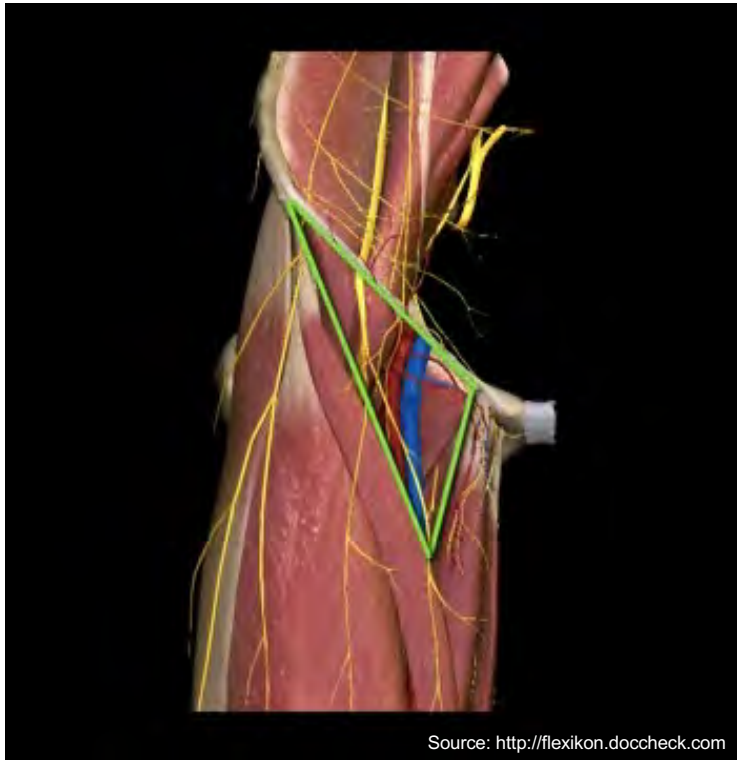
Balgrist Universitätsklinik

University of Zurich

What do you see?



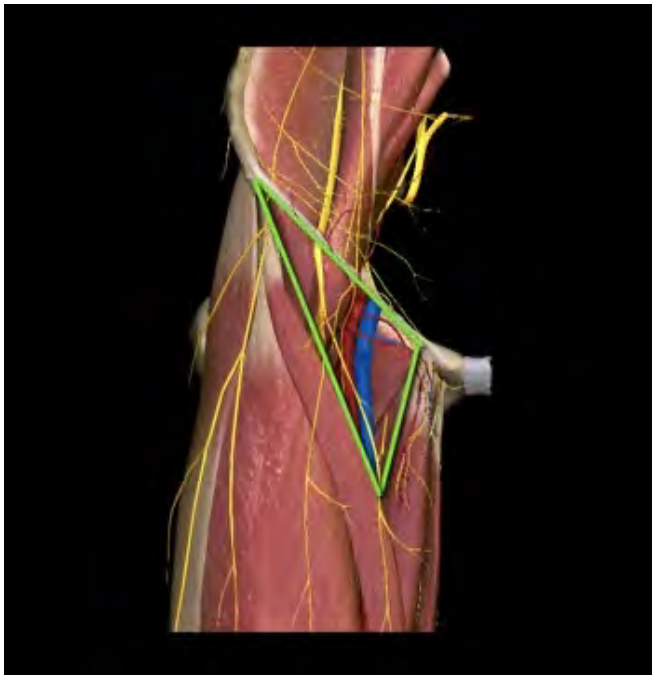
The groin – the Bermuda triangle of sports medicine?



The groin – the Bermuda triangle of sports medicine?

Why a Bermuda triangle?

Bizzini M: The groin area: the Bermuda triangle of sports medicine?
Br J Sports Med. 2011;45(1):1



Balgrist Universitätsklinik

University of Zurich

Groin pain in athletes – a mystery?

Why so mysterious/complex?

- wide variety of possible injuries
- numerous anatomical structures
- high prevalence of abnormal findings in asymptomatic athletes

Clinical case

- 20y old professional football player
- pain in the left groin for 4 months
- unable to play for 3 months
- has already seen different specialists...

Clinical case

- Hip surgeon: „probably FAI, the images show a bump of the femoral neck and a small anterosuperior labral tear. A hip arthroscopy might help.“

Clinical case

- General surgeon: „no hernia palpable, but probably a sportman‘s groin, as there is bulging of the posterior wall of the inguinal canal in the ultrasound and pain on palpation of the inguinal canal. Should have surgery.“

Clinical case

- Physiotherapist: „primarily a problem of the adductor origins. Should have a conservative treatment with detonisation and strengthening exercises.“

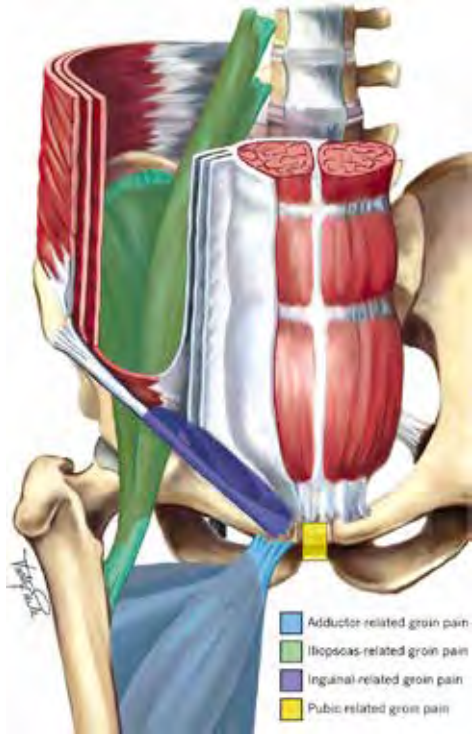
Clinical case

- Are they all wrong...?

Problem

- Rarely only one structure responsible for the groin pain

Defined clinical entities for groin pain causes



Adam Weir et al. Br J Sports Med 2015;49:768-774

- Adductor related
- Iliopsoas-related
- Inguinal-related
- Pubic-related
- Hip-related

Balgrist Universitätsklinik

University of Zurich

Clinical case: Question

- Clinical Diagnosis: Adductor-related pain.
- MRI shows increased signal related to the pubic bone and symphysis and tendinopathy involving the left adductor longus tendon.

- What is your initial management plan?

Clinical case: Question

- A) He should be referred for a surgical treatment
- B) You should administer a corticosteroid injection
- C) He should rest from all activity
- D) You should initiate a strengthening program

Combined pathologies: common in the groin

- Patients with FAI: 41% groin hernia, 23% adductor tendinopathy

Naal FD et al: Sonographic prevalance of groin hernias and adductor tendinopathy in patients with femoroacetabular impingement. Am J Sports Med. 2015;43(9):2146-51

Combined pathologies: common in the groin

- Athletes with long-standing adductor-related groin pain: 94% show radiological signs of FAI

Weir A et al: Prevalence of radiological signs of femoroacetabular impingement in patients presenting with long-standing adductor-related groin pain. Br J Sports Med. 2011;45(1):6-9

Radiological findings – clinical relevance?

Prevalence of abnormal findings in asymptomatic athletes:

- Cam deformity in about 40% of asymptomatic athletes

  Frank JM et al: Prevalence of Femoroacetabular Impingement Imaging Findings in Asymptomatic Volunteers: A Systematic Review. Arthroscopy. 2015;31(6):1199-204.

  Thier S et al: Prevalence of Cam and Pincer Deformities in the X-Rays of Asymptomatic Individuals. Biomed Res Int. 2017;2017:8562329.

- Cam deformity in 70% of ice hockey players

  Lerebours F et al: Prevalence of Cam-Type Morphology in Elite Ice Hockey Players. Am J Sports Med. 2016;44(4):1024-30

Radiological findings – clinical relevance?

Prevalence of abnormal findings in asymptomatic athletes:

- Asymptomatic football players: more than 90% with degenerative changes of the symphysis

Branco RC et al: Comparative study between the pubis of asymptomatic athletes and non-athletes with MRI. Rev Bras Ortop. 2010;45(6):596-600

Radiological findings – clinical relevance?

Prevalence of abnormal findings in asymptomatic athletes:

- Asymptomatic football players: 71% with positive MRI findings (symphyseal disc protrusion/degeneration, bone marrow oedema, adductor tendinopathy)
- „Positive MRI findings may thus be associated with soccer play itself rather than existing adductor-related groin pain.“

Branci S et al: MRI findings in soccer players with long-standing adductor-related groin pain and asymptomatic controls. Br J Sports Med. 2015;49(10):681-91

Radiological findings – clinical relevance?

- What do we want to know from imaging?

Radiological findings – clinical relevance?

- The more findings we get, the more we have to reflect
- A meticulous clinical examination is necessary
- Diagnostic infiltrations can help additionally
- No evidence for diagnostic infiltrations of the inguinal canal

Schröder JH et al: Diagnostic algorithm "FAI and sports hernia" : Results of the consensus meeting for groin pain in athletes. Orthopade. 2020 Mar;49(3):211-217

Balgrist Universitätsklinik

University of Zurich

Clinical examination

- Adductors
- Abdominal muscles
- Hip joint
- Iliopsoas muscle
- Superficial inguinal ring/inguinal canal
- Palpation of all relevant bony structures

Balgrist Universitätsklinik

University of Zurich

Treatment: Evidence

- Systematic review of 72 studies: only 6% of publications were high quality
- in general low study quality, little evidence
- moderate evidence: conservative and surgical treatment in adductor-related groin pain
- moderate evidence: surgical treatment in sportman‘s hernia

Serner A et al: Study quality on groin injury management remains low: a systematic review on treatment of groin pain in athletes. Br J Sports Med. 2015;49(12):813

Balgrist Universitätsklinik

University of Zurich

Treatment: Evidence

Our previous example: Adductor-related groin pain:

- effectiveness of active physical training is proven
- it is superior to passive physiotherapy

Hölmich et al: Effectiveness of active physical training as treatment for long-standing adductor-related groin pain in athletes: randomised trial. Lancet. 1999;353:439-43

Clinical case: Question

- Clinical Diagnosis: Adductor-related pain.
- MRI shows increased signal related to the pubic bone and symphysis and tendinopathy involving the left adductor longus tendon.

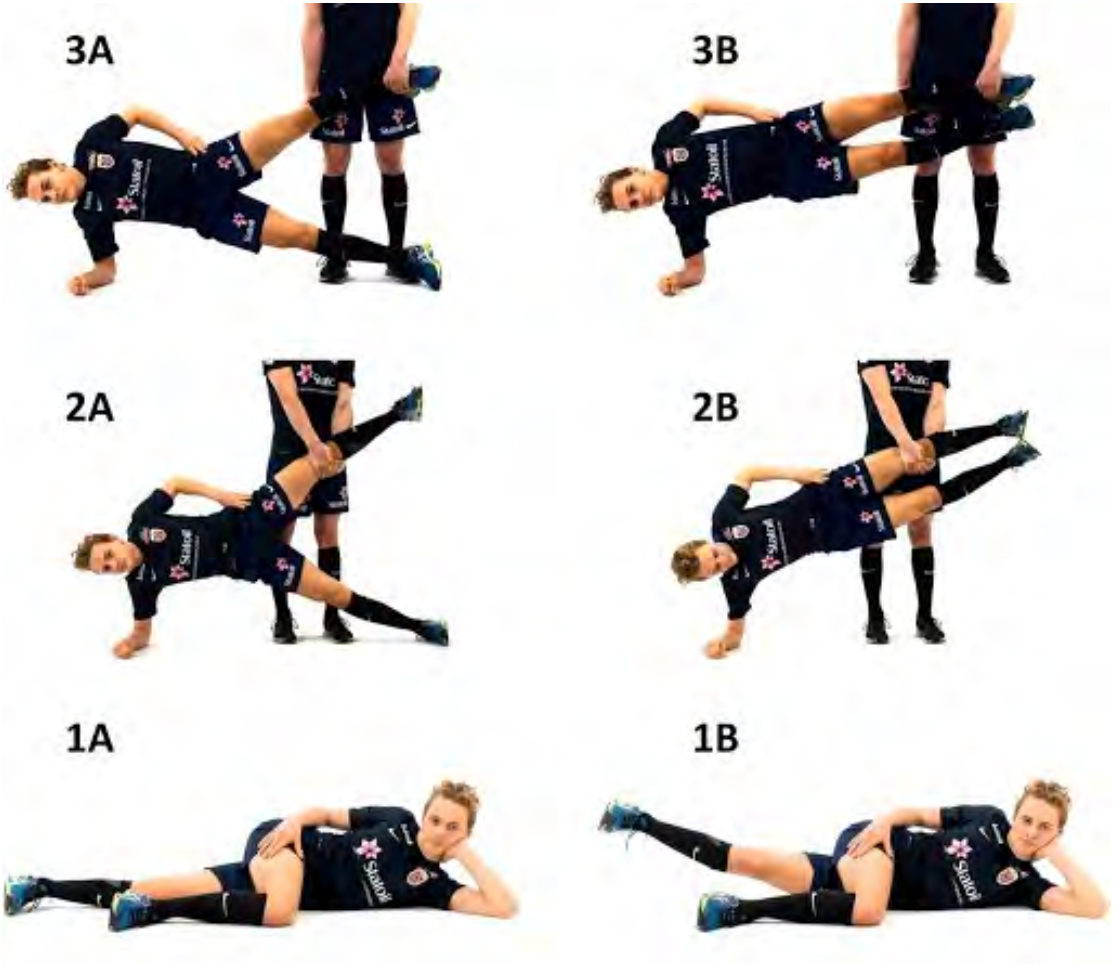
- What is your initial management plan?

- **D) You should initiate a strengthening program**

Balgrist
Universitätsklinik

University of Zurich

Copenhagen Adduction Exercise



Balgrist Universitätsklinik

University of Zurich

Treatment: Evidence

Adam Weir et al. Br J Sports Med 2015;49:768-774

What about the other entities?

- Adductor-related: moderate evidence for exercise therapy and surgery, limited evidence for injections
- Iliopsoas-related: limited evidence for injections
- Inguinal-related: moderate evidence for surgery
- Pubic-related: limited evidence for exercise therapy, injections and surgery

Serner A et al: Study quality on groin injury management remains low: a systematic review on treatment of groin pain in athletes. Br J Sports Med. 2015;49(12):813

Balgrist Universitätsklinik

University of Zurich

Treatment of combined pathologies

- In general: exercise therapy recommended as first-line treatment for all entities of athletic groin pain
- Core stability, active training of the muscles around the groin

Treatment of combined pathologies

- Within the combined pathologies: adductor-related problem most commonly involved

Taylor R et al: Multidisciplinary Assessment of 100 Athletes With Groin Pain Using the Doha Agreement: High Prevalence of Adductor-Related Groin Pain in Conjunction With Multiple Causes. Clin J Sport Med. 2018 Jul;28(4):364-369.

- Similar exercise protocols as the one for adductor-related groin pain can be used in combined pathologies

If conservative treatment fails…

- Consider surgery, if there is one clear main entity remaining and if there is evidence for surgery for that particular entity
- Examples: Adductor tenotomy, inguinal repair

Zuckerbraun BS et al: Groin Pain Syndrome Known as Sports Hernia: A Review. JAMA Surg. 2020 Apr 1:155(4):340-348.

Surcigal options: inguinal repair

«Sports hernia» / «Sportman groin» / «Athletic pubalgia»:

- Low level of evidence around this syndrome
- Deficient posterior wall of the inguinal canal
- No consensus about nomenclature
- No consensus about diagnostic imaging modalities
- Different surgical techniques – some promise RTP within 4 weeks

Forlizzi JM et al: Core Muscle Injury: Evaluation and Treatment in the Athlete. Am J Sports Med. 2022 Mar 2.

Muschaweck U et al: Sportmen´s groin – diagnostic approach and treatment with the minimal repair technique: a single-center uncontrolled clinical review. Sports Health. 2010;2(3):216-221.

Take home messages

- Groin pain is often a complex combination of different problems
- A meticulous clinical examination is crucial
- Consider additional imaging
- Diagnostic infiltrations can help to determine the main problem
- Do the simple and least invasive treatment modality first
- Conservative before operative

Thank you!

stefan.froehlich@balgrist.ch

Balgrist Universitätsklinik

University of Zurich