



CYCLIST WITH ACUTE ANTEROLATERAL THIGH PAIN

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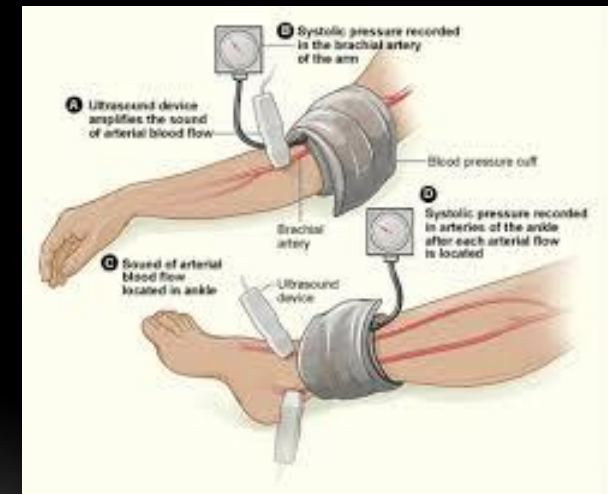
CASE REPORT

- 25-year old cyclist – Elite youth category as a teenager
- Acute onset of anterolateral pain in the right leg during a cycling race.
- PAIN/CRAMPING during minimal exercise
- PAIN resolves quickly when ceasing the effort
- No pain during daily living activities
- No medical history
- History of RAPID MUSCLE FATIGUE during endurance training in the past



PHYSICAL EXAMINATION

- Inspection: No static deviations
- ROM Hip and Knee: normal
- Normal ROM of the lumbal vertebral column
- Provocative test for impingment, negative. NO meniscal injury or instability
- No pain by palpation
- Normal Blood Pressure, Normal pulsations, Equal en good sensation in both legs
- No arguments for a muscle tear, radiculopathy, impingment
- Ankle-Brachial index (ABI): Normal
- Ankle-Brachial index (ABI): Postexercise (within 5 minutes)
 - Significant drop on the right side



CT-ANGIOGRAPHY

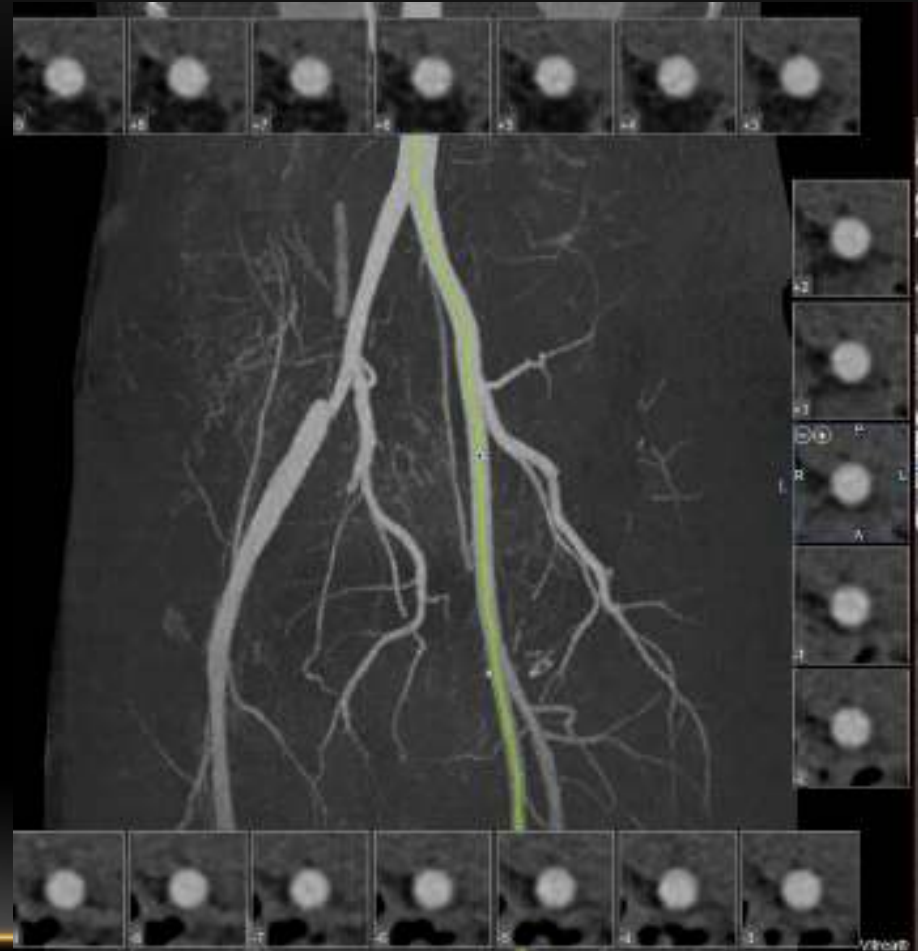
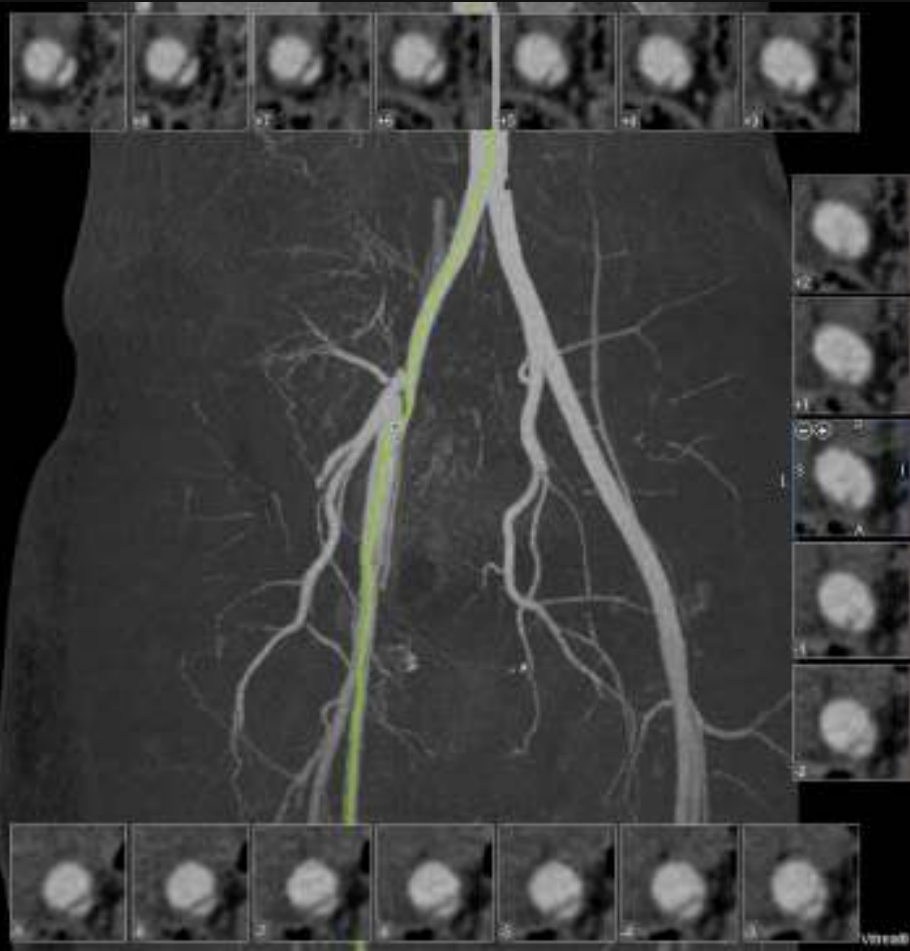
- Dissection of the arterial wall secondary to endofibrosis
- On the place where we see hypertrophy of de M. Psoas

Dissection ←

Endofibrosis ←

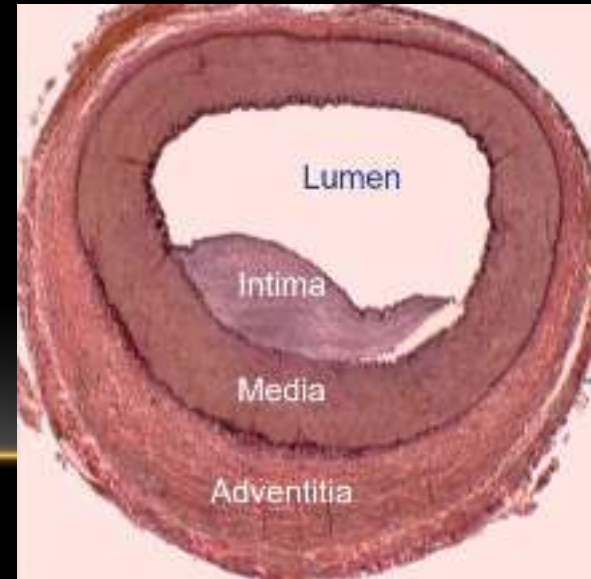
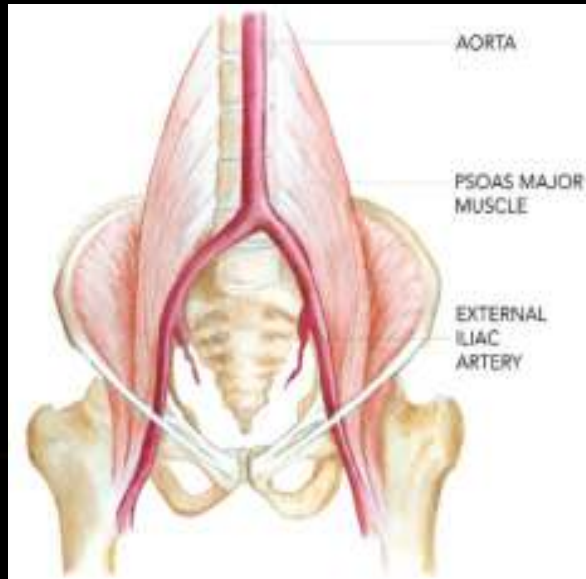


CT-ANGIOGRAPHY



ENDOFIBROSIS

- *Poorly recognised* condition affecting young endurance athletes
- A pathological process characterized by thickening of the vessel intima, causing progressive stenosis of the lumen and impaired flow.
- Adversely affect Performance
- In some cases, the lesion may also be complicated by overlying thrombus, DISSECTION, or atherosclerotic infiltration.



ENDOFIBROSIS – AN UNDERESTIMATED PROBLEM?



Veldrijden Elite met contract - Vincent Baestaens onderging liesoperatie

Vicent Baestaens: 'Alle miserie nu honnelijk voorhii'

Fabio Aru: When the iliac artery problem was diagnosed, I cried Italian to undergo surgery but relieved to understand why he had struggled in races

Lies pla

Welkeener die aan zijn linkse hand last van

Ferrand-Prevot out for four months with iliac artery end French rider requires surgery to fix problem

Kruijs aan li

De conurbat van Team De Investigator, onder andere

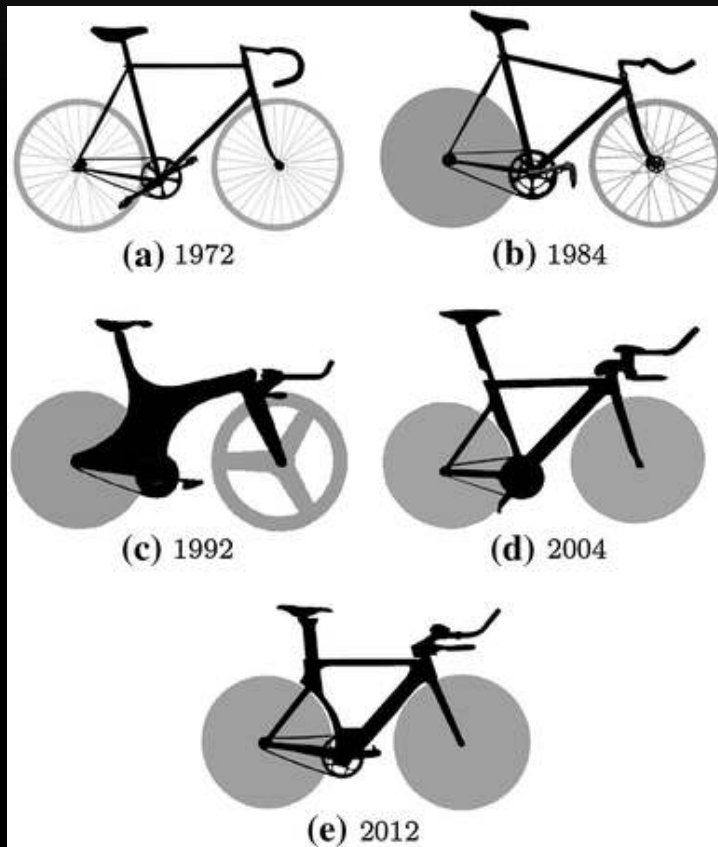


Pauline Ferrand Prevot (Fra) Canyon Factory Racing XC (Rob Jones)



Fabio Aru (UAE Team Emirates) (Tim de Waele/Getty Images Sport)

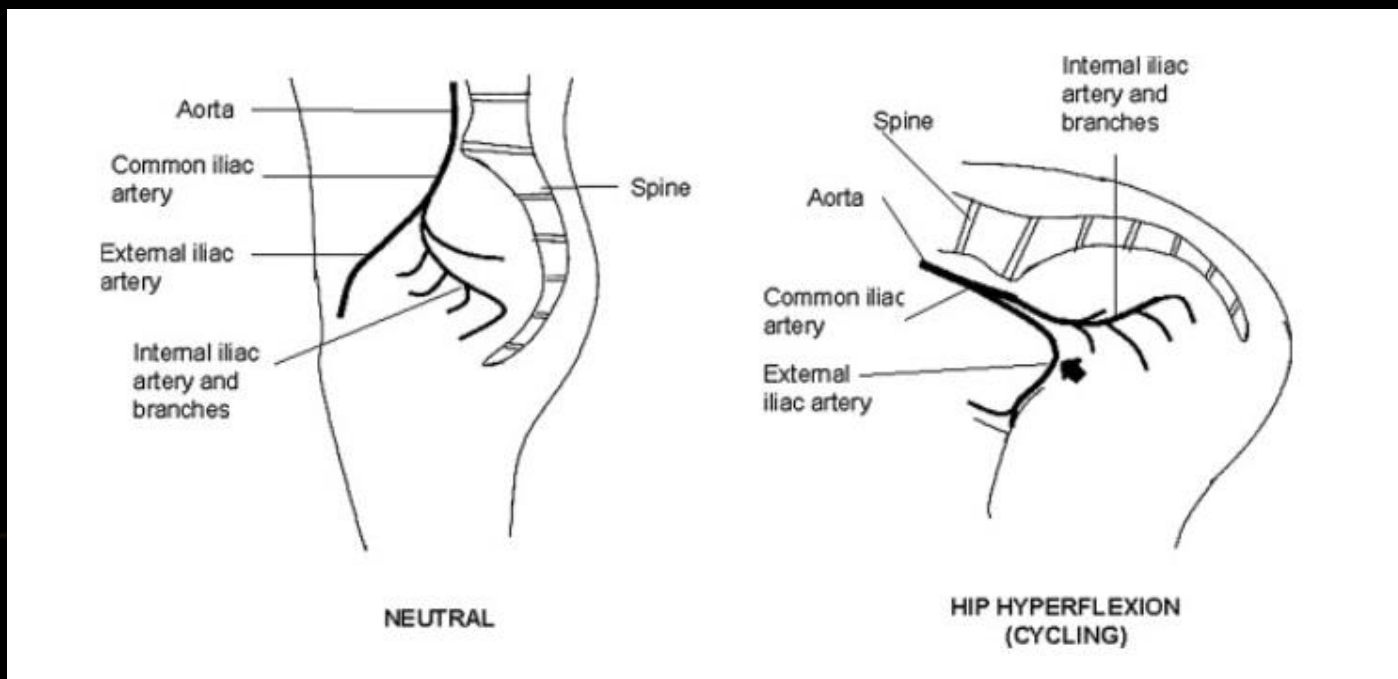
PREVALENCE AND PATHOPHYSIOLOGY



- UNKNOWN
- Mostly seen in cyclists – From the serious amateur to the professional
- First case reported in the mid 1980's
- Estimated 20% of all overuse injuries
- Left > Right
- 15% has bilateral flow limitation
- 90% of patients, endofibrosis affects the external iliac artery
- The fibrotic segment generally measuring 2 - 6 cm in length.
- Cycled an average of 120 000 km before showing any symptoms

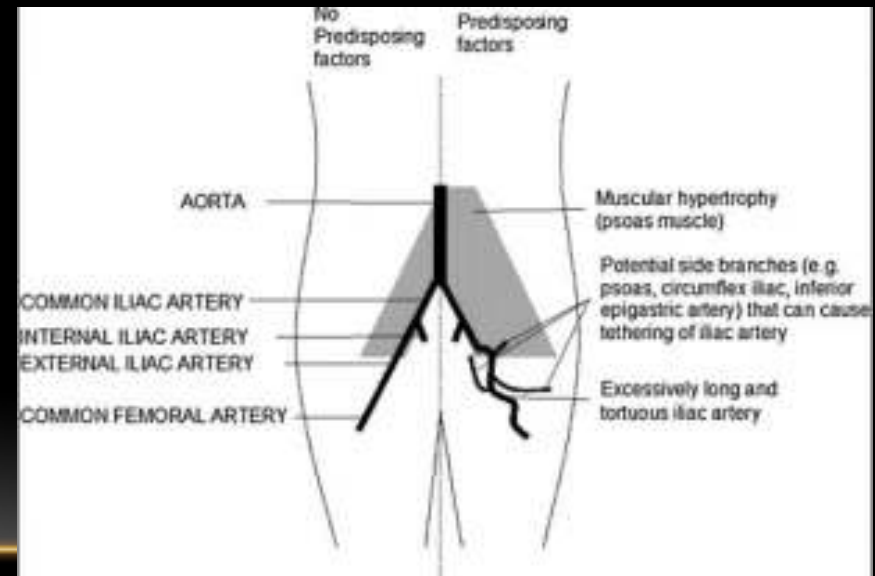
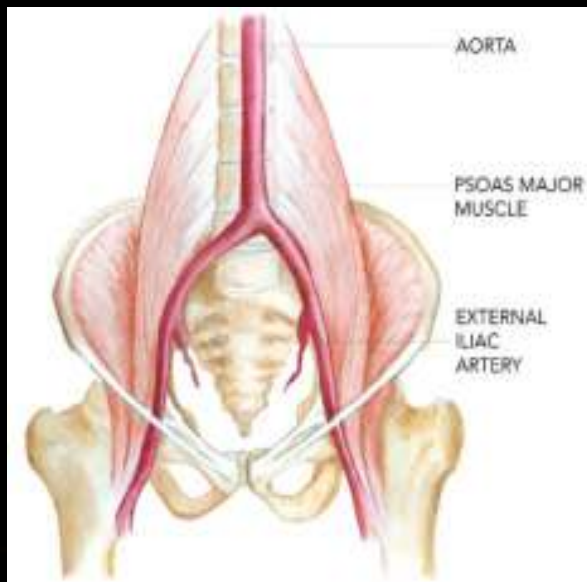
PATHOPHYSIOLOGY

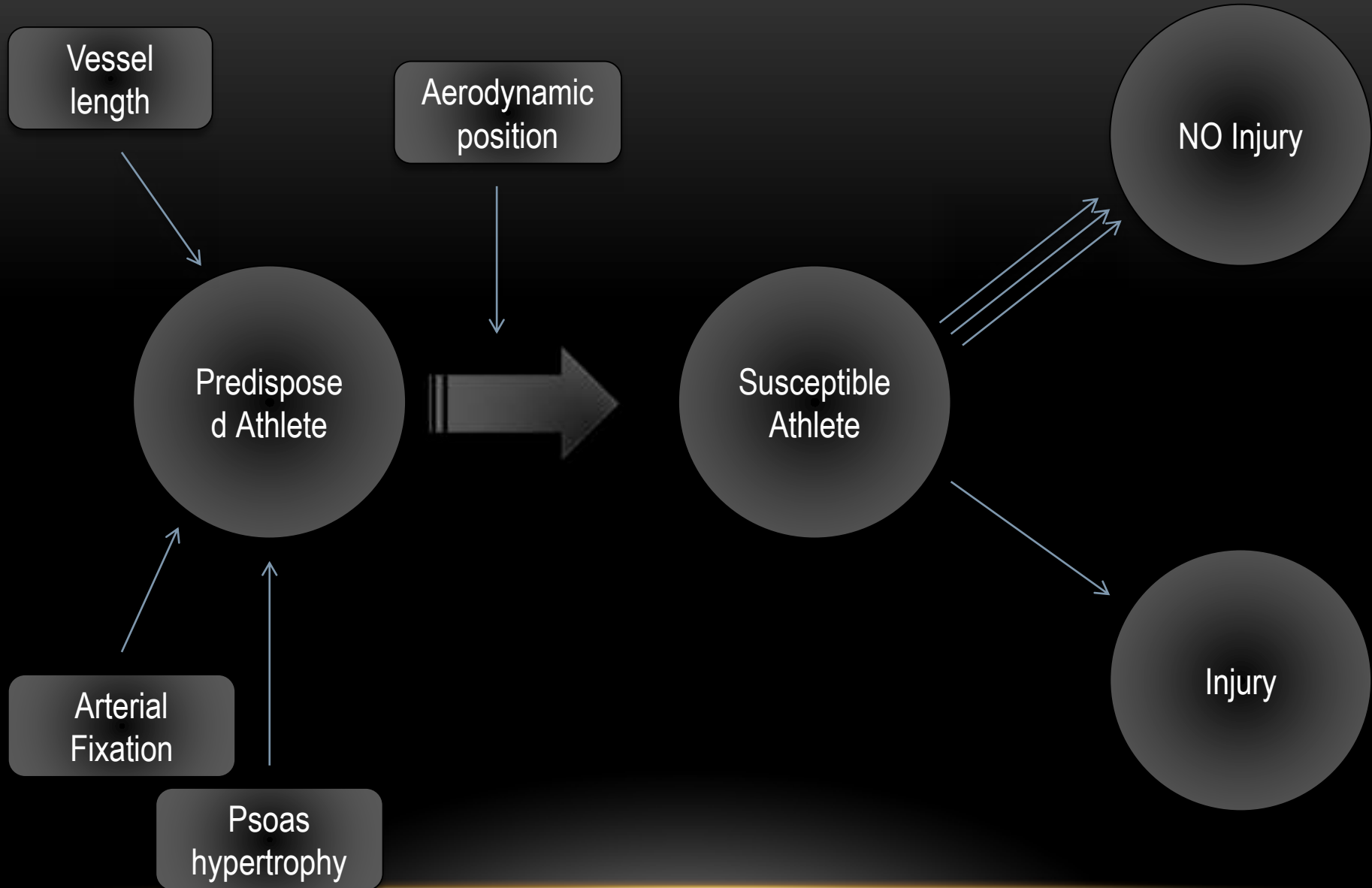
- Hypothesis: Extreme hyperflexion of the hip joint, repetitive stretching, elongation and deformation of the iliac artery
- Hypertrophy of the psoas muscle may further exacerbate this trauma
- High cardiac output, causing shear stress and stimulating endothelial dysfunction



PATHOPHYSIOLOGY

- Stretching of the external iliac artery may be exacerbated by psoas muscle hypertrophy
- Cyclists with the condition have been found to have asymmetrical thigh development, with thigh circumference up to 3 cm greater on the affected side.





Vessel length

Aerodynamic position

Predisposed Athlete

Susceptible Athlete

NO Injury

Injury

Arterial Fixation

Psoas hypertrophy

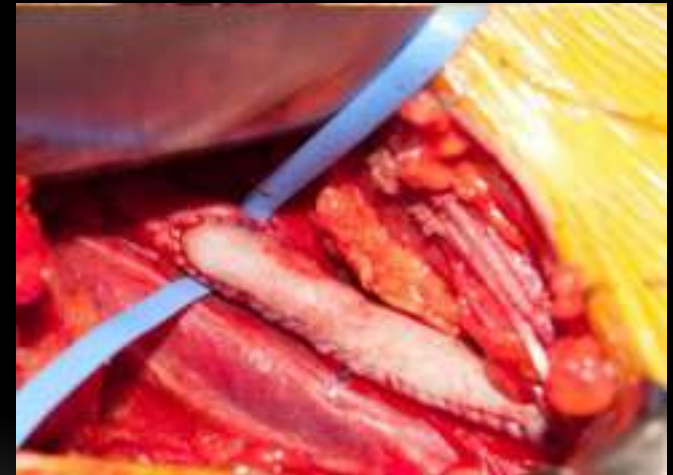
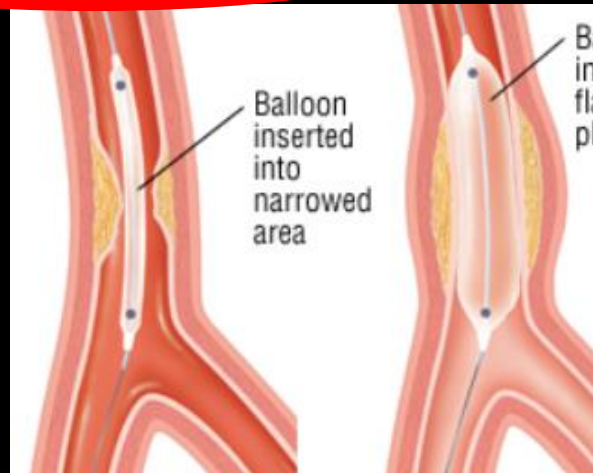
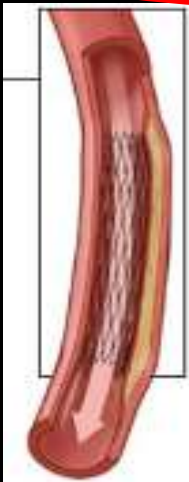
TREATMENT – CONSERVATIVE APPROACH

- Initially reduce the time and intensity of training
- Instructed to raise the handlebars or move the saddle position forward to limit hip flexion

→ Realistic?

TREATMENT – SURGICAL APPROACH

- Stenting Techniques
- Transluminal angioplasty
- Endofibrosectomy with patch angioplasty



WHAT IF...

- Aerodynamic evolution leads to more endofibrosis?
- Should you start selecting your cyclist based on favorable intrinsic risk factors?
- How can we early recognise risk factors?
- How can we perfect aerodynamic positioning without risking endofibrosis and accompanied decreased performance

→ Lots of work ahead of us



THANK YOU



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az delta

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