

# Surgical treatment of groin pain in athletes

(One of) The French approach

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# Interest of a meeting about groin pain

- **Common** injurie in sports medicine

- 5% professional sports players

*(Anderson and al. Am J Sport Med 2001)*

- 10 à 18% / year soccer players

*(Morelli and all. Prim Care Clin Off Pract 2005)*



- **Poor** medical literature

- **104** papers Medline literature between 1950 and 2008 *(Caudill and al. British J Sport Med 2008)*

- **11225** for «Anterior Cruciate Ligament» !

# Groin pain

## What are we speaking about ?

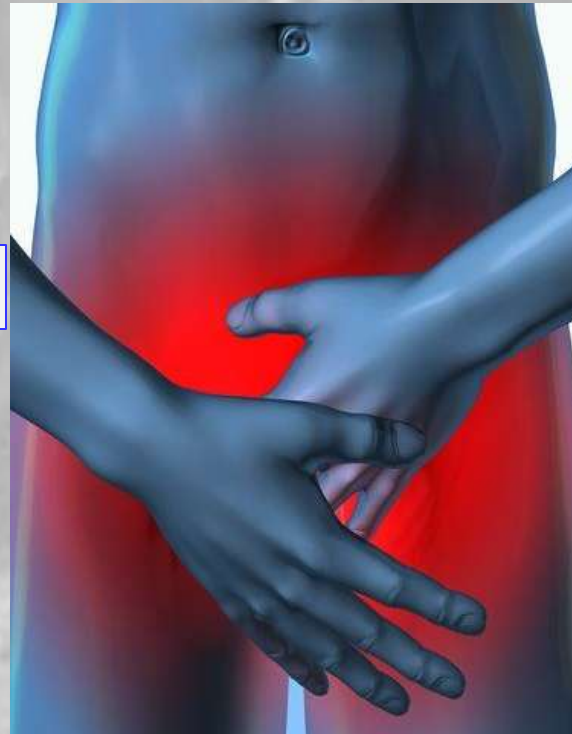
**Sports hernia**

**Osteitis pubis**

**Adductor enthesopathy**

**Hip joint pathologies**

- femoro-acetabular imp.
- capsulo-labral inj.
- chondral defect
- necrosis
- slipped epiphysis
- stress fracture



**Avulsion injuries**

**Bursitis** (great trochanter, iliopsoas tendon ...)

**Lombosacral**  
(SPL L5/S1, D12/L1 S, ...)

**Neuropathy** (pudental S., obturator n. entrapment, ...)

**Infection**  
(prostate, urinary ...)

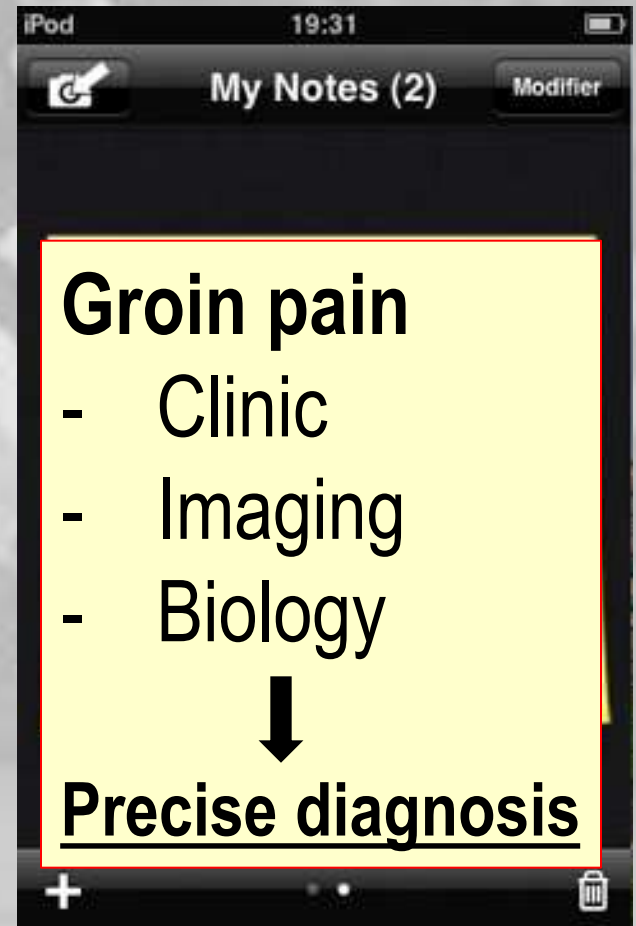
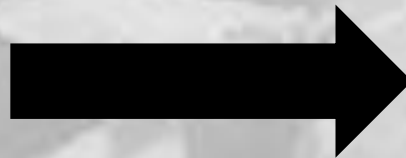
**Tumors**

# Groin pain

## What are we speaking about ?



**message**



# Groin pain

## What are we speaking about?

In France 

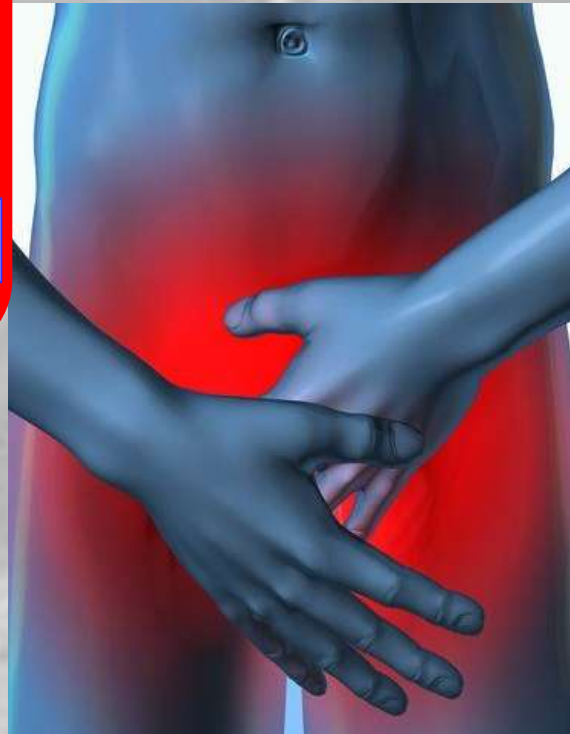
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**Tumors**



# Groin pain and surgery

**Sports hernia +++**

**Osteitis pubis 0**

**Adductor enthesopathy +**



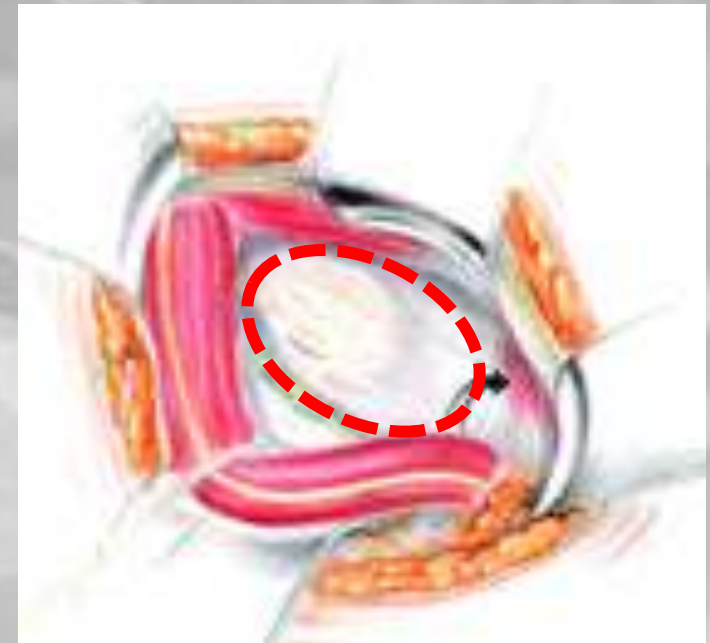
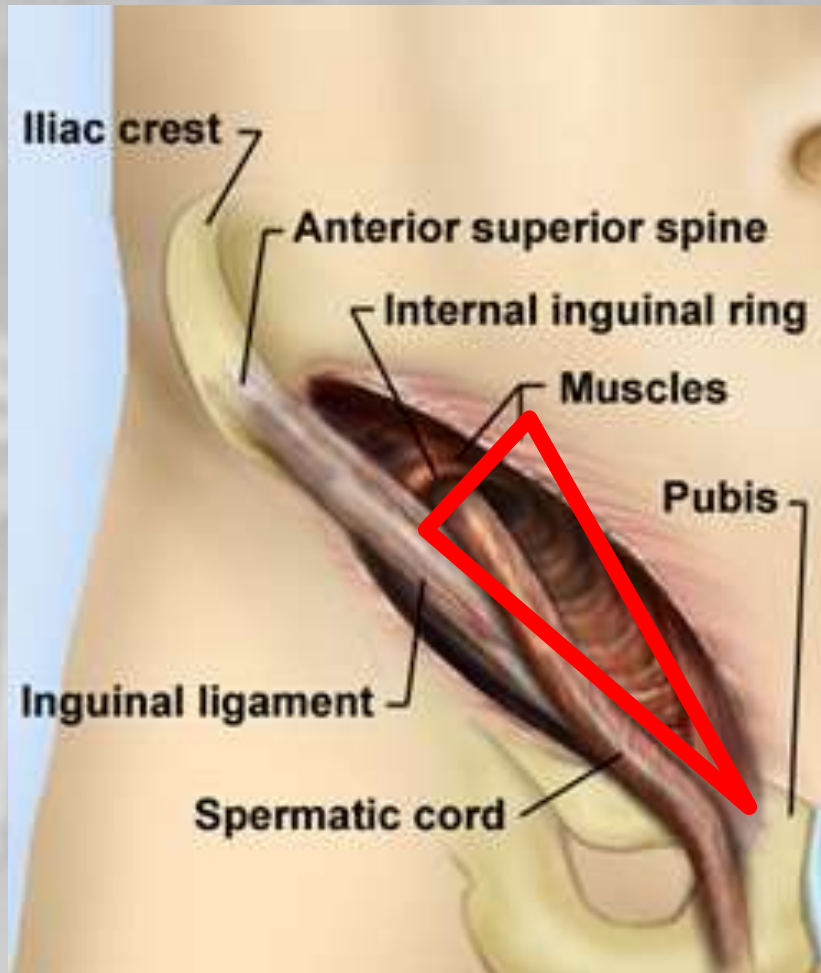
# Sports hernia – *What is it ?*



- No true hernia
- Many anatomical descriptions
  - tearing transversalis fascia or conjoined tendon
  - abnormalities insertion rectus abdominis muscle
  - avulsion internal part oblique muscle fibers at pubic tubercle
  - abnormality in external oblique muscle and aponeurosis

**Posterior inguinal wall weakness (bulge)**

# Sports hernia



**Posterior inguinal wall weakness (bulge)**



# Sports hernia - *When does it occur?*

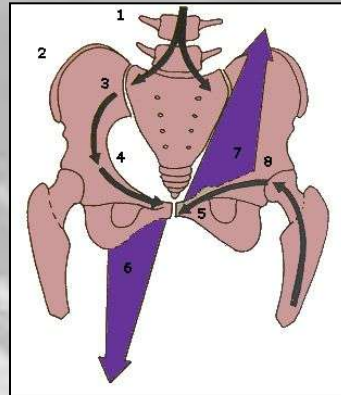
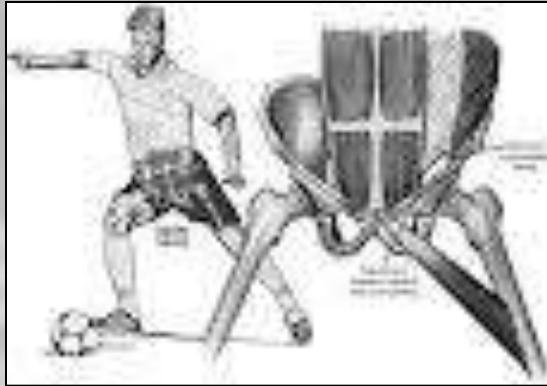
Chronic (overuse)

Acute injury



# Sports hernia - Origin of pain ?

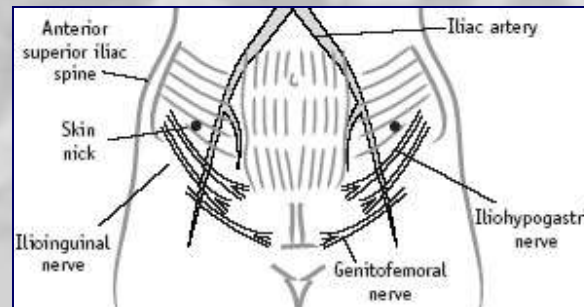
- **Muscular imbalance**



## Hypothesis

Hemingway A et al.  
*Brit J Sports Med* 2003

- **Nerves Compression** (caused by posterior wall weakness)



# Sports hernia and surgery

- When ?
- Techniques ?
- Uni or bilateral ?
- Post-operative ?
- Results ?



# When ?



- Theoretical problem  $\Rightarrow$  most patients come to surgeon months (years) after symptoms began (> 6 months M Genitsaris and all – Am J Sport Med 2004)
- After ***6 to 8 weeks failed functional treatment***

**Sports hernia rarely improve with conservativ treatment**



**don't loose time ...**





# Surgical techniques

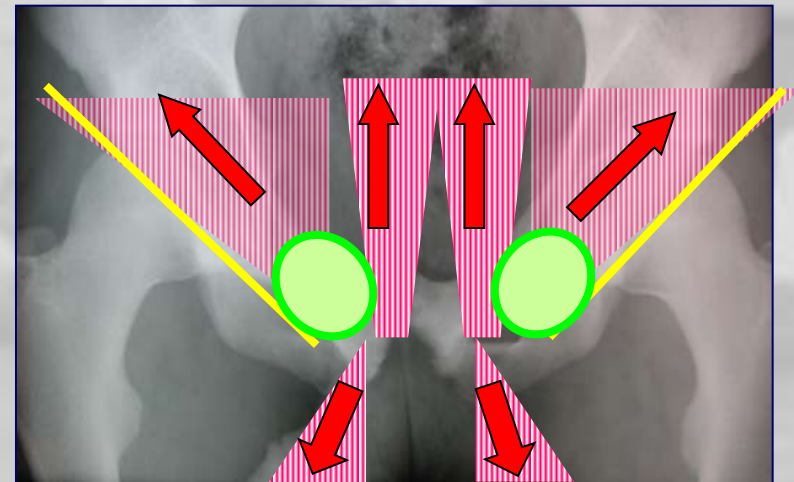
## Goals of sports hernia surgery

➔ respond to *pain patho-anatomy*



➤ muscular imbalance

➤ posterior wall weakness





# Surgical techniques

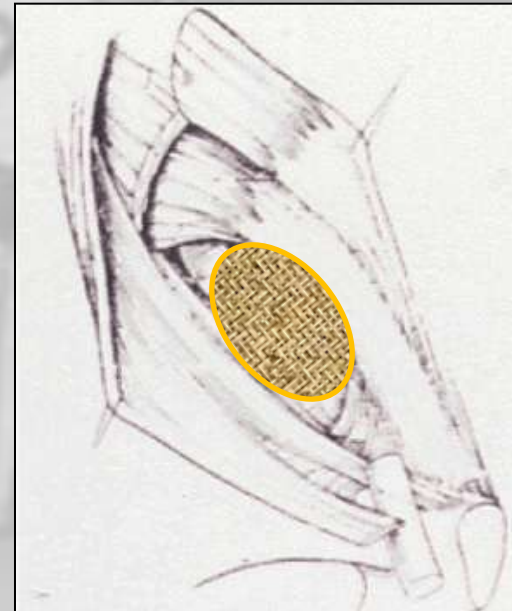
- Principles of surgical management

- **defect closing (bulg) ⇒ mesh**

- Open technique (Lichtenstein ..)
- Laparoscopic (preperitoneal or extraperitoneal procedure)

- **muscular retaining (hernio/myorrhaphy)**

- Nesovic, Shouldice, Bassini



# Surgical techniques

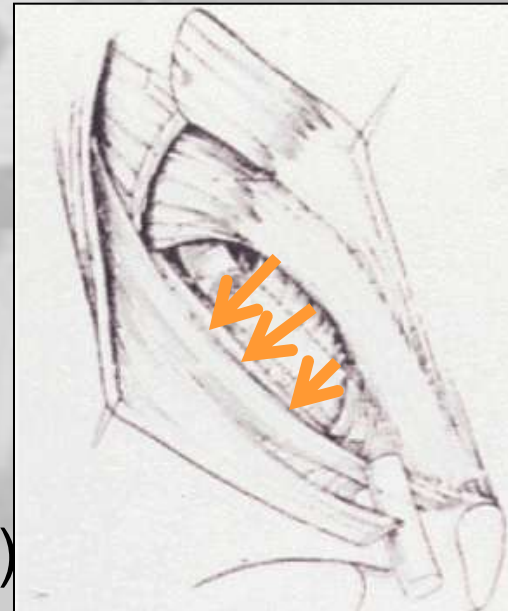
## • Principles of surgical management

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# Closing defect techniques

- **Avantages**

- Reduce pression due to posterior wall weakness
- Tension free technique
- Short convalescent period

- **Disavantages**

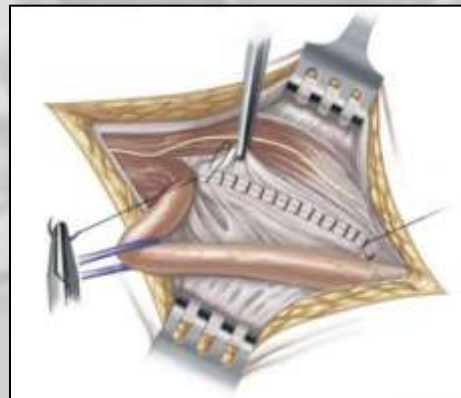
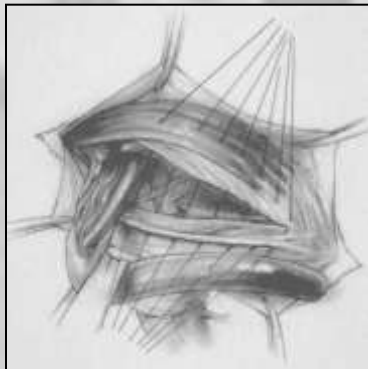
- No muscular tension
- Recidive ?
- Laparoscopic
  - Learning curve
  - No direct vision injured tissues



# Hernio/myorraphy

- **Avantages**

- Restore muscular balance
- Posterior inguinal wall closing
- Direct vision injured tissues / nerves
- Mesh reinforced possible



- **Inconvenients**

- Suture mobile muscles and non contractile structures (aponeurotic) under tension
- Longer sport return



# Nesovic modified technique

**My choice**

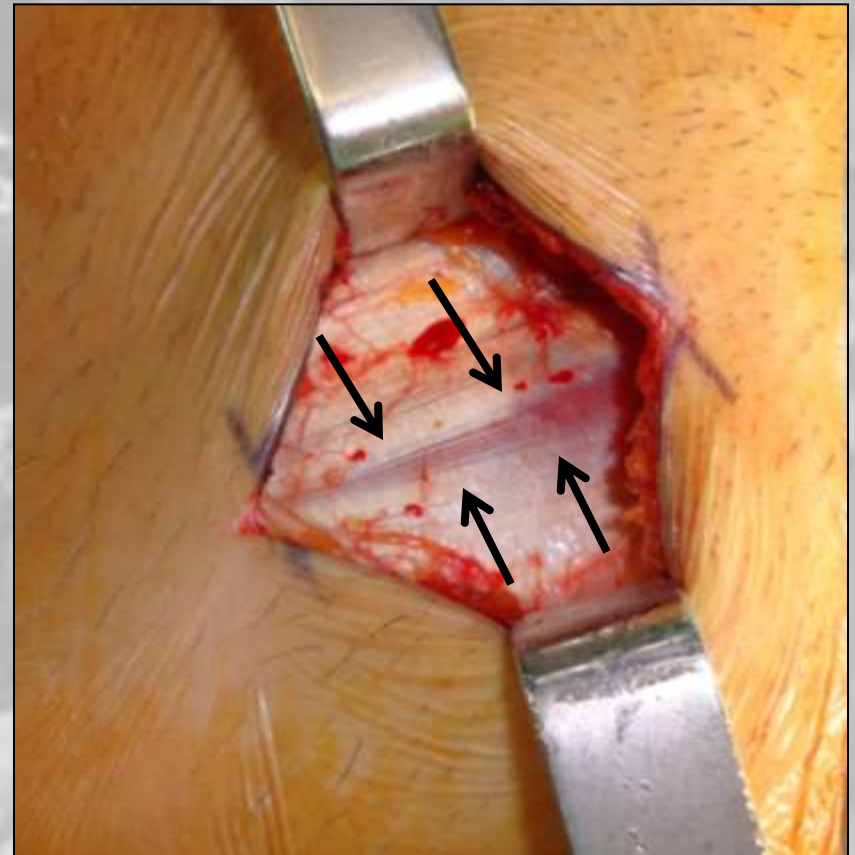
- Inguinal skin incision
- Open external oblique aponeurosis (repair tears if present)
- Dissection spermatic cordon
- Neurolysis or neurotomy
- +/- plication fascia transversalis
- Reapproximation of the conjoined tendon to inguinal ligament (controled tension)
- External oblique aponeurosis plication



# Nesovic modified technique



# Nesovic modified technique



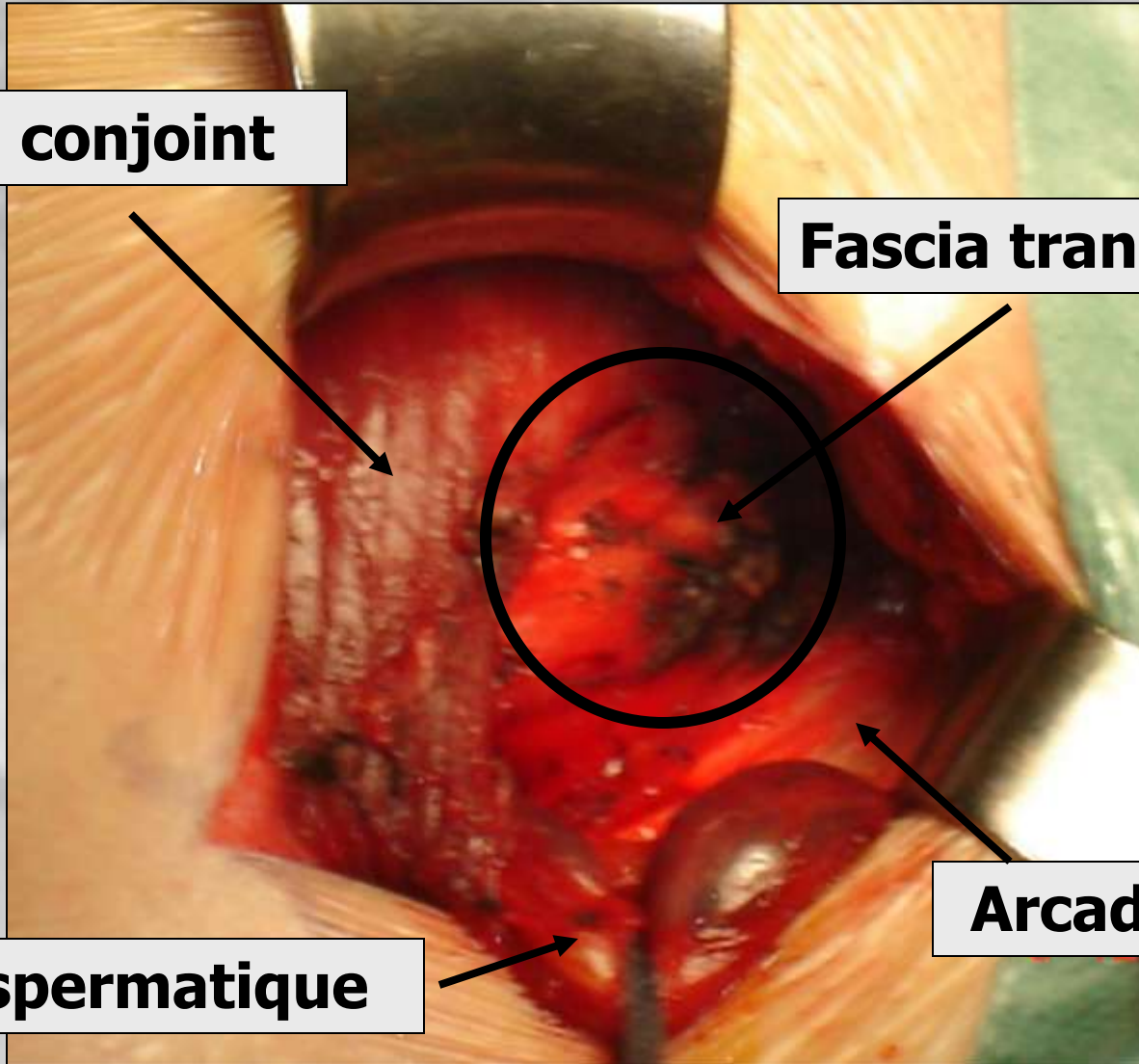
# Nesovic modified technique

**Tendon conjoint**

**Fascia transversalis**

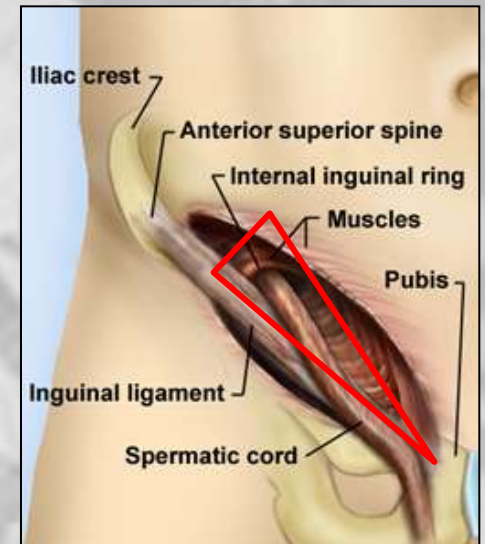
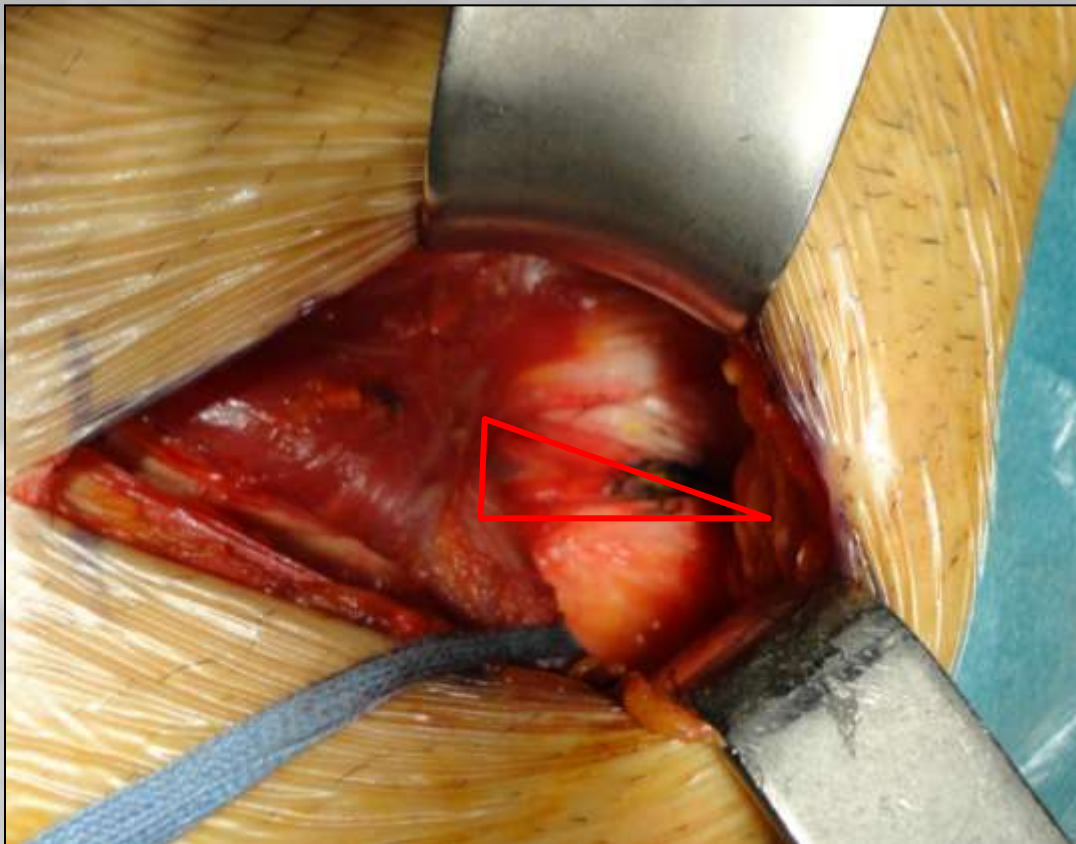
**Cordon spermatique**

**Arcade crurale**

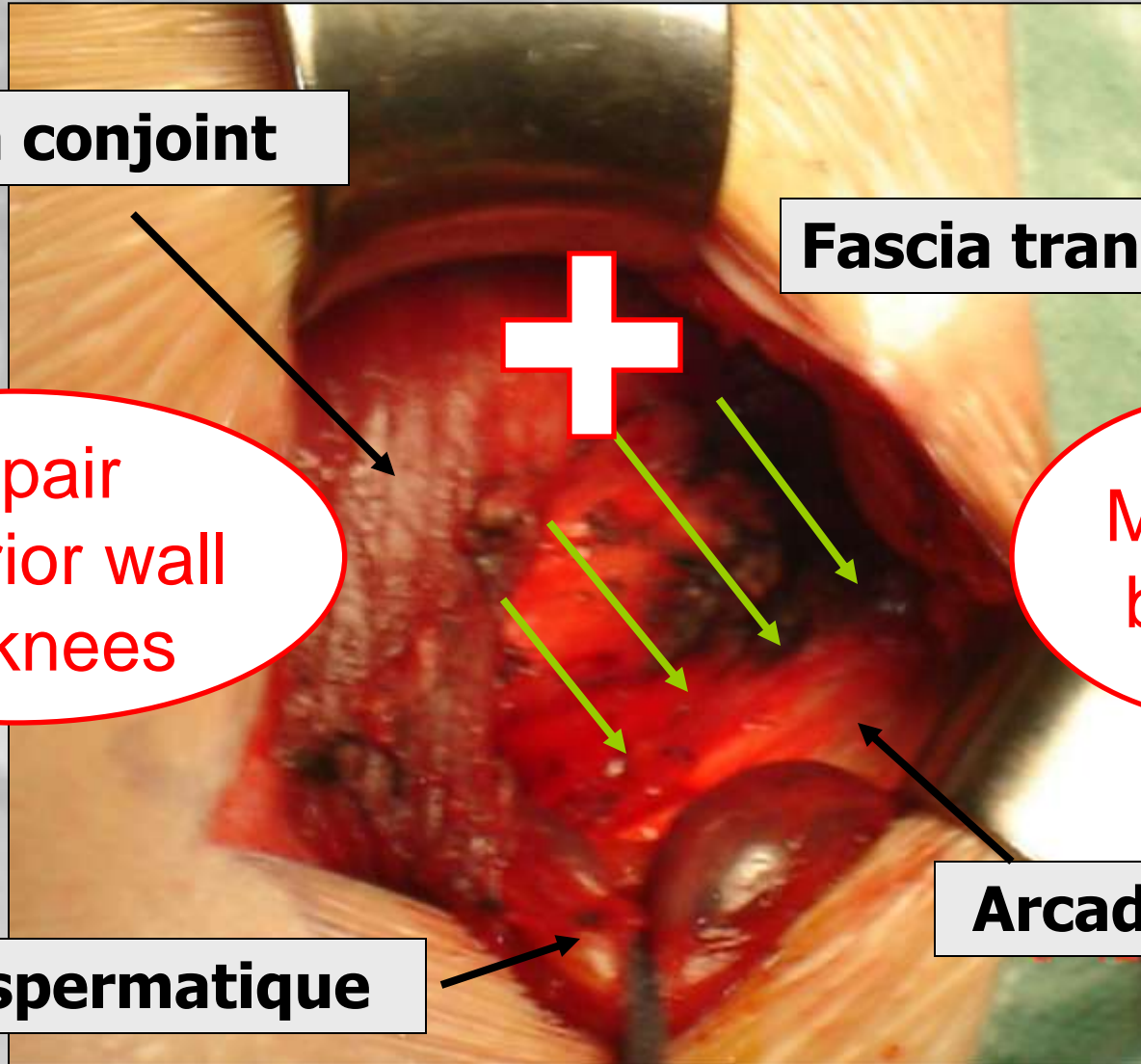




# Nesovic modified technique



# Nesovic modified technique



**Tendon conjoint**

**Fascia transversalis**

**Repair  
posterior wall  
weakness**

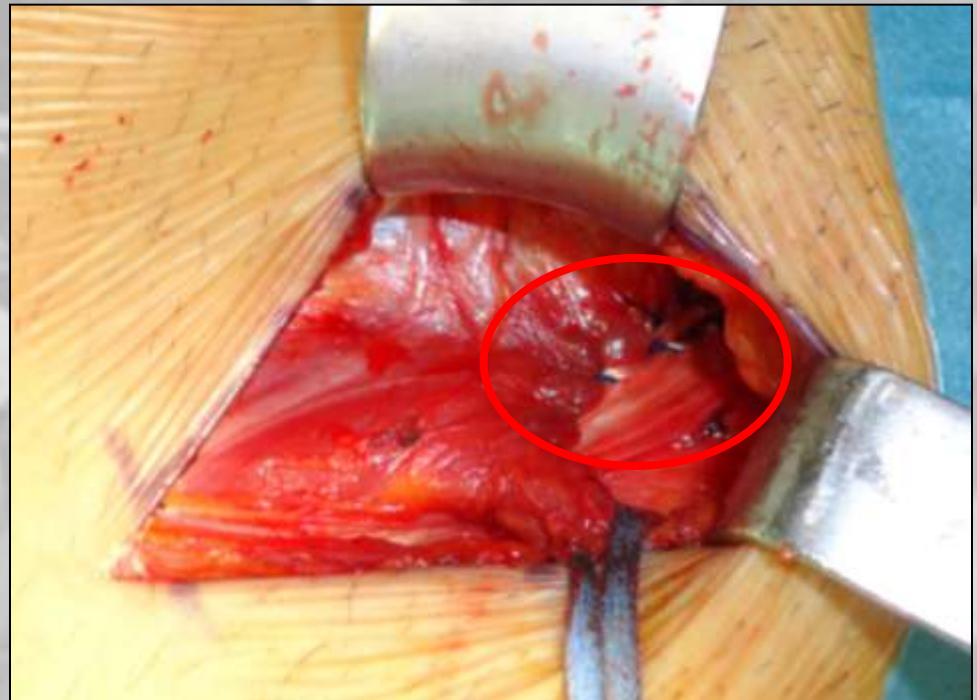
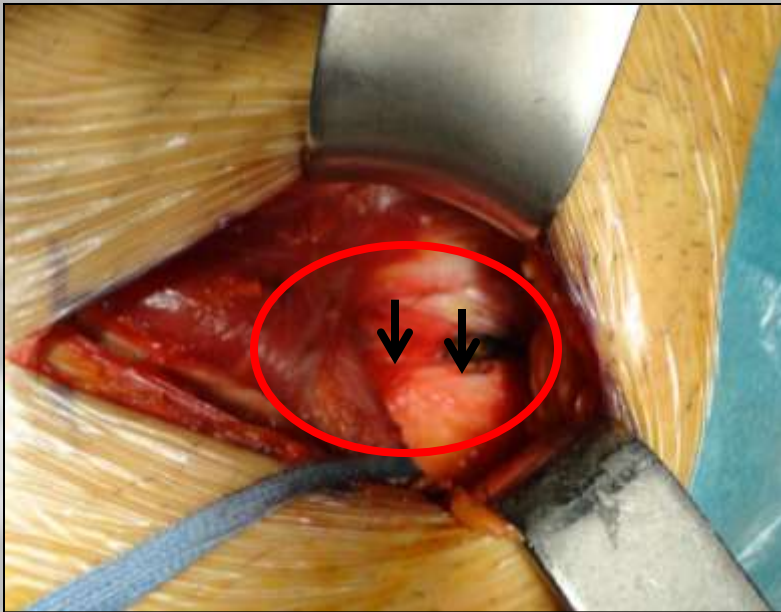
**Muscular  
balance**

**Cordon spermatique**

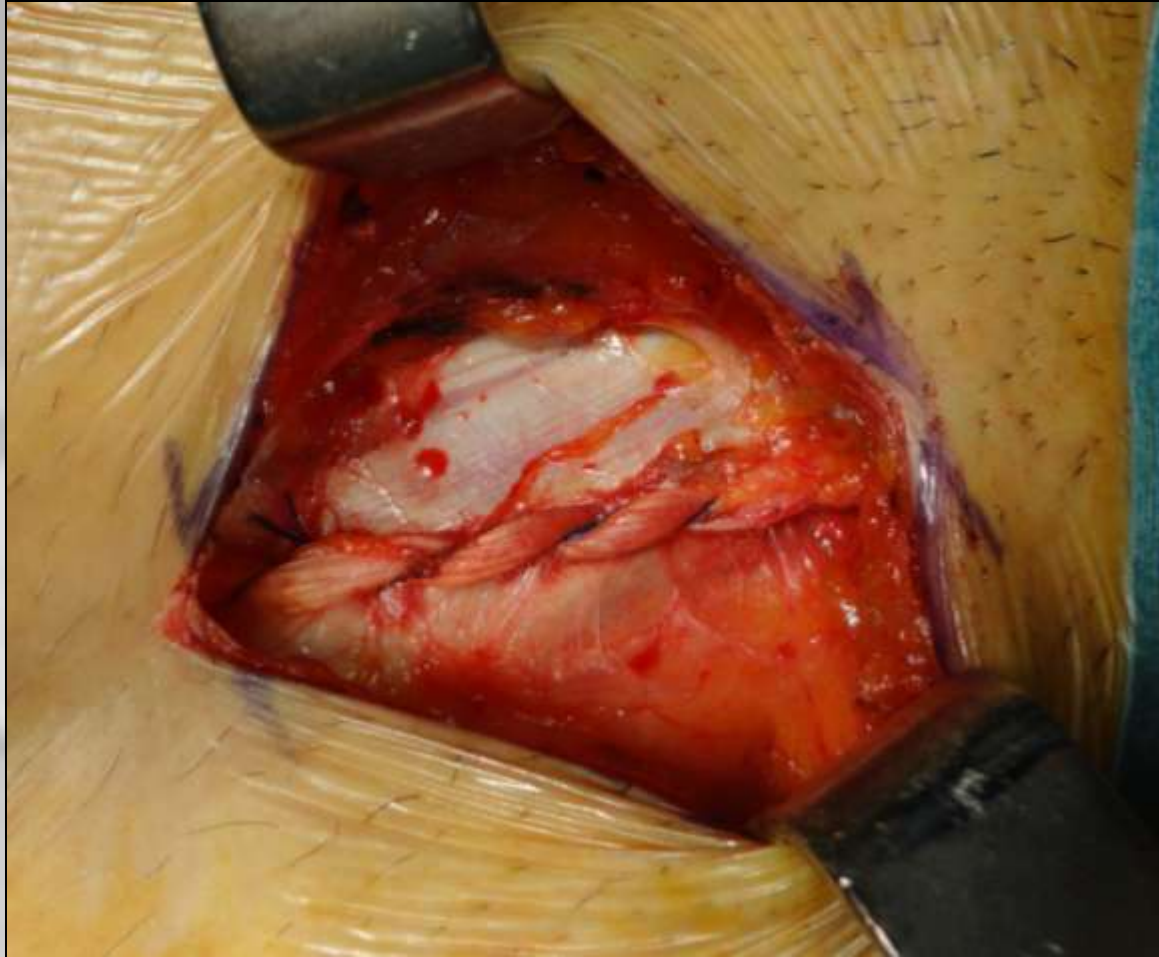
**Arcade crurale**



# Nesovic modified technique



# Nesovic modified technique



# Uni or bilateral surgery ?

**Empiric**

- **Acute injury**

⇔ traumatic weakness on an normal inguinal wall

⇒ ***unilateral surgery (+)***

- **Chronic (overuse)**

⇔ excess strenght on an constitutionnal weak wall

⇒ ***bilateral surgery (++++)***

*(balanced reinforcement and better cooperation muscle groups of both side)*





# Post-surgical rehabilitation

➤ J0 ⇒ J15 rest (walking +++)



➤ J15 ⇒ J30 bike, local physiotherapy



➤ J30 ⇒ J45 run, progressive abdominal work, flexibility



➤ > J45 sprinting, running all directions, gradual return to training



# Results

- **80 to 95% good and excellent results**

*(Meyer 2000, Polglase 1991, Steele 2004, Van Der Donckt K 2003, Susmalian 2004, Kluin 2004, Garvey 2010)*

- **Reccurence rate 4 à 10%**

*(Neumayer 2004 - more with laparoscopic ?)*

- **Return sports activities 4 to 12 weeks**

➤ **quickly with laparoscopic** (Srinivasan 2002, Ingoldby 1997, Paajanen 2004)

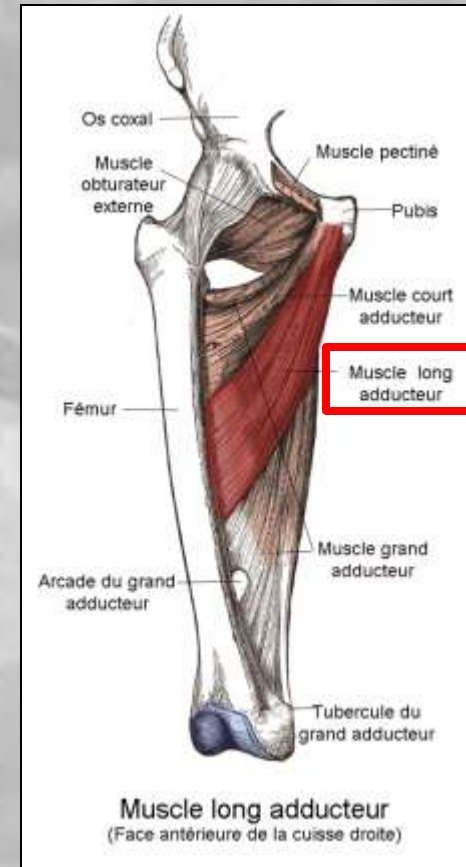
➤ **than open** (Ahumada 2005, Kumar 2002)

- **Jaeger et coll. (JTS 2009)** 80 soccer players - Nesovic (not modified) 90% good results

- **My experience** 105 Nesovic modified since 2006 – results ?



# Adductor pain



Very common in soccer +++++

# Surgery indications

- Isolated enthesopathy

- after failed conservative treatment

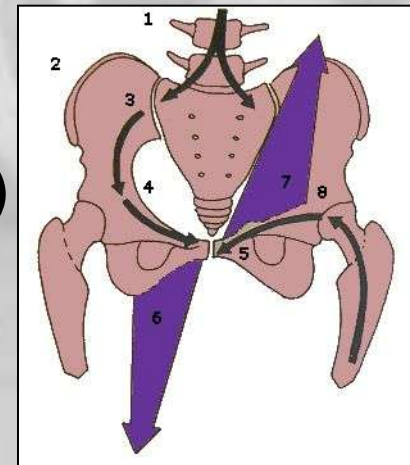


- Association with sports hernia

- persistent pain after sports hernia surgery

- immediately during hernia repair

(adductor participating to muscle imbalance)



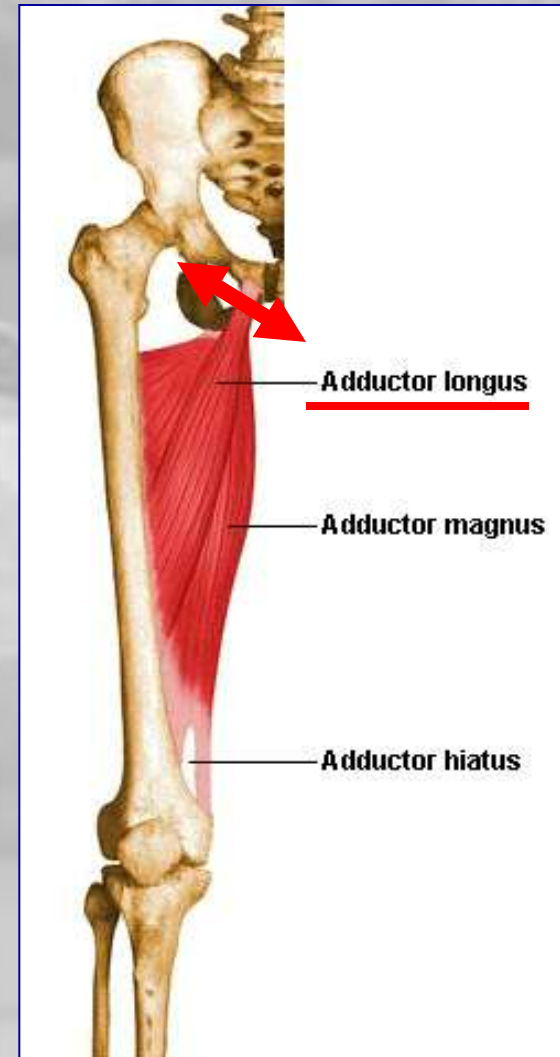
# Surgical technique

- Adductor tenotomy  
(adductor longus)

! Reduce adductor strength



Exceptionnall in my experience



# CONCLUSION



- No good treatment without good diagnosis
  - Groin pain  $\Rightarrow$  think sports hernia
- Don't loose time
  - 6 to 8 weeks failed conservative treatment  $\Rightarrow$  think surgery
- Which technique ?
  - Literature  $\Rightarrow$   $\approx$  same results (variation sports return, recurrence)
  - 2 philosophies / pain origin
    - *Posterior inguinal wall weakness*  $\Rightarrow$  *mesh*
    - *Muscular imbalance*  $\Rightarrow$  *myorrrophy*



# CONCLUSION



The question in Sports hernia surgery is not the point of view between a German or a French surgeon but between the orthopaedic or digestive surgeon ...

## Orthopaedic

muscles and tendons



## Digestive

fascias and peritoneum



# CONCLUSION



... last message « do what you're able to do ! »



*"Nurse, get on the internet, go to SURGERY.COM, scroll down and click on the 'Are you totally lost?' icon."*