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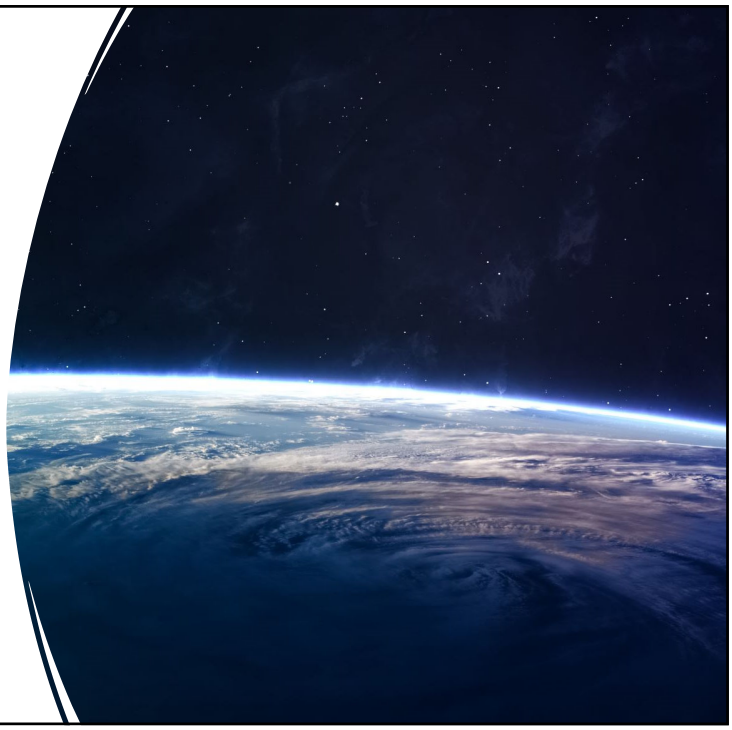
ICSC Hip Module Part 1
Assessment of the Hip

1

Evaluation of the Hip Part 1 Injury and Assessment FICS ICSC



Christine Foss MD, DC, M.S.Ed, ATC, DACBSP, ICSC

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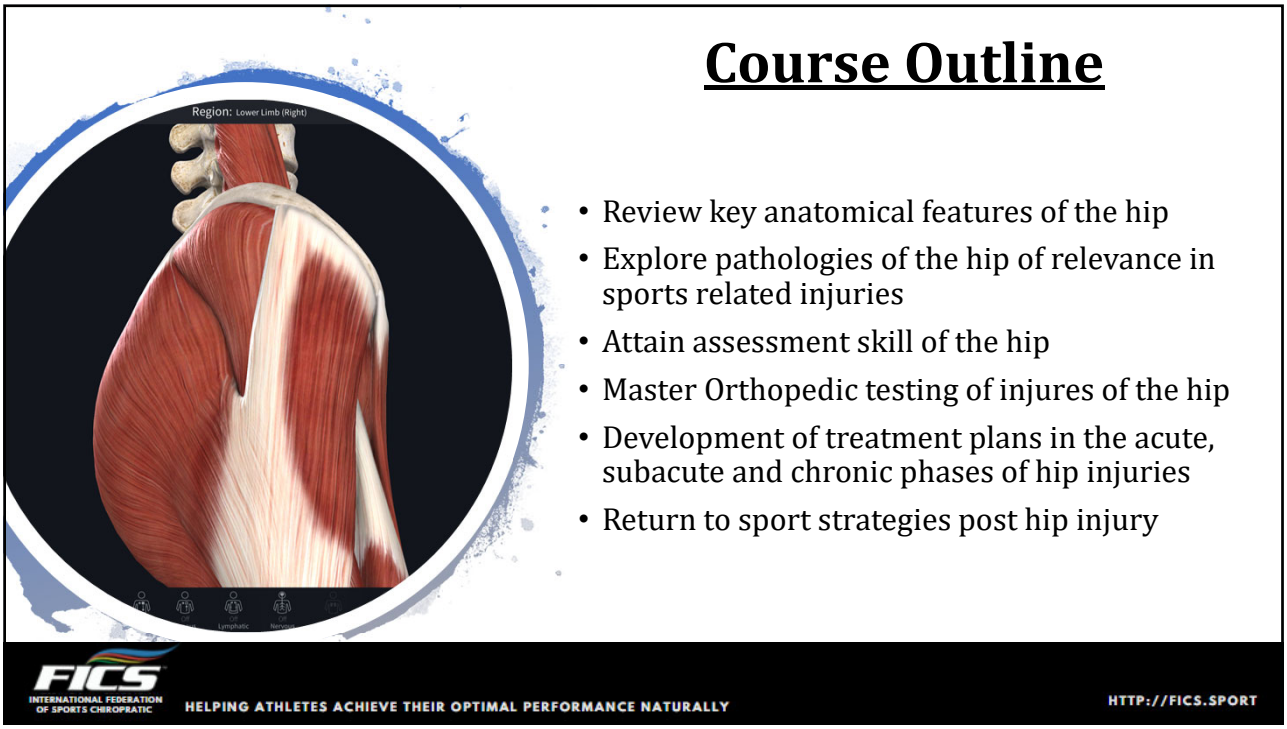
Course Outline
Region: Lower Limb (Right)
• Review key anatomical features of the hip
• Explore pathologies of the hip of relevance in sports related injuries
• Attain assessment skill of the hip
• Master Orthopedic testing of injures of the hip
• Development of treatment plans in the acute, subacute and chronic phases of hip injuries
• Return to sport strategies post hip injury
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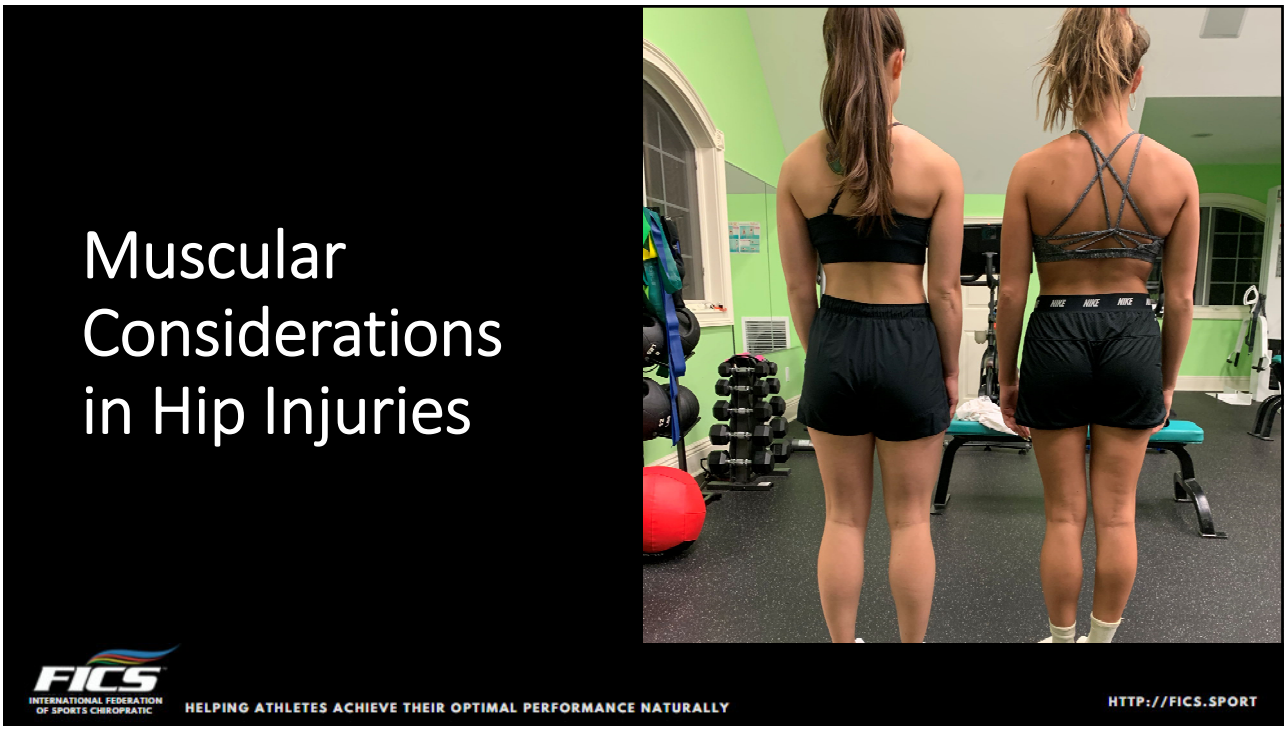
Muscular Considerations in Hip Injuries
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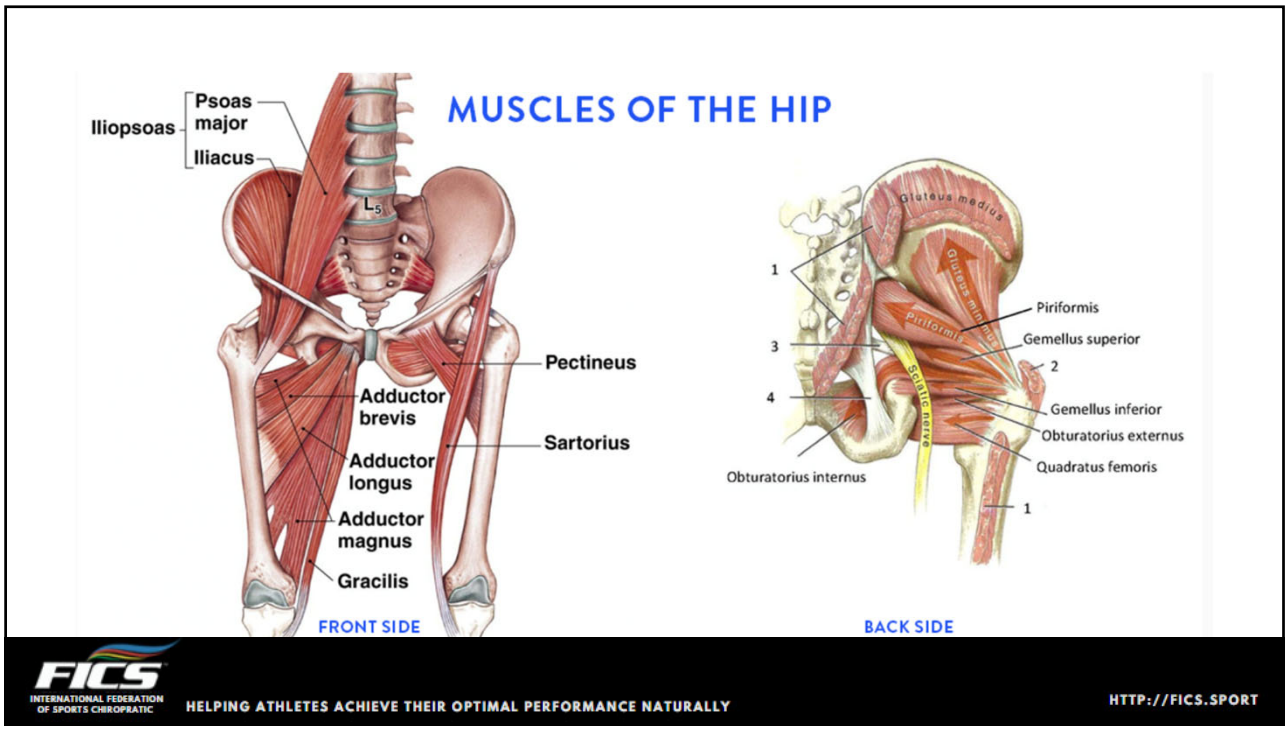
MUSCLES OF THE HIP
Iliopsoas
Psoas major
Iliacus
L5
Pectineus
Adductor brevis
Sartorius
Adductor longus
Adductor magnus
Gracilis
FRONT SIDE
Gluteus medius
Gluteus minimus
Piriformis
Sciatic nerve
1
3
4
Piriformis
Gemellus superior
2
Gemellus inferior
Obturatorius externus
Quadratus femoris
Obturatorius internus
1
BACK SIDE
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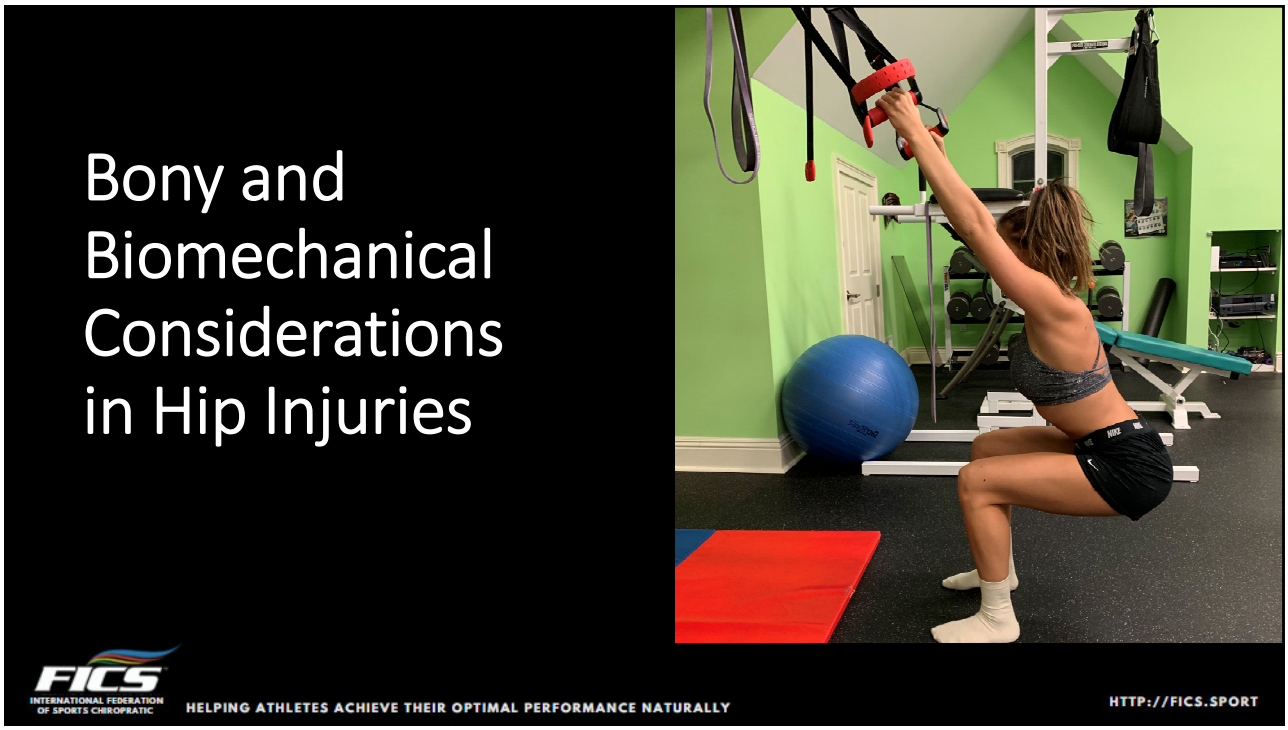
Bony and Biomechanical Considerations in Hip Injuries
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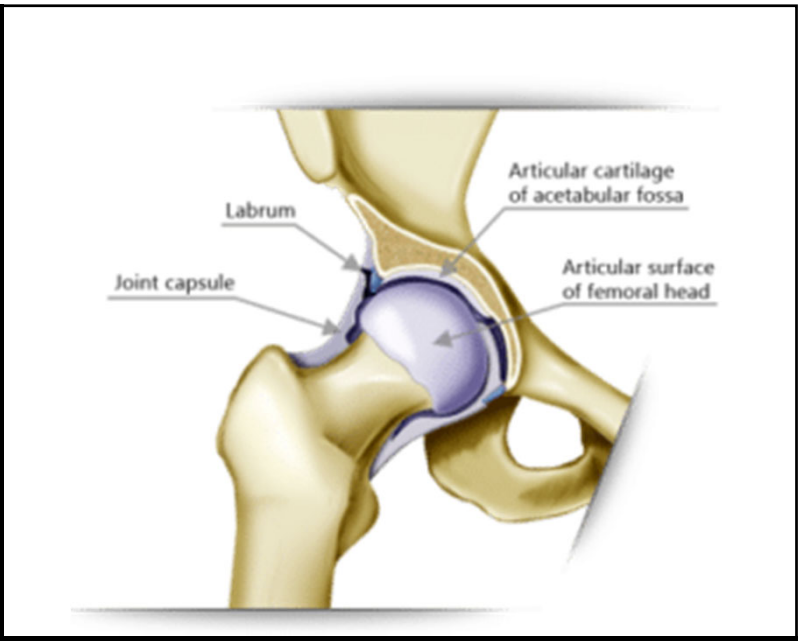
The HIP

- Basic Anatomy
- Articulation
- Multidirectional articulation
- Blood Flow
- Limitations
- Muscular Actions



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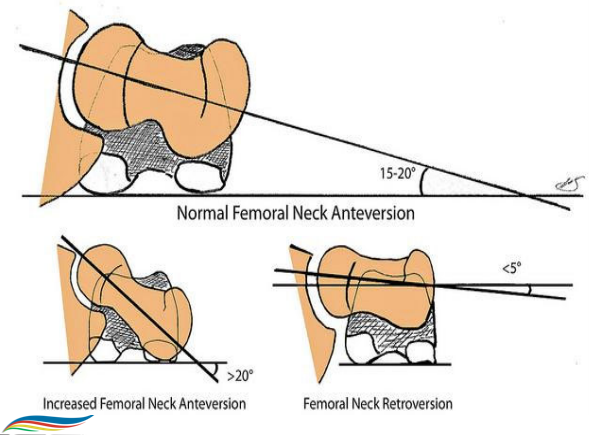
Angle of Femoral Torsion/Anteversion (AFT)



- *Angle of torsion* (aka angle of anteversion): occurs in the transverse plane between an axis through the femoral head and neck and the axis through the distal femoral condyles which creates a twist in the femoral shaft.
- The angle decreases with age: in the newborn it is approx. 40^0 and decreases to approximately 10^0-15^0 in adults (with a range between 7^0-30^0).
- A pathological increase in the angle is called femoral anteversion; and a pathological decrease is called femoral retroversion.

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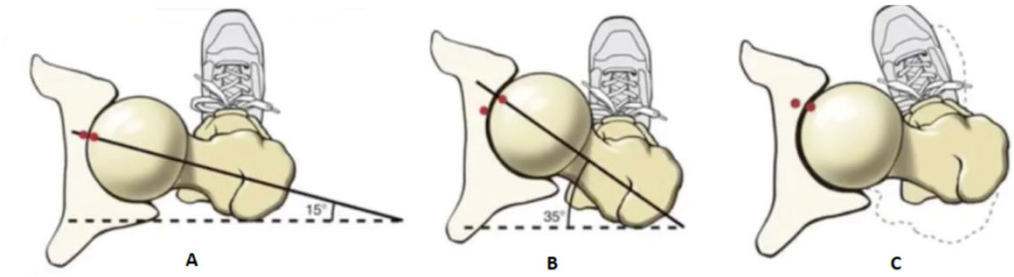
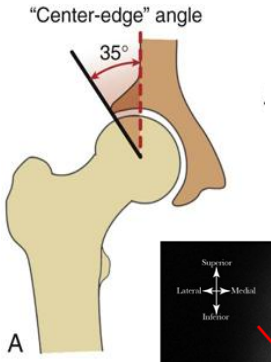
Femoral Anteversion, Age, Structure and Function

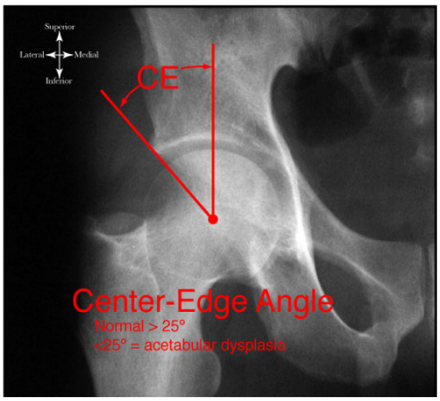


A) Normal Femoral anteversion at skeletal maturity B) Normal femoral anteversion in preschoolers 4-6 years C) Femoral anteversion and in-toeing

https://westernkidshealth.com/w-sitting-why-the-drama/

9





Centre Edge Angle of Acetabulum (CEA)

- Centre Edge Angle of the Acetabulum is the measurement of inferior angulation of the acetabulum.
- It is measured by the line connecting the lateral rim of the acetabulum and the centre of the femoral head. This line forms an angle with true vertical.
- Average measurements:

38^0 in males

35^0 in females

- A smaller CE angle makes the acetabulum more vertically orientated and results in less coverage of the femoral head resulting in less joint stability.

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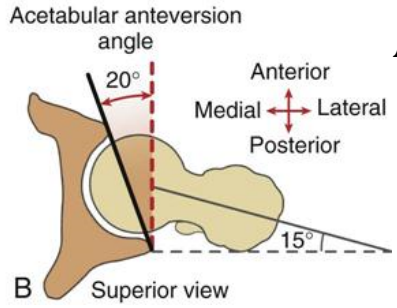

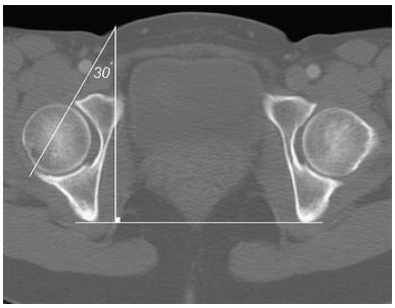

Angle of Acetabular Anteversion (AAA)

- Acetabulum faces laterally, inferiorly and anteriorly

.

- The magnitude of the anterior orientation is called the angle of acetabular anteversion.

- Pathological increase in angle of anteversion causes decreased joint stability and an increased tendency for anterior dislocation of head of femur.

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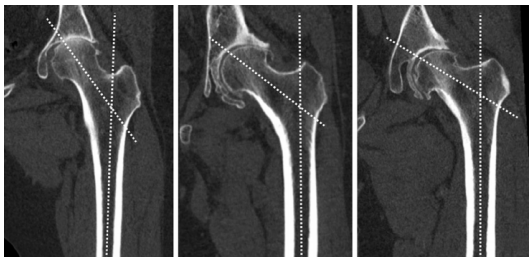

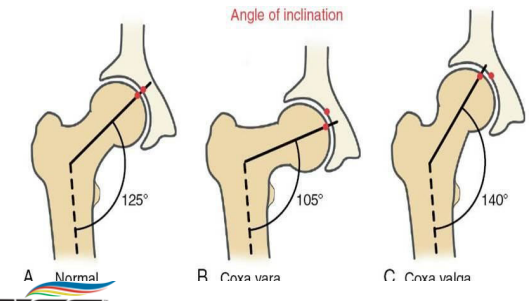

Angle of Femoral Inclination (AFI)

- *Angle of inclination* occurs in the frontal plane between an axis through the femoral head and neck and the longitudinal axis of femoral shaft.
- In early infancy is approximately 150^0 and decreases to avg. of 125^0 in the normal adult and to approximately 120^0 in the elderly.
- Normally, the greater trochanter lies at the level of the center of the femoral head.
- Pathological increase in the angle is called coxa valga; and a pathological decrease is called coxa vara.

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The Hip Exam

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Are All HIPS Created Equal?

- Males vs. Females
- Age of the Athlete
- Sport (mechanism of injury)
- Past Medical History- consider all

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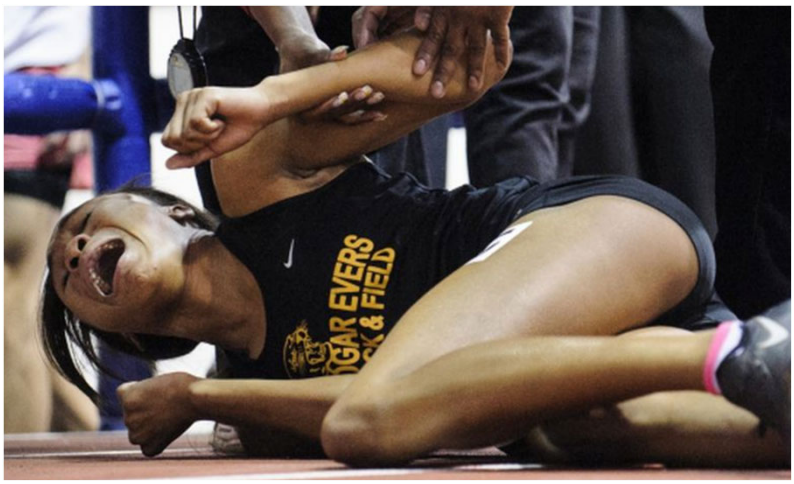
How Does The Patient Present

- Ability to bear weight
- Gait alterations
- Acute or chronic
- Mechanism of injury
- Sounds or "it felt like"
- On the field or off?

On the Field Exam of the Hip

- If on the field begin your exam is going to be quick and direct.
- Rule out fracture/dislocation
- Rule out neurological injury
- Rule out Circulatory Injury
- Check for stability to transfer



Off the Field or Sideline Exam

- Get in the habit of doing your hip exam in the same order if possible
- This way you effectively evaluate each structure and don't forget one
- Listen to the patient. They will tell you what and how you need to examine them .

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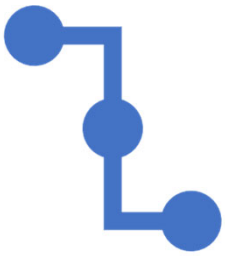

Where to Begin

Know where you want to go before you start

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Organize your exam so you do all test in one patient position before having them change positions if possible

Consider patient comfort.

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Don't Forget to Look at…

- Leg Length Differences
- Tibial Torsion
- Bruises, scars, shoes
- Patient position of comfort

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Supine Exam of the Hip

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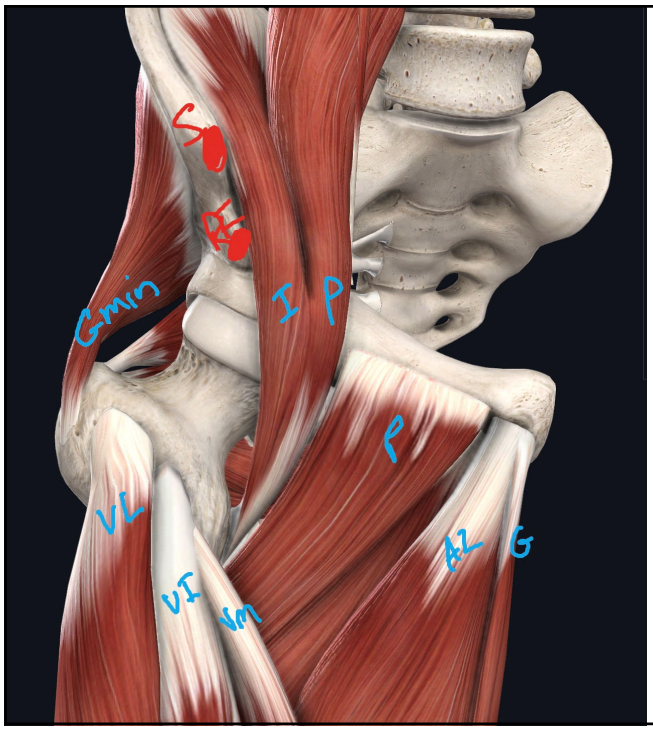

Dissecting mechanisms of sports injury

- -What is the area of complaint
- -Examine the anatomy in the region
- -Understand the function of the anatomy
- -Couple with anatomy and the function to determine potential injured structures

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Log Roll

- Checking for intra-articular lesions

- - This could include arthritis,
- - F/A inflammation secondary to…
- - Labral Irritation

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Palpate The Area of Pain

- Bony Injury? Know your landmarks and possible pathologies in the region
- Be aware of age/gender related injuries

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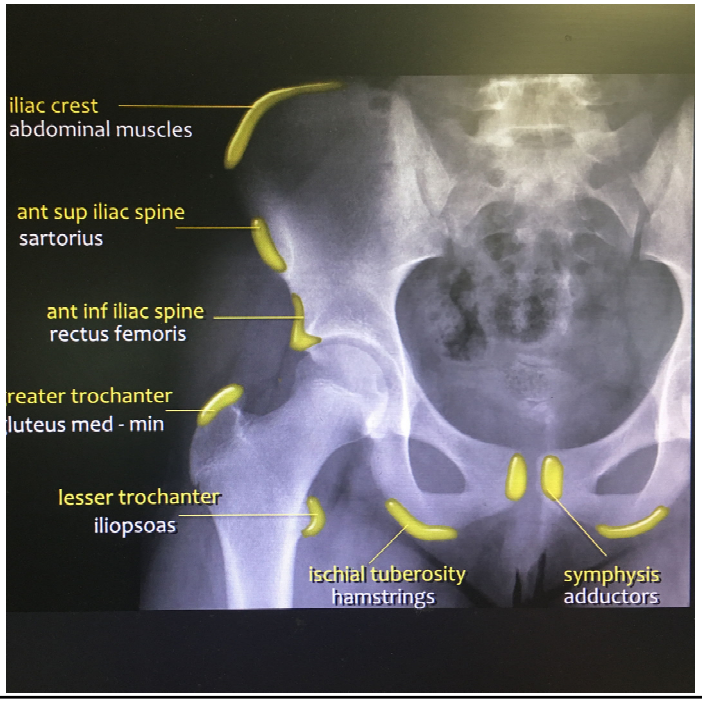

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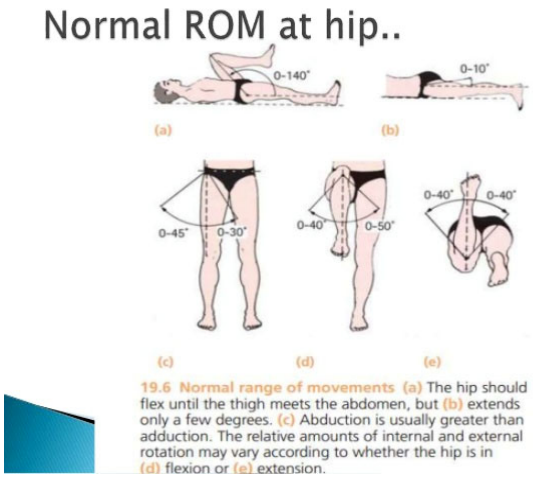
Range of Motion of the HIP

- Flex :140
- Ext : 10
- Abd: 45
- Add: 30
- IntRot:40 (seated)
- ExtRot 50 (seated)
- Prone: IR40
- Prone: ER 40



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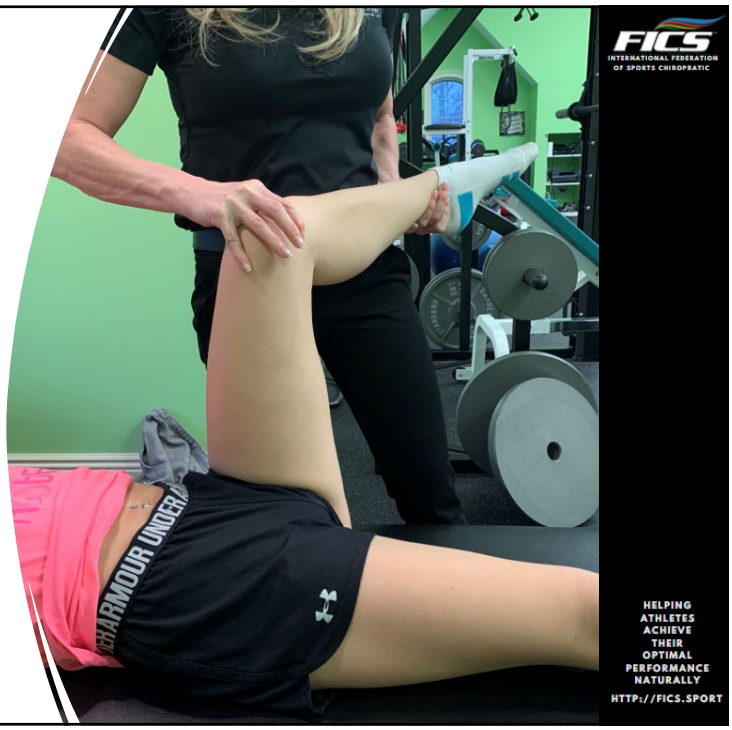
Feel the End Fields of IR/ER

- Soft or Hard End field
- Pain in one Direction
- Compare Bilaterally
- Are there postural issues
- Are there gait issues



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Manual Muscle Testing

Test Strength and compare bilaterally

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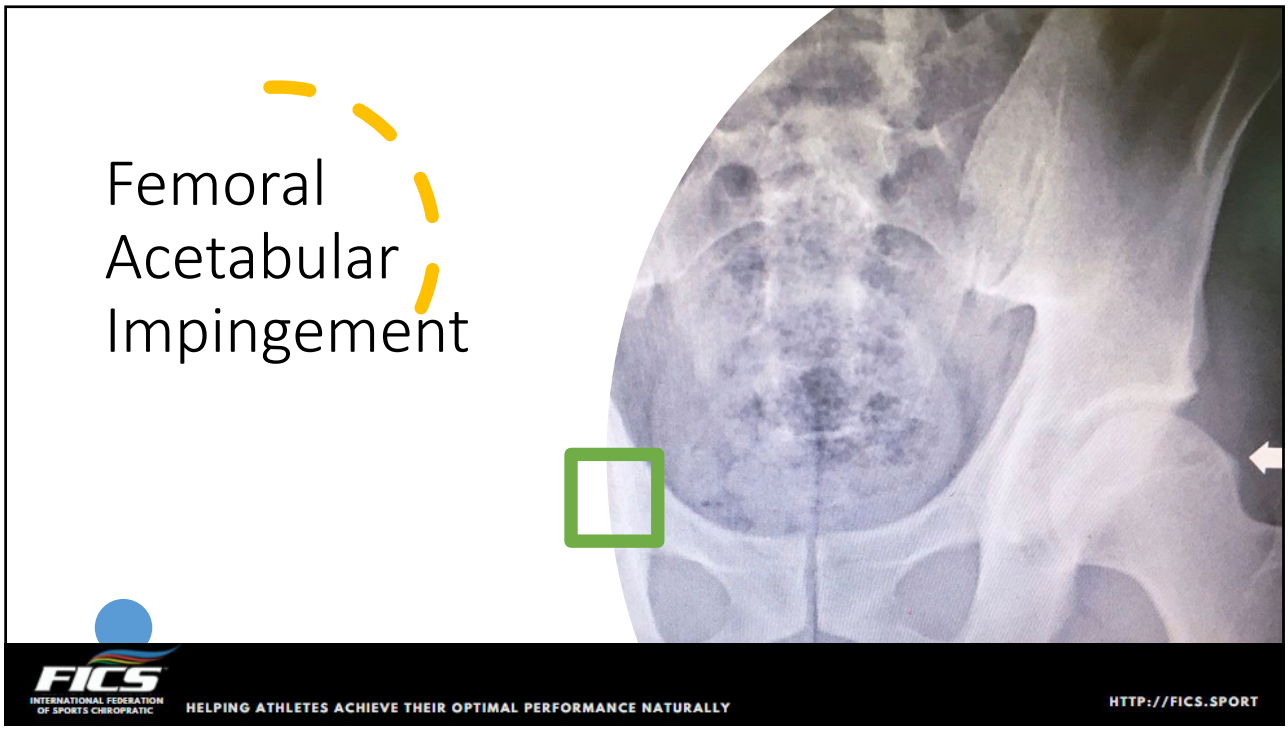
Femoral
Acetabular
Impingement
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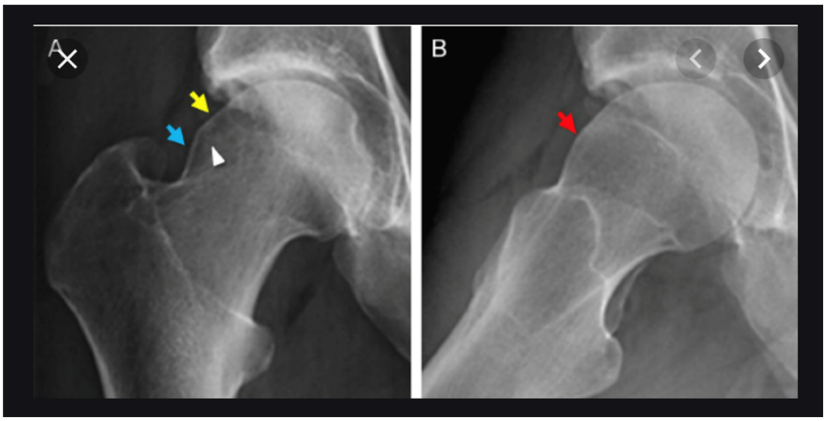
Femoral Acetabular Impingement Testing

- Cam
- Pincer
- Mixed

- Flex and watch
- Bilateral comparison



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Scour Test

- Begin Slowly
- Labral Tears

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Labral Tears of the Hip

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Side Lying Tests

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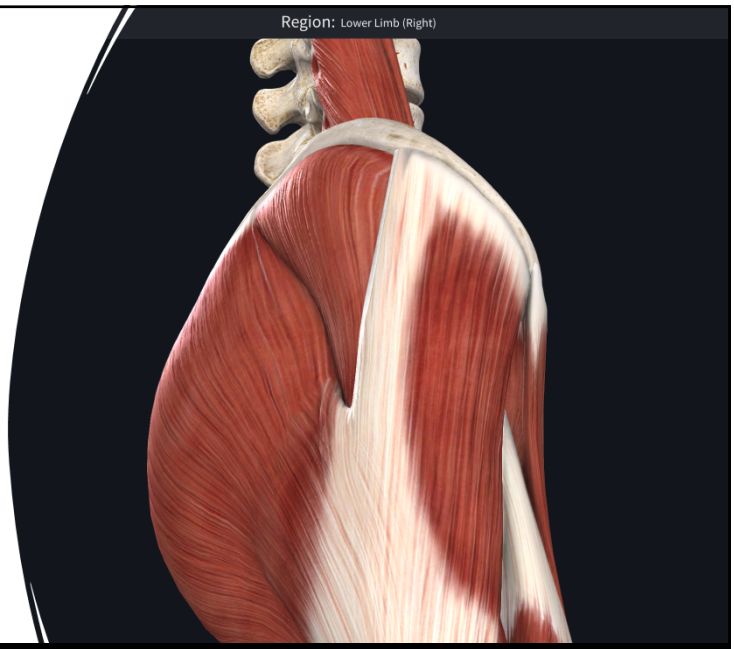
Structure and Functional Assessment



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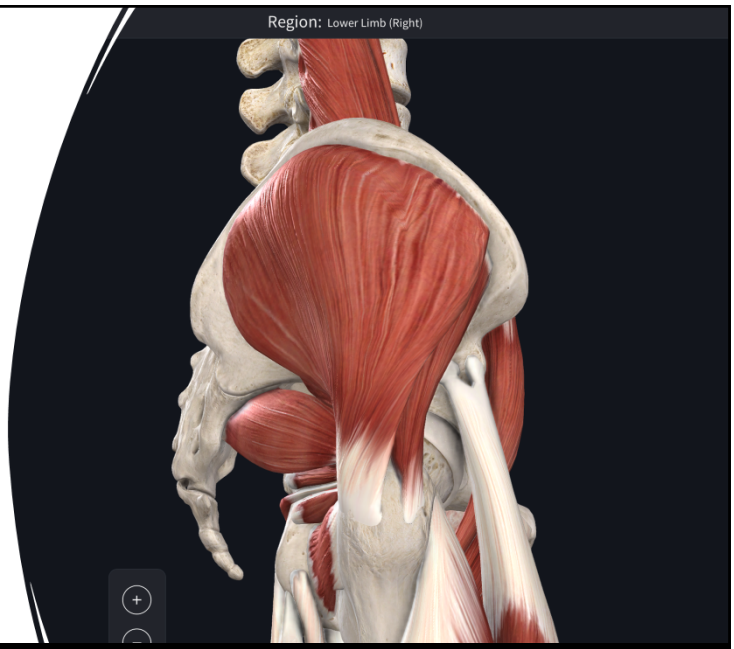
Gluteus Medius Gluteus Minimus



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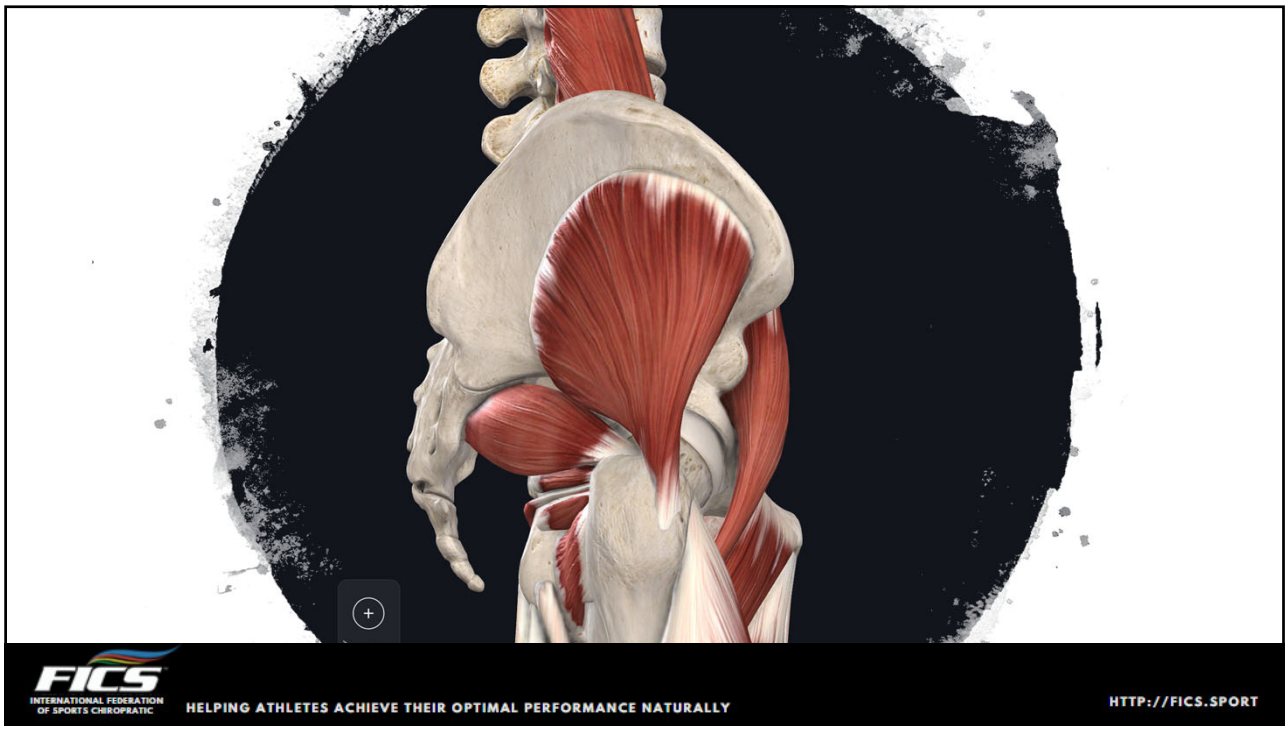
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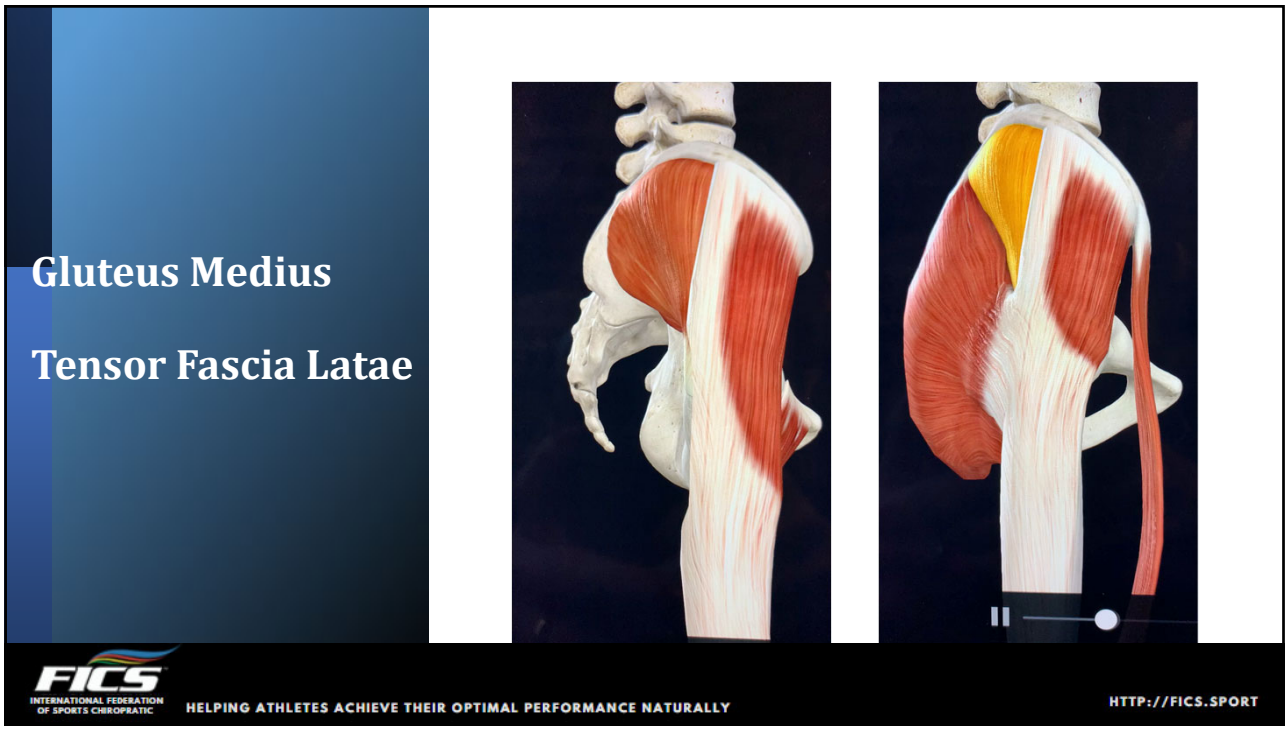
Gluteus Medius
Tensor Fascia Latae
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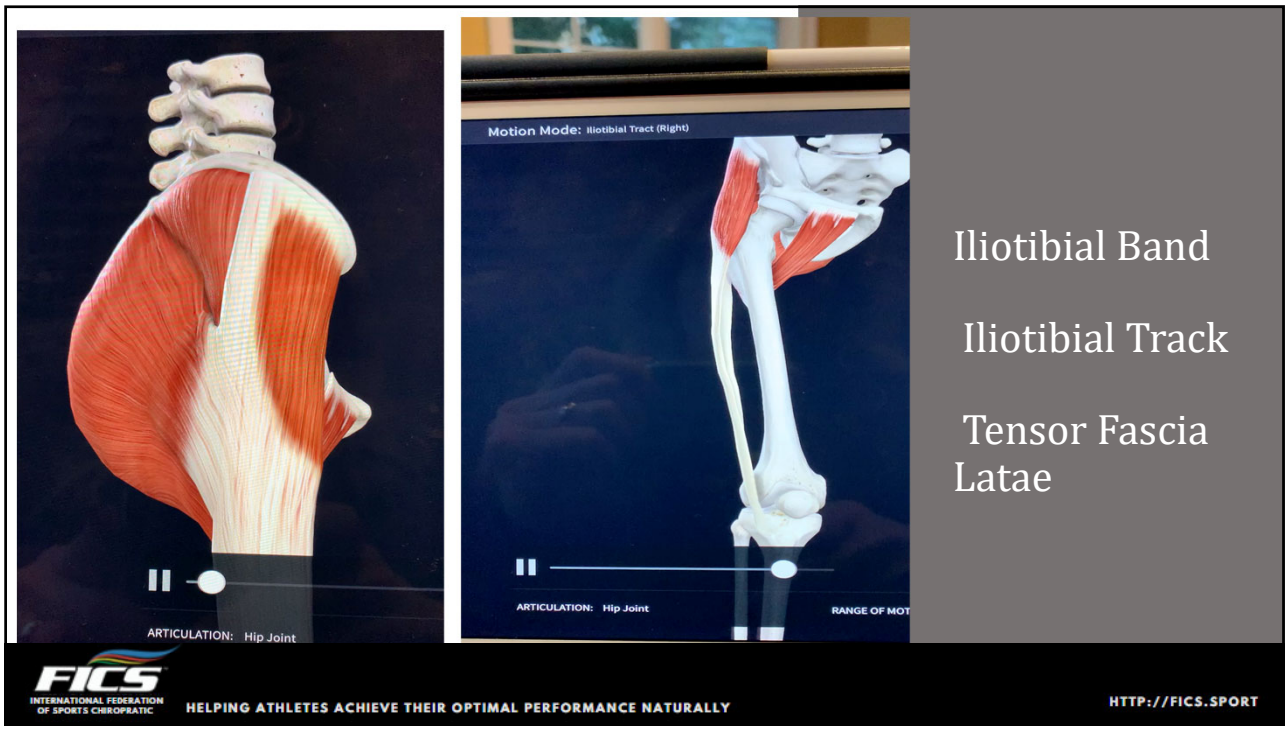
ARTICULATION: Hip Joint
Motion Mode: Iliotibial Tract (Right)
ARTICULATION: Hip Joint
RANGE OF MOT
Iliotibial Band
Iliotibial Track
Tensor Fascia Latae
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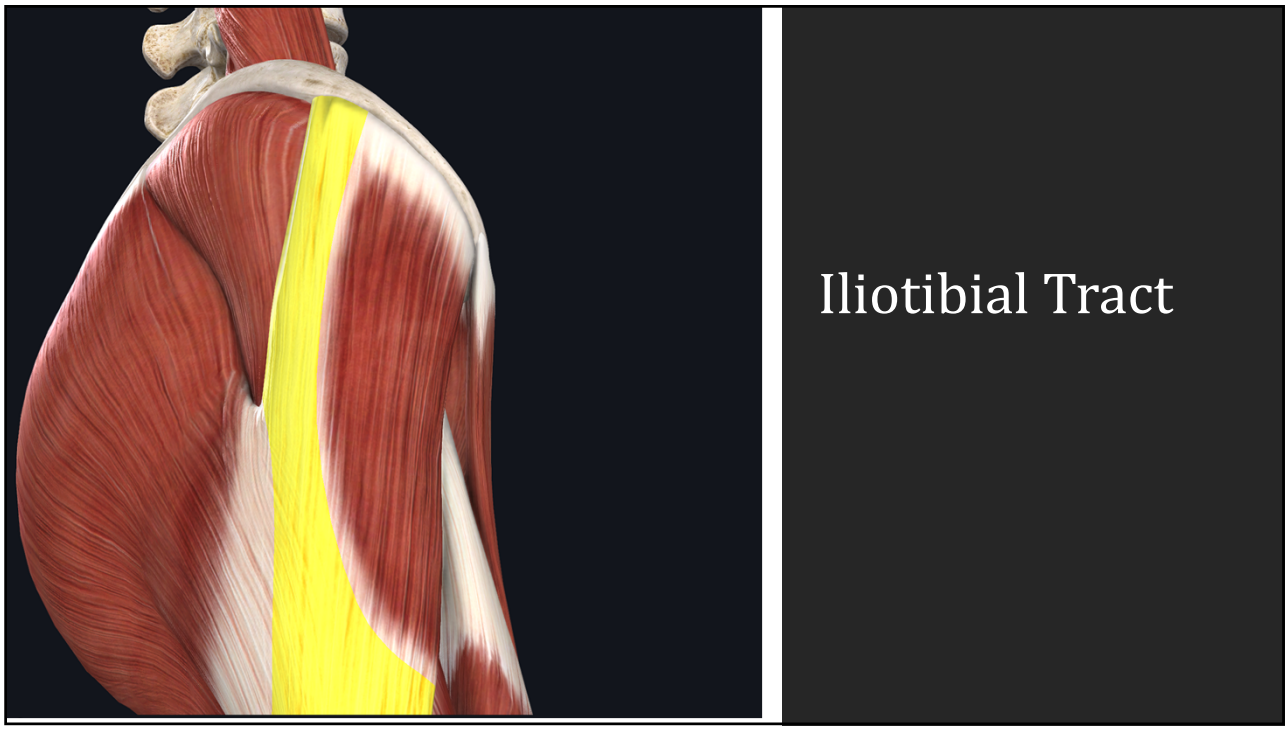
Iliotibial Tract

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Manual Muscle Testing Side Lying Position

- Glute Min- Straight ABD
- Glute Med-Abd, Slight Ext, ER
- TFL- Abd, 45 degrees flex, IR

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Obers Test

- Test TFL for tightness, ITBand Syndrome
- Compare Bilaterally

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Faber's Test

What are you testing for?

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Palpate Side Lying Structures

- Glute Med Tears,
- ITB
- Proximal TFL
- Greater Trochanter
- ASIS
- AIIS
- Hip Capsule

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Prone Exam

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Inspection

Look at Asymmetries, defects, ecchymosis, deformity, atrophy

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Hip ROM Prone

- Internal Rotation
- External Rotation
- Knee flexion (look for hip "pop")

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Manual Muscle Testing

Glute Max

Hamstring (proximal and distal)

Hip IR/ER

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Review any questionable tests

At this point you should have your hip dx

Order any follow up tests

Create your treatment plan

Hip Eval Supine

- Log Roll
- ROM Flexion/Int/Ext
- FAI
- Scour
- MMT Rec fem, Sartorius, Pectineus, Adductor group (tease apart for rehab strategy)
- Iliac compression test
- Palpate origin of pertinent muscle groups.

Hip Side lying Exam

- MMT – Glute Med, Min and TFL
- Obers Test
- Palpate Pertinent muscles groups, proximal TFL, IT Band and tract, Glute med and min insertion on the femur, greater trochanter
- Bony regions of tenderness or pain

Prone Hip Exam

- Muscle contour and utilization-consider past injury
- Prone ROM, Hip Int/Ext rotation
- Craig's test
- Nachlas
- Ely's
- MMT hamstrings, glute, hip ir/ext rotation
- Foot structure and variances

Key Take Away Considerations

- 1. Not all hips are equal- work through your exam with this in mind. Look for muscular, anatomic, structural nuances that may be a factor in the predisposition to injury
- 2. Become proficient at a quality hip exam on EACH patient. Look for the WHY…


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TM
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Thank You

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