Physical Examination of the Hip

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Gait Evaluation

Antalgic Gait
- Gait abnormality as a result of pain
- Shortened stance phase on the affected side
- May be secondary to recent injury
  - Subluxation, dislocation, advanced stress fracture, significant
degenerative joint disease, AVN, acute muscle / apophyseal injury,
chronic pain, workers compensation, pending litigation
- Pathology amenable to hip arthroscopy does not typically result in a severely
  antalgic gait

Trendelenberg Gait
- Secondary to abductor weakness
- Not usually secondary to pain as this increases joint reactive force
- Abductor tear, Neurologic disorder (superior gluteal nerve), severe
deconditioning
- When placing weight on the affected leg the contralateral hip drops
- May also see an abductor lurch
  - Shortened stance phase while leaning the upper torso over the
    affected leg
-Often seen with a degenerative hip

**Range of Motion Assessment**

**Internal Rotation**
- Normals for all ROM testing vary between patients and examiners
- Typically tested with 90 degrees hip flexion and neutral abd / adduction
- Supine / Seated
- Firm end point or pain limitations
- Typically greater than 20 to 30 degrees
  - Compare to contralateral side

**External Rotation**
- Typically tested with 90 degrees hip flexion and neutral abd/adduction
- Supine / Seated
- Firm end point or pain limitations
- Typically greater than 40 degrees

**Forward flexion**
- Tested in neutral Abd/Adduction
- Have the patient maximally flex the hip with both hands
- Typically greater than 120 - 135 degrees

**Abduction**
- Tested with hip extension in supine position
- Abduct the leg while palpating the contralateral ASIS
- End point when the contralateral ASIS begins to move
- Typically greater than 30 to 45 degrees

**Adduction**
- Supine position
- Cross the tested leg over the contralateral leg while palpating the contralateral ASIS
- End point when the contralateral hip begins to move
- Typically greater than 20 degrees
ROM PEARLS

- Pain and Limitations in straight hip flexion
  - Subspine impingement

Figure = Bilateral acetabular retroversion, cam type FAI, and low AIIS

- Excessive internal rotation with decreased external rotation indicates excessive femoral anteversion
  - Psoas snapping (psoas is a stabilizer in this situation)
  - Posterior Trochanteric impingement
- Excessive external rotation with decreased internal rotation indicates excessive femoral retroversion
  - relative cam impingent
  - Anterior trochanteric impingement
- Markedly decreased internal rotation (0-15 deg) and flexion (<110) may be indicative of FAI (or OA) (Figure below Cam and Subspine FAI)
  - Often bilateral
  - Hockey, Soccer, Football
- Obligate Abduction / External rotation of the hip during forward flexion ROM testing can indicate FAI
- Markedly increased or excessive ROM and hypermobility may be indicative of hip dysplasia (Figure below)
  - Dancers / Gymnasts

- Globally decreased ROM is indicative of significant degenerative hip disease or less commonly adhesive capsulitis

**Palpation**
- Hip joint pathology is not typically palpable
- Ask the patient to point to the region of pain with one or two fingers!!!
- Trochanteric pain syndrome
  - Anterior and lateral palpation of Gluteus Minimus and Medius
  - Posterior facet palpation of the trochanteric bursa

- Athletic / Sports Pubalgia

![Image](image.png)

**Figure:** Left rectus abdominus / adductor aponeurotic disruption

- TTP inguinal region / External Oblique
- TTP conjoined tendon
- TTP pubic symphysis
- TTP adductor / pectineus origin
- Pain with resisted adduction / sit up (crunch)
- Look for associated FAI / Limited IR / FF

- Apophyseal injuries / And other palpable bony landmarks
  - Anterior Superior Iliac Spine
    - Sartorial avulsions / injuries
  - Ischial tuberosity
    - Hamstring avulsions / tendinopathy
  - Iliac Crest
    - Oblique avulsions / Hip pointers

- Piriformis / Sciatic nerve entrapment
  - Posterior pain with anterior impingement test
  - TTP lateral to the ischial tuberosity
  - Pace test positive

- Pudendal nerve neuralgia
  - Sitting pain, perineal, perianal
  - TTP medial to to the ischial tuberosity
Core Strength Assessment (0-5 point scale)
- Abductor strength testing
  - Resisted abduction in the lateral position
- Adductor strength testing
  - Tested in the supine position
- Gluteus Maximus testing
  - Tested in the prone position
- Hip flexor testing
  - Supine or seated position

Specific Maneuvers / Tests

Anterior Impingement Test (FADDIR)
- Flexion, adduction, internal rotation
- Initially flexion to 90 degrees and increase as necessary to recreate pain
- Should recreate “the pain”, anterior groin, compare to other side
- Indicates anterior rim pathology

Posterior Impingement Test
- Extension, abduction, external rotation of the affected hip with the contralateral hip flexed to eliminate lumbar lordosis
- Anterior or posterior pain indicates posterior rim pathology (less common)

Flexion Abduction External Rotation Test (FABER’s)
- Typically used to assess SI joint pain
- Increased distance from the table to the lateral knee and associated groin pain consistent with labral pathology and FAI
- Tight or painful Psoas

Dynamic External Rotatory Impingement Test (DEXRIT)
- Similar to the traditional McCarthy’s test
- Tested supine with contralateral hip flexed > 90 degrees
- Affected hip flexed and brought through a wide arc of external rotation and abduction, extension
Recreation of typical pain

**Dynamic Internal Rotatory Impingement Test (DIRIT)**
- Tested supine with the contralateral hip flexed > 90 degrees
- Affected hip flexed and brought through a wide arc of internal rotation and adduction, extension
- Recreation of typical pain

**Scour Test**
- Tested supine with the contralateral hip flexed > 90 degrees
- Combination of DEXRIT and DIRIT testing with axial compression
- Moving through an arc of motion from Flexion / Abduction through Extension / Adduction
- The leg is moved Clockwise and Counterclockwise with compressive force
- Pain +/- clicking is indicative of intra-articular hip pathology

**Resisted Straight Leg Raise (Stitchfield test)**
- Patient actively flexes the leg to 30 to 45 degrees while lying supine
- Examiner resists further flexion while applying pressure to the thigh just proximal to the knee
- May load the anterosuperior labrum

**Abduction / Internal Rotation Test**
- Abduction internal rotation of the hip recreating groin or deep lateral pain can be consistent with more superior areas of hip impingement
- Helpful to evaluate those involved in activities in abduction (equestrian riders, motocross)

**“Butterfly Goalie” Test**
- Position of hip abduction, internal rotation, and flexion reproduces groin pain in butterfly goalies. Important position to evaluate intra-operatively post resection.
- Sup-posterior impingement

**Supine Log Roll Test**
- Passive internal and external rotation of the extended hip and knee recreating pain is very specific (not sensitive) for hip joint pathology
- Increased passive external rotation may indicate capsular laxity
Hypermobility Testing
- Beighton's Criteria
  - Hyperextensible elbows, knees, 5th MCP, thumb to forearm, palms to floor with extended knees (3/5)

“C” Sign Test
- Typically described as a finding on history but can be helpful for further confirmation of pain originating in the hip joint
- The examiner grabs the hip anterior and posterior to the greater trochanter and asks if this is where the pain originates

Anterior Apprehension Test
- Tested supine with the contralateral hip flexed
- Similar to posterior impingement test with extension, abduction, external rotation of the affected hip
- A feeling of apprehension / subluxation / instability may indicate structural instability (dysplasia)

Relocation / Reduction Test
- Flexion, abduction, internal rotation of the affected hip in the supine position
- An improved sense of stability may indicate structural instability with femoral head lateralization (xray verification)

Internal Snapping Hip Test
- Patient is in the supine position
- Bringing the hip from a flexed to an extended position or from a flexed, abducted, externally rotated position to extension, adduction, internally
rotated position frequently reproduced the anterior clunk or snap
-If the patient can reproduce the snapping on their own have them do so and simply place your hand over the groin and the snap will be felt

External Snapping Hip Test
- Patients can frequently reproduce the lateral snapping on their own (typically while standing)
- Snapping can be reproduced with the patient in the lateral position and the affected hip up
- Bringing the slightly adducted hip with knee flexion from hip extension to flexion will frequently reproduce the lateral snapping (helpful intra-op)

Single Leg Hop Test
- Pain with gentle hopping on the affected side may be indicative of a pelvic stress fracture
- May help to differentiate groin pain as a result of labral pathology vs stress fracture

Trendelenberg Test
- The patient actively performs contralateral hip and knee flexion to 45 degrees while standing
- Have the patient hold this position
- A drop of the contralateral hip is indicative of abductor deficiency

Obers Test
- Performed in the lateral position with the affected side up
- Stand behind the patient, cradle the leg and assess passive adduction
- Assesses contractures of the ITB (knee extended) and Abductors (knee flexion)
- The hip should normally passively adduct beyond neutral

References:


