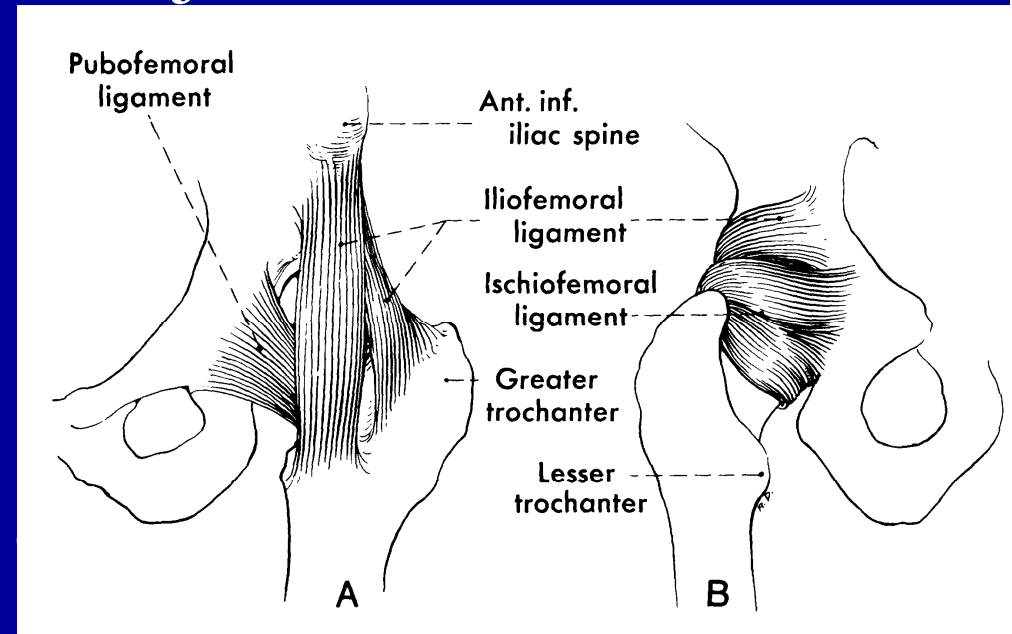


Hip - Anatomy

- Multiaxial ball & socket joint
- Acetabulum
1/2 sphere
- Femoral head
2/3 sphere
- Strong ligaments &
- Maximally stable



Anatomy

- **Forces**
- Standing - 0.3 times body weight
- Standing on 1 leg - 2.5 times body weight
- Walking - 1.3 to 5.8 times body weight
- Walking up stairs - 3 times body weight
- Running - 4.5+ times body weight

History

- Age
 - infancy: congenital hip dysplasia
 - 3-12 year old boys: Legg-Calve-Perthes Dz
 - middle age & elderly: osteoarthritis
- Mechanism of injury
 - land on outside hip
 - land on knee
 - repetitive loading

History

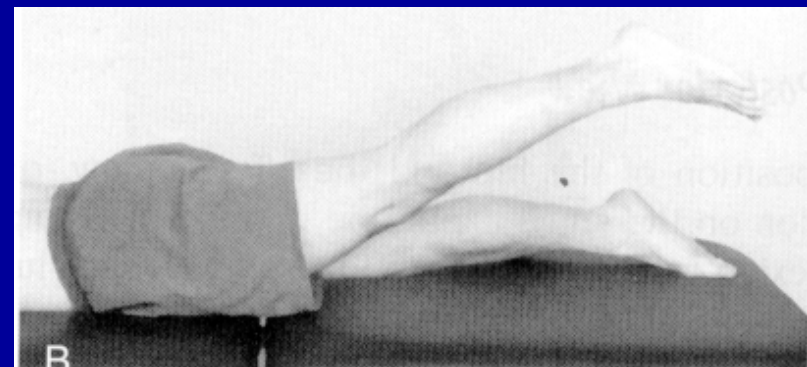
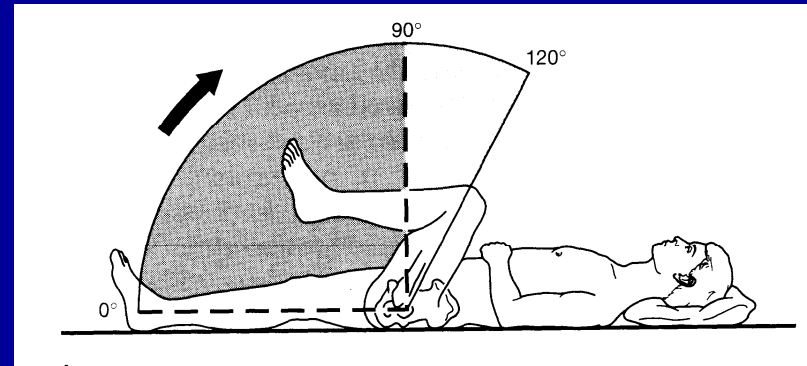
- Pain details
 - location
 - snapping
 - progression of symptoms
 - exacerbating factors
 - alleviating factors
- Weakness
- Occupation, Sport

Observation

- Gait
- Posture
- Balance
- Limb position
 - shortened, adducted, medially rotated
 - abducted, laterally rotated
 - shortened, laterally rotated
- Leg shortening

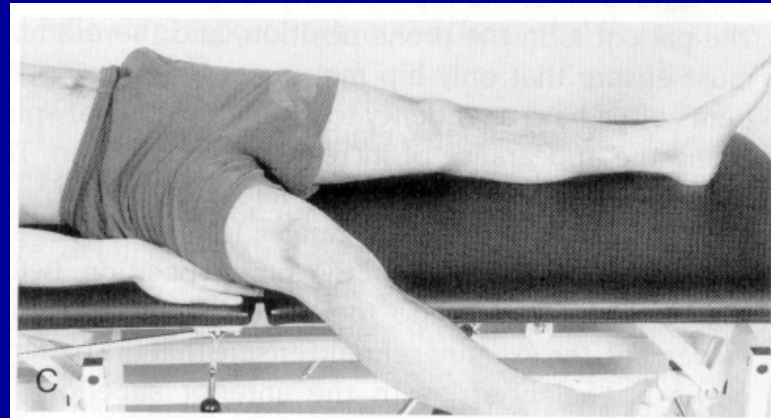
Examination

- **Active Range of Motion**
- Flexion: 110 to 120 degrees
- Extension: 10 to 15 degrees



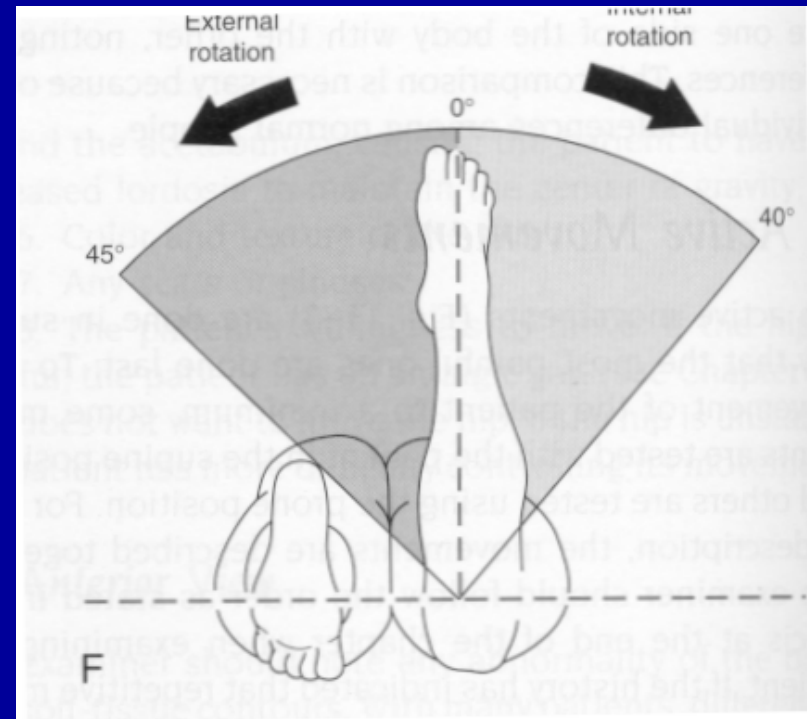
Examination

- **Active Range of Motion**
- Abduction: 30 to 50 degrees
- Adduction: 30 degrees



Examination

- **Active Range of Motion**
- External rotation: 40 to 60 degrees
- Internal rotation: 30 to 40 degrees



Examination

- Passive Range of Motion
 - Intra-abdominal inflammation may cause pain with passive medial & lateral hip rotation
 - Hip pathology indicated by groin discomfort and decreased ROM on medial rotation
 - Acetabular rim or labral problems with click and painful hip flexion, abduction, and medial rotation

Examination

- Strength testing
 - isometric
 - eccentric
 - knee extension
 - knee flexion



Examination

- Functional Testing
 - squatting
 - up & down stairs one at a time
 - crossing legs
 - up & down stairs two at a time
 - running straight ahead
 - running and decelerating
 - running and twisting
 - one-legged hop

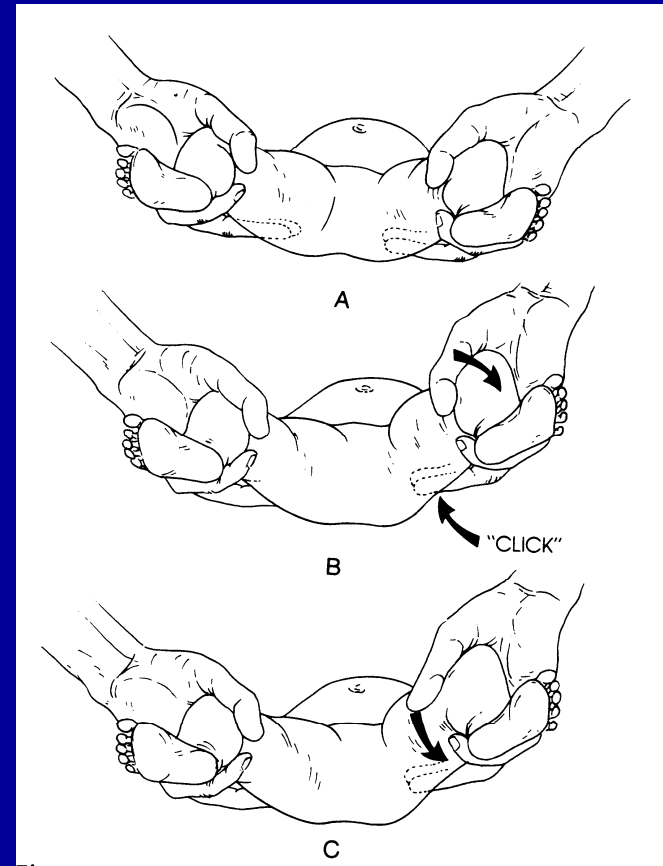
Special Tests

- **Patrick's Test**
(Faber, Figure 4)
 - supine
 - foot on opposite knee
 - hip involvement
 - iliopsoas spasm
 - SI joint involvement



Special Tests

- **Ortolani's & Barlow's**
- Assess for congenital dislocation of hips
- Valid for first 6 months of life
- Positive test is “clunk” not “click”



Special Tests

- Galeazzi Test
 - knees & hips flexed to 90 degrees
 - positive test: one knee higher
- Telescoping Sign
 - knee & hip flexed to 90 degrees, axial load and distraction applied
 - positive test: increased relative movement

Special Tests

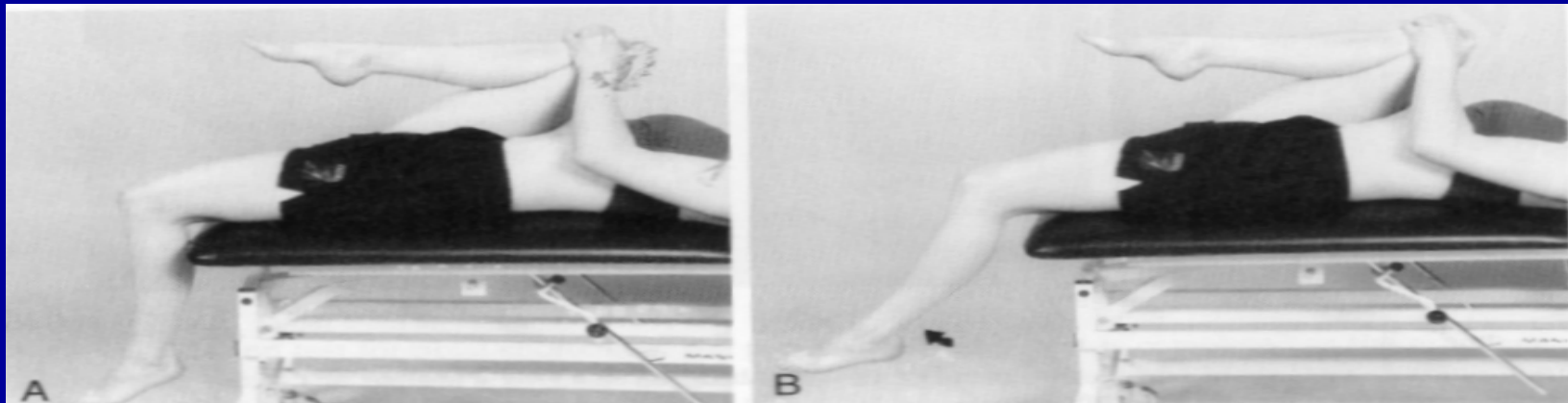
- **Leg length**
 - true leg length discrepancy
 - congenital maldevelopment
 - trauma
 - functional leg length discrepancy
 - scoliosis

Special Tests

- **Leg length**
- Measured from ASIS to medial malleolus
- Functionally measured
 - knees & hips flexed with thumbs on medial malleolus then knees and hips extended

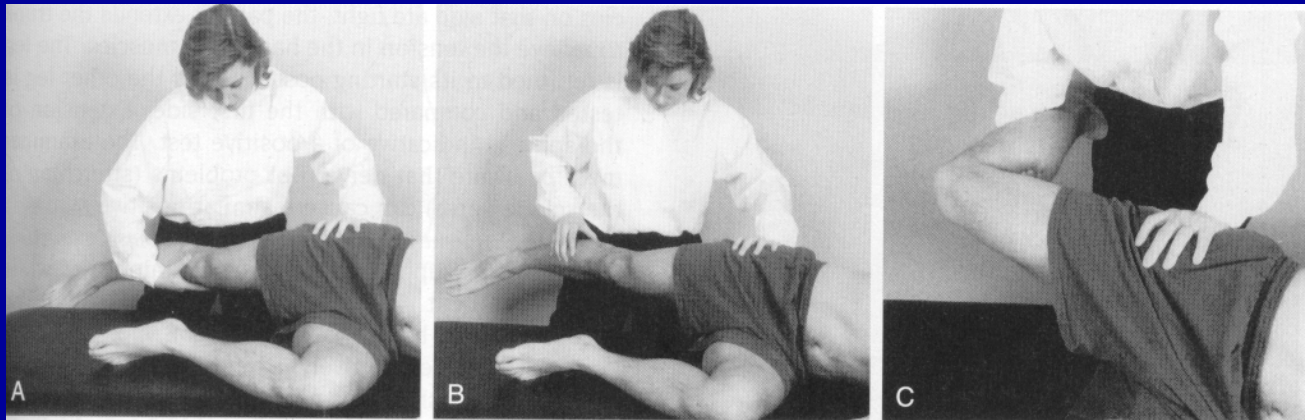
Special Tests

- **Flexibility**
 - modified Thomas Test
 - assesses both hip flexor and quad flexibility



Special Tests

- **Flexibility**
 - Ober's Test
 - assesses iliotibial band flexibility



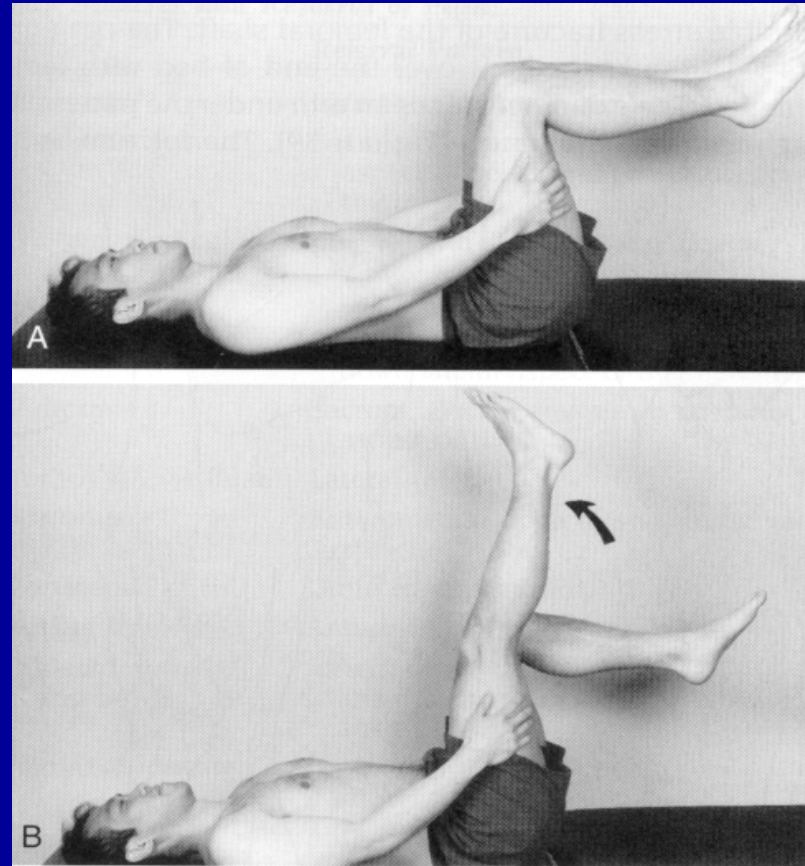
Special Tests

- **Flexibility**
 - Piriformis Test
 - Assess flexibility of piriformis muscle
 - “Piriformis Syndrome”



Special Tests

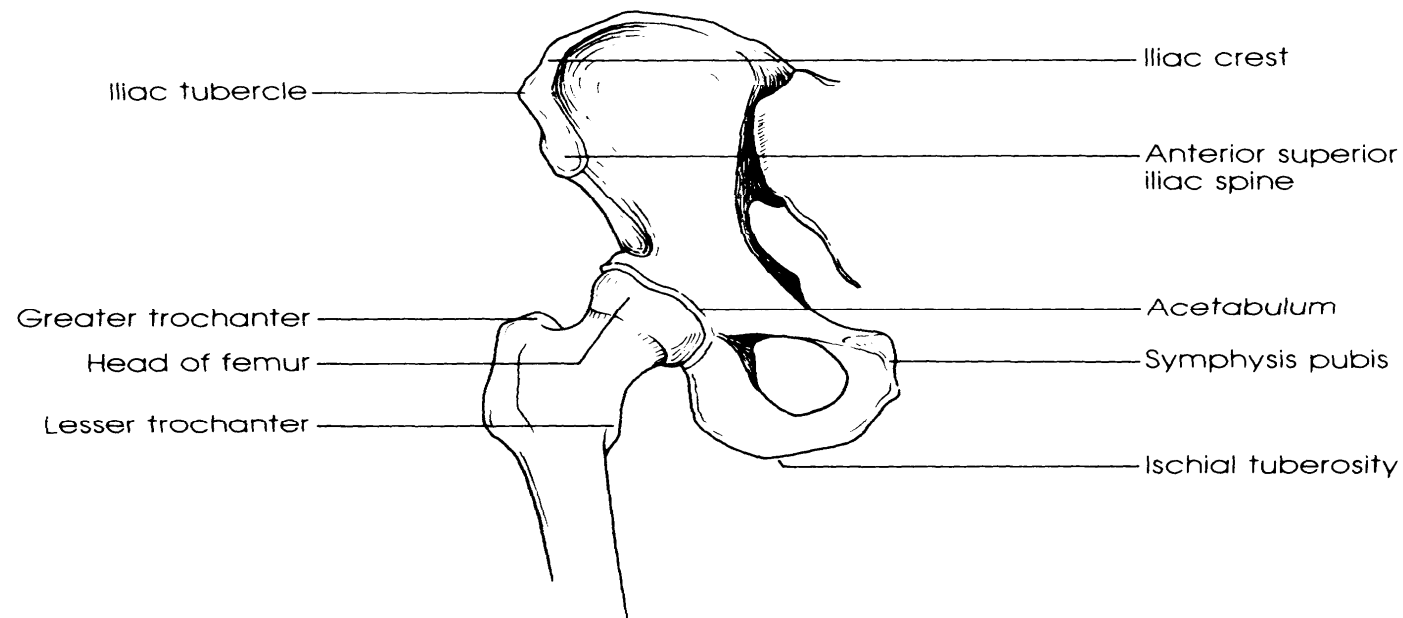
- **Flexibility**
 - Popliteal Angle
 - Assesses hamstring flexibility



Palpation

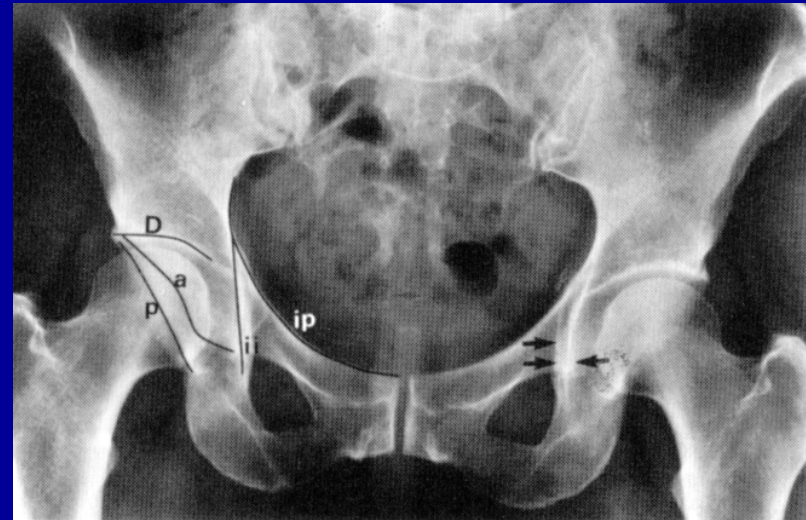
- Iliac crest
- ASIS
- PSIS

Greater trochanter
Ischial tuberosity



Diagnostic Imaging

- **Radiographs**
 - Anterior-Posterior view
 - Frog leg view
- **CT**
- **MRI**
- **Arthrogram**



Case Studies

- 7 year old boy with 5 week h/o limp
- Limp is more pronounced when he's tired
- Complains of left knee pain

Case Studies

- 55 year old male with right hip & back pain
- He notes sciatica and groin pain
- Symptoms worsen with walking
- Very active lifestyle

Case Studies

- 18 year old female hurt her hip surfing
- Hip is medially rotated and shortened
- She notes sciatic pain

Case Studies

- 12 year old large boy with limp
- Fell from chair onto floor and complains of right knee and thigh pain