

Quadriceps and Hamstrings Injuries

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Disclosures

- None

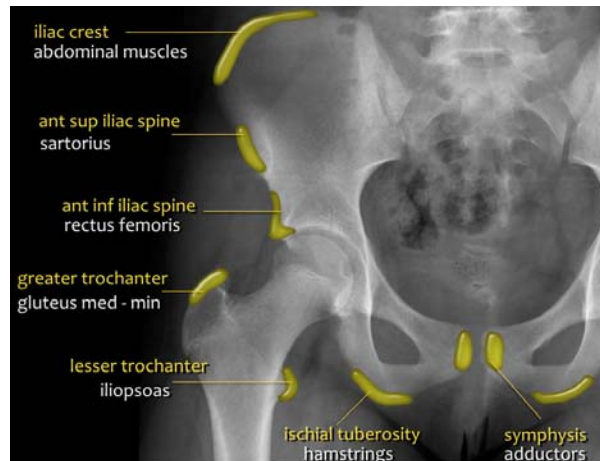
Objectives

- Understand, recognize, and treat quadriceps injuries including:
 - AIIS avulsion
 - Quadiceps contusion
 - Rectus femoris strains
 - Quadriceps tendon rupture
 - Patellar tendon rupture
- Understand, recognize, and treat hamstring injuries including:
 - Ishial tuberosity avulsion
 - Hamstring strain
 - Tendon rupture

Quadriceps Injuries

- Anterior Inferior Iliac Spine avulsion
- Quadricep contusion
- Rectus femoris strain
- Quadricep tendon rupture
- Patellar tendon rupture

Anterior Inferior Iliac Spine Avulsion



AIIS Avulsion

- Seen in adolescent athletes
- Occurs during hip extension and knee flexion
- Athlete notes a “pop”
- Weakness and pain with hip flexion
- X-rays show an avulsion of the AIIS
- Treatment
 - Less than 2 cm – rest with hip flexed for 2 weeks, ice, protected WB, stretching and strengthening, gradual return to activities
 - Greater than 2 cm - ORIF

Quadriceps Contusion

- Direct trauma to the anterior thigh
- Pain, swelling, point tenderness, ecchymosis
- Worsening severity 24-48 hour
- Pain with active knee extension and passive flexion
- Compare thigh circumference and firmness to contralateral side
- Maintain suspicion for compartment syndrome and hematoma development

Quadriceps Contusion

- Compartment syndrome
 - Usually due to rupture of perfusing vessels
 - Compartment pressure rises to a level that decreases perfusion
 - Pain out of proportion
 - Pain with passive flexion
 - Parathesia
 - Absent peripheral pulses
- Treatment
 - Emergent fasciotomy

Rectus Femoris Strain

- Extends the hip and flexes the knee
- Injury due to overstretching resulting in tearing of the muscle fibers
- Occurs in the muscle belly and myotendinous junction
- Focal tenderness
- Palpable gap in full thickness tears
- Pain with resisted hip flexion or knee extension
- Treatment
 - NSAIDs, rest, ice, stretching and strengthening
 - Usually resolves in 4-6 weeks

Quadriceps Tendon Rupture

- Leads to disruption of the extensor mechanism
- More common than patellar tendon rupture
- Often underlying tendonopathy
- History of pain leading up to rupture
- Palpable defect
- Inability to perform a straight leg raise
- X-ray will show patella baja

Quadriceps Tendon Rupture

- **Non-operative treatment**
 - Partial tear with intact extensor mechanism
 - Patients who are not surgical candidates
 - Knee immobilization 3-6 weeks
 - Progressive weight bearing
 - Stretching and strengthening
- **Operative treatment**
 - Loss of extensor mechanism
 - Primary repair with reattachment to the patella

Patellar Tendon Rupture

- Leads to disruption of the extensor mechanism
- Less common than quadriceps tendon rupture
- Sudden quadriceps contraction
- Pop and infrapatellar pain
- Palpable gap and high riding patella
- Inability to perform a straight leg raise
- Patella alta on x-ray

Patellar Tendon Rupture

- **Non-operative treatment**
 - Partial tear with intact extensor mechanism
 - Patients who are not surgical candidates
 - Knee immobilization 3-6 weeks
 - Progressive weight bearing
 - Stretching and strengthening
- **Operative treatment**
 - Disruption of extensor mechanism
 - End to end tendon repair
 - Transosseous tendon repair

Hamstrings Injuries

- Ischial tuberosity avulsion
- Hamstrings strain
- Tendon ruptures

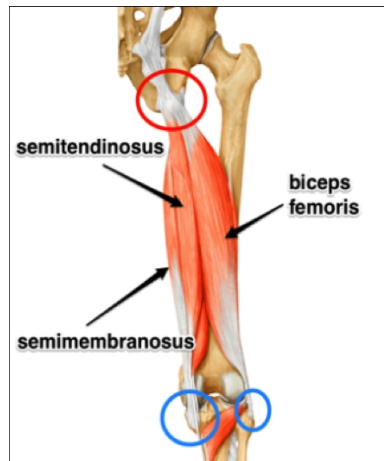
Ishial Tuberosity Avulsion

- Seen in adolescent athletes
- Feel a “pop”
- Pain and weakness with hip extension
- X-ray shows avulsion of the ischial tuberosity
- Treatment
 - Less than 2 cm – rest, ice, protected WB, stretching and strengthening
 - Greater than 2 cm - ORIF

Hamsrings Strain

- Often occurs with sprinting
- Usually at the myotendinous junction
- Focal tenderness
- Palpable gap
- Pain with resisted hip extension or knee flexion
- Treatment
 - Rest, ice, protected WB, stretching, strengthening
 - May take up to 6 weeks

Tendon rupture



Tendon Rupture

- Sudden pain during sprinting, kicking, or jumping
- “pop”
- Focal tenderness
- Weakness with hip extension

Tendon Rupture

- **Non-operative treatment**
 - Single tendon rupture
 - 2 tendon rupture with less than 2 cm retraction
 - Patients that are not surgical candidates
- **Operative treatment**
 - Failed non-operative treatment for 6 months
 - 2 tendon rupture with greater than 2 cm retraction
 - 3 tendon ruptures

Tendon rupture

- **Non-operative treatment**
 - Rest
 - Ice
 - Protected WB for 4 weeks
 - Stretching and strengthening
- **Operative**
 - Repair to ischial tuberosity with suture anchors

Thank You!

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