Physical Examination of the Hip

Alignment

- Pelvic obliquity
  - True LLD (leg length discrepancy)
    - Varus/valgus femoral neck, congenital/traumatic/growth disturbances of femur/tibia
  - Functional/apparent LLD
    - Lumbosacral junction contractures (scoliosis), posttraumatic pelvic deformity, abd/adduction contractures of the hip, flexion contracture of the knee
  - Direct measurement
    - ASIS (anterior superior iliac spine) to medial malleolus, umbilicus to medial malleolus
  - Block method (quantify)
  - Visual method (quantify)
  - Abduction contracture – long (functional LLD)
  - Adduction contracture – short (functional LLD)
  - Femoral (supine exam) vs tibial (prone exam) true discrepancy
  - Hip flexion contracture (functionally short)

Gait

- Trendelenburg/abductor lurch (Affected side stays up, contralateral side goes down, body leans to the same side)
- Weak abductors, hip OA
- Gluteus maximus lurch (extension of the trunk on heel strike)

Inspection

- Surface anatomy: anterior, lateral, posterior, medial

Palpation (Remote eval)

- Anterior
  - ASIS – avulsion fracture
  - Iliac crest – apophysitis, hip pointer
  - AIIS (anterior inferior iliac crest) – avulsion of rectus
  - Lateral femoral cutaneous nerve (percussion) – Tinel’s: meralgia paresthetica
  - Lesser trochanter – avulsion of iliopsoas, snapping iliopsoas
  - Femoral nerve/artery/vein/lymphatics (lateral to medial)
  - Pubic symphysis/rami – fractures in elderly, symphysitis in soccer players
  - Hip joint (2 cm lateral and distal to femoral pulse)
  - Femoral shaft – stress fracture
  - Quadriceps – contusion, hematoma with later myositis ossificans, strain
  - Sartorius – strain near ASIS
Palpation (Continued)

- Lateral
  - Greater trochanter – Greater trochanteric pain syndrome: trochanteric bursitis, gluteus medius bursitis

- Posterior
  - PSIS (posterior superior iliac spine)
  - SI joint – ankylosing spondylitis
  - Sciatic notch
  - Sacrum
  - Coccyx – coccydynia

- Medial
  - Adductors (groin pulls)

- Metal on metal total hip
  - Palpable masses, femoral nerve weakness

Range of Motion

- Prone hip extension
- Hip flexion (110°+)
- Abduction in extension (45°)
- Adduction in extension (30°)
- IR/ER in flexion (35°/45°)

Manipulation

- Muscle testing
  - Abductors – gluteus medius/minimus
  - Adductors – longus, brevis, magnus, gracilis
  - Flexors – iliopsoas, rectus, sartorius
  - Extensors – gluteus maximus, hamstrings

Sensation

- Lateral femoral cutaneous nerve (meralgia paresthetica/anterior total hip)
Physical Examination of the Hip

Special Tests (Difficult to assess without 2nd assistant for virtual exam)

- Hip joint – impingement sign/test (flexion/adduction/internal rotation)
- Joint contractures
  - Thomas – flexion contracture:
    - supine, knees to chest, extend contralateral hip to neutral
  - Ober’s – IT band, trochanteric bursitis, snapping hip, IT band tendonitis:
    - lateral, flex knee to 90°, abduct hip to 40°, then adduct hip to exam table
  - Ely – rectus femoris contracture:
    - prone, knees extended, flex one knee, positive if hip involuntarily flexes
  - Tripod – hamstrings contracture:
    - seated, knee flexed to 90°, extend knee, positive if hip involuntarily extends

- Tendinitis
  - Resisted active contraction of the suspected muscle-tendon unit can cause pain
  - Passive stretching of the suspected muscle-tendon unit can cause pain
  - Piriformis test
    - Lateral, knee 90°, hip 45°, adduct/externally rotate hip toward exam table to stretch the piriformis muscle

- Pelvic stress
  - Patrick/FABER – SI joint pathology:
    - flexion, abduction, external rotation in supine position

- Other
  - Stinchfield’s – hip joint, hip flexor, painful total hip:
    - supine, active straight leg raise with or without resistance
  - Logroll – hip joint
    - Supine, leg extended, gentle roll of thigh internal and external rotation
Virtual Exam:

Gait

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Inspection

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Palpation

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Palpation (Continued)

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  - SI joint – ankylosing spondylitis
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- Medial
  - Adductors (groin pulls)

- Metal on metal total hip
  - Palpable masses, femoral nerve weakness

Strength

Isolated muscle groups difficult to assess; can assume relative strength if able to perform

1. Single leg stance
2. Double leg squat
3. Calf raise

Sensation: Question regarding dermatomal distributions in the affected extremity

Special tests:

Very difficult to assess without the assistance of a second person

Exam that can be performed without second person

- Thomas – flexion contracture:
  - supine, knees to chest, extend contralateral hip to neutral
- Patrick/FABER – SI joint pathology: flexion, abduction, external rotation in supine position
- Stinchfield’s – hip joint, hip flexor, painful total hip:
  - supine, active straight leg raise with or without resistance