Klinische diagnostiek
Lies / Quadriceps / Kuit

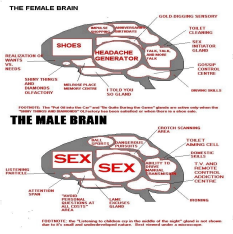
Wanneer mag ik weer?

Igor Tak PhD

1

Patients thoughts

- Identity
  - What is it?
- Causes
  - How did I get it?
- Timeline
  - How long will it take?
- Consequences
  - What are these
- Curability & Controllability
  - Will I get better and who can do what ?



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What is it?

Dr Google may help / be wrong

"Felt like someone hit my calf, teared apart, must be a tennis leg (zweepslag)"

Rule out

3

Use it!

Psychological factors such as optimism, suggestability and empathy have been linked to placebo

Psychological factors such as pessimism, anxiety and catastrophizing have been linked to nocebo

4

UNDER PROMISE
AND
OVER DELIVER
ALWAYS SET EXPECTATIONS
SO YOU CAN MEET AND EXCEED THEM

5

Acute muscle injury guideline

Assists clinicians & patients **managing expectations** towards their recovery

Identifying "What it is" importantly derived from history taking

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History taking

Type of injury

Injury due to direct blow or hit

Muscle contusion

No contact
MTU under tension
Eccentric contraction

Muscle strain injury
Rupture / avulsion

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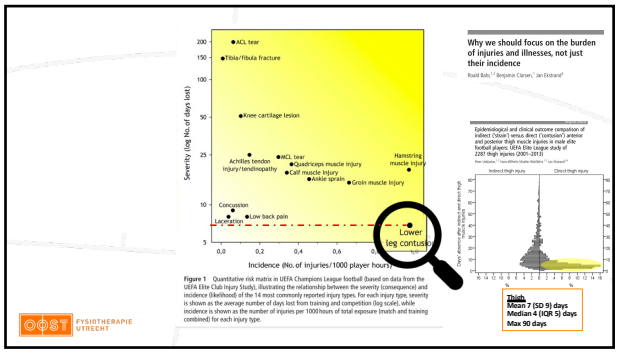

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Type of injury

Contusion

AKA "dead leg" /"ijsbeentje"

Direct force (collision impact) applied

Shorter (<2wks)

(Data from upper leg not groin/calf)

RTS

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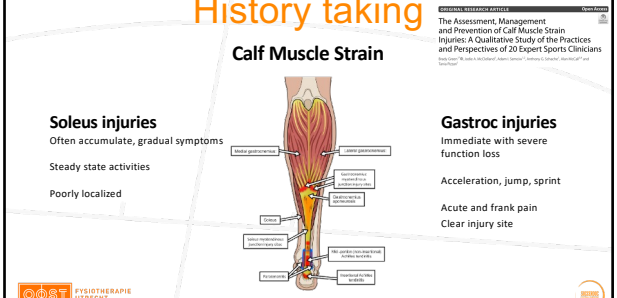
History taking

Calf Muscle Strain



Soleus injuries

Often accumulate, gradual symptoms

Steady state activities

Poorly localized

Gastroc injuries

Immediate with severe function loss

Acceleration, jump, sprint

Acute and frank pain

Clear injury site

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History taking

Quadriceps

Blocking a kick
Hitting the groiund

Adductor Muscle Strain

Injury Mechanisms for 110 Athletes With Acute Groin Injuries*

Injury Mechanism	Total (N = 110)	Football Codes (n = 84)	Other Sports (n = 26)
Kicking	36 (33)	34 (40)	2 (8)
Change of direction	22 (20)	14 (17)	8 (31)
Stretch situations	19 (17)	14 (17)	5 (19)
Sprinting/running	16 (15)	11 (13)	5 (19)
Jumping	8 (7)	5 (6)	3 (12)
Other	9 (8)	6 (7)	3 (12)

*Data are presented as n (%).

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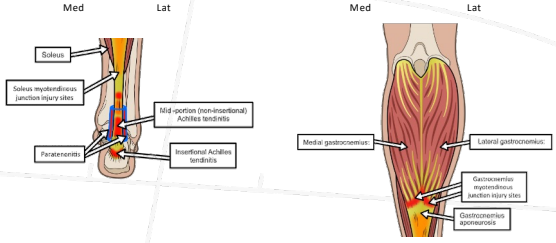
Clinical exam



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Clinical exam

Diagnosis of Acute Groin Injuries
A Prospective Study of 110 Athletes

Location of Acute Groin Injuries on Clinical, MRI, and US Examinations[a]

	Clinical	MRI	US
Total examinations, n	110	105	95
Negative imaging result, n (%)	NA	35 (22)	24 (25)
Injury location[b]			
Adductor	73 (66)	54 (66)	45 (63)
Adductor longus	—	50 (93)	41 (91)
Adductor magnus	—	1 (2)	1 (2)
Adductor brevis	—	9 (17)	7 (16)
Pectineus	—	10 (19)	5 (11)
Gracilis	—	1 (2)	2 (5)
Iliopsoas	28 (25)	14 (17)	13 (18)
Iliacus only	—	7 (50)	10 (77)
Psoas only	—	1 (7)	3 (23)
Iliacus and psoas	—	6 (43)	—
Rectus femoris	25 (23)	12 (15)	13 (18)
Abdominal	11 (10)	5 (6)	4 (6)
Sartorius	7 (6)	3 (4)	1 (1)
Multiple locations	32 (29)	7 (9)	6 (8)
Adductor and iliopsoas	12 (11)	—	1 (1)
Iliopsoas and rectus femoris	5 (5)	1 (1)	1 (1)
Rectus femoris and sartorius	4 (4)	—	1 (1)
Adductor and abdominal	3 (3)	5 (6)	3 (4)
Adductor, abdominal, and iliopsoas	2 (2)	—	—
Adductor and rectus femoris	2 (2)	—	—
Iliopsoas and abdominal	2 (2)	—	—
Iliopsoas and sartorius	2 (2)	—	—
Adductor and sartorius	—	1 (1)	—

2/3 is adductor injury
9/10 is longus
1/4 negative on imaging

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Clinical exam

Figure 2
A Defined clinical entities [14] (source: BJSM, with permission). B Clinical examination of the athlete with groin pain targeting presence of clinical entities [12] (source: Brukner's and Khan's Clinical sports Medicine, with permission).

B Examination for clinical entities

1+2: Adductor related
3: Iliopsoas related
7+9: Inguinal related
10: Pubic-related

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Clinical exam

1/4
1/3
4/10

Palpatory pain at bone (insertion) acute injury> 75% of high bone insertion are avulsion

Structural change (dimple/gap) increases likleyhood of avulsion or rupture
No gap doesn't rule out rupture

No pain at insertion likely rules out total rupture / avulsion

No insertional pain or gap : 2-4 wks
Insertional pain or gap: 4-11 wks

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Clinical exam

tendon
m. rectus femoris
m. vastus lateralis
m. vastus medialis

Palpatory pain Spina Iliaca Anterior Inferior
+
Large loss of function (power output)

Consider Avulsion

Structural change (gap) increases likleyhood of avulsion or rupture
No pain doesn't rule out rupture

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Not to forget

Public apophysitis: a previously undescribed clinical entity of groin pain in athletes

Apophysitis
Pain, often accumulates, gradual symptoms

But can have acute presentation

Growth related

Pain on symphysis

1
2
3a

Courtesy: Adam Weir

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Foot-ankle
Knee
Pelvis-Groin
Incidents per 10 players (95%CI)

Groups

Courtesy: Adam Weir

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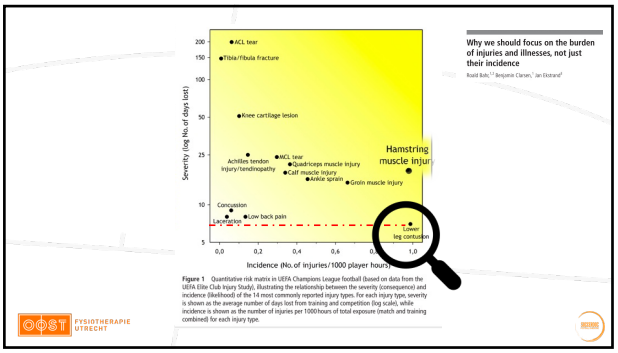

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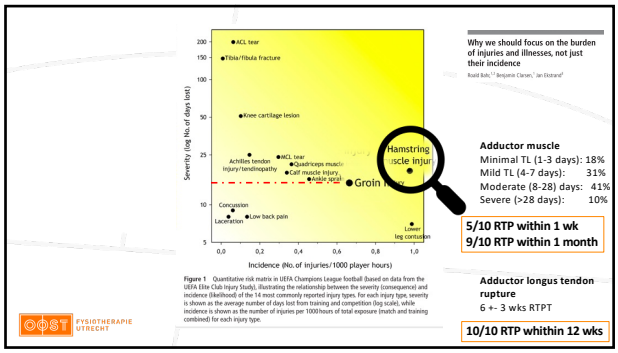

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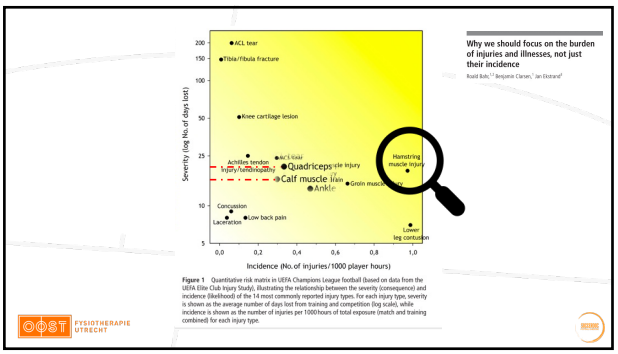

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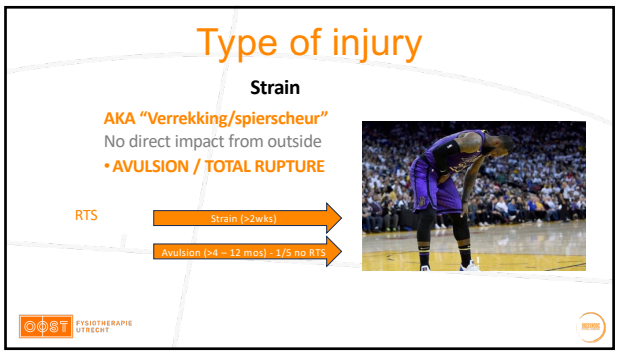

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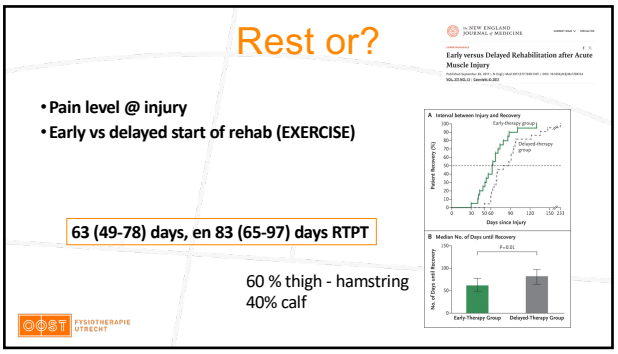

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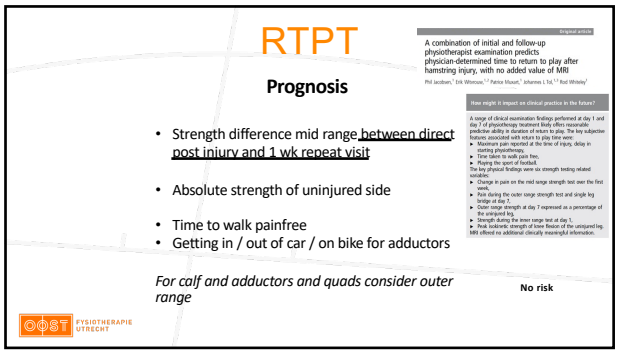

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RTP time prediction

- No RTPT prediction models exist for acute muscle injuries
- Contusions shorter (<2 wks) RTP than strains (usually 2-4 wks)
- Strains shorter RTPT than avulsions (4wks - 1 year)
- Loading early as tolerated shorter RTPT
- Decrease of pain and increase of strength on repeated assessment indicate shorter RTPT ("witness of recovery")

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