Physical Examination of the Hip & Knee

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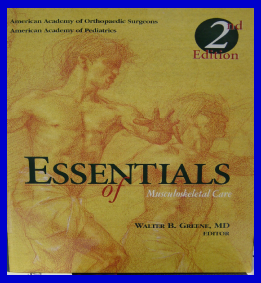
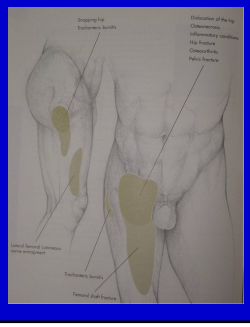
BUY THIS BOOK!

- Essentials of Musculoskeletal Care
- Written for Primary Care Providers
- Perfect for 3rd & 4th year med students going into primary care



Where is your hip?

- Hip joint pain is most commonly felt in the groin and anterior thigh
- Hip joint pain may radiate to the knee
- Pain over the greater trochanter is typically trochanteric bursitis
- The buttock is not the hip!
- Buttock pain is typically from the sciatic nerve or lumbar spine



Musculoskeletal History

- Where is the pain?
- When did it start?
- How bad is it?
- Does it keep you awake at night?
- What makes it better/worse?
- What treatments have you had and did they work?

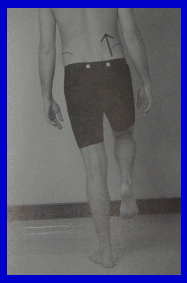
Hip Specific History

- How far can you walk?
- Do you use any assistive devices?
- Do you limp?
- Can you tie your shoes , put on your socks, and clip your toenails?
- Do you climb stairs normally or one at at time? Which foot first?
- How long can you sit?
- Do you have pain with the first steps after sitting?

Gait Analysis - Hip

- Abductor Lurch
  - Shoulder shifting gait
  - Moves center of gravity towards affected side to decrease forces across the hip joint
- Trendelenberg Gait
  - Weakness of abductor muscles
  - Pelvis drops away from the affected side

Trendelenberg Test

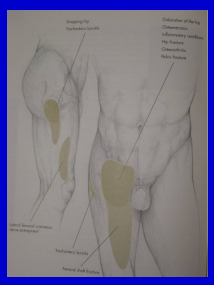


Negative Trendelenberg

Positive Trendelenberg

Hip Exam

- Palpation
  - Greater trochanter – bursitis
  - Pubic rami – fractures
  - Ischium – fractures, bursitis, sciatic nerve
- Meralgia Parasthetica
  - Numbness over the lateral thigh
  - Compression of the lateral femoral cutaneous nerve



Hip Exam

- Range of Motion
  - Flexion/ Extension
  - Internal/ External Rotation
  - Abduction/ Adduction
- Check in several positions
- Know where the pelvis is!
- Compare with the contralateral side
- Neurovascular exam

Hip Range of Motion

- Flexion
  - Most pts > 90
- Flexion Contracture
  - Maximally flex opposite hip to fix pelvis
  - Thigh will not lie flat on the table

Hip Range of Motion

- Hip Rotation
- Check in several positions:
  - Supine with hip flexed
  - Supine with hip extended
  - Seated
  - Prone (most accurate)

Hip Range of Motion

External Rotation

Seated

Internal Rotation

Hip Range of Motion

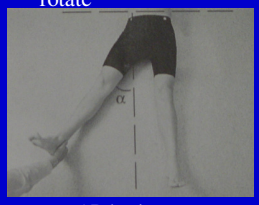
Prone

Internal Rotation

External Rotation

Hip Range of Motion

- Palpate ASIS to feel when pelvis begins to rotate



ABduction

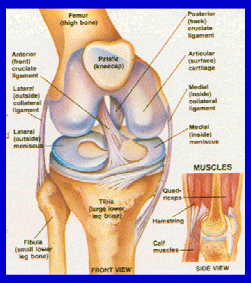
ADDuction

Imaging Studies – Hip

- AP Pelvis
  - Both hips
  - Entire bony pelvis
  - Lumbosacral spine
- Frog Lateral Hip (non-trauma only)
  - Lateral view of proximal femur
- Cross-table Lateral Hip (trauma)
  - Does not require moving the hip
- Do **NOT** order AP/Lat hip
- Order AP Pelvis & lateral hip

Knee History

- Knee pain stays in the knee
- Hip pain may be felt in the knee
- The knee is more complex than the hip
- More things can hurt in the knee

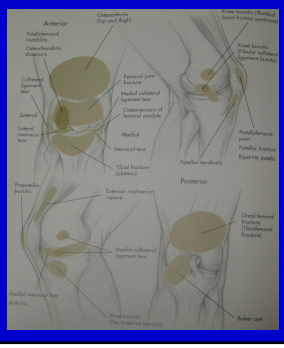


Knee History

- Mechanism of Injury
  - What exactly happened?
  - Which way did your knee go?
  - Did you hear or feel a pop?
  - Did your knee swell?
    - Right away or over next 24 hours?
- Mechanism can often make the diagnosis
- Pop and immediate swelling almost always ACL

Knee History

- Location
  - Anterior, posterior, medial, lateral
  - Almost every structure in the knee except for the cruciate ligaments can be directly palpated



Knee History

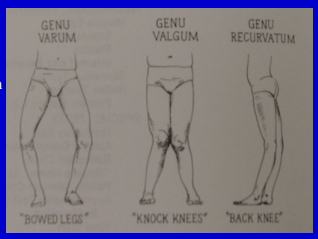
- Instability
  - Most commonly due to pain or quad weakness
  - True instability usually has good history of injury
  - True instability usually occurs with specific activities or motions

Knee History

- Mechanical Symptoms
  - Locking or catching
  - NOT stiffness
  - Something blocks motion of the knee
  - NOT clicking!
  - Everybody's knee clicks!
- Effusions
  - Intra-articular fluid
  - "Water on the knee"
  - NOT swelling or fat!

Knee Exam

- Observation
- Alignment (standing)
  - Varus/valgus
  - Procurvatum/recurvatum
- Skin
  - Redness
  - Warmth
  - Effusions
  - Lesions/wounds



Gait Analysis - Knee

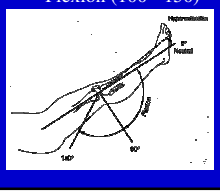
- Antalgic (painful) Limp
  - Shortened stance phase of gait
- Stiff-knee gait
  - Knee does not bend through gait cycle
- Thrust
  - Varus or valgus bowing with each step
  - "trick knee"

Knee Exam

- Range of motion
  - Active and passive
  - Extensor lag
- Stability
  - Collateral Ligaments – varus/valgus
  - Cruciate Ligaments –Anterior/Posterior
  - Compare to opposite side!
- Stable or unstable? Endpoint?

Knee Exam

- Range of motion
  - Active and passive
  - Extensor lag
  - Extension (0 - -10)
  - Flexion (100 - 150)



Collateral Ligaments

Lateral Collateral Ligament

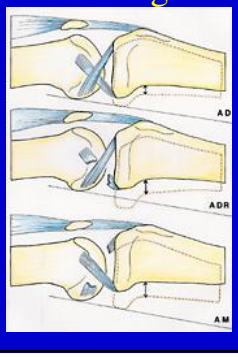
Varus Stress

Test collateral ligaments in 20-30 degrees of flexion to isolate the ligaments.

Medial Collateral Ligament

Valgus stress

Cruciate Ligaments

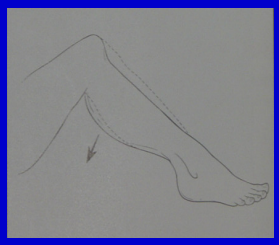


Cruciate Ligaments

- Ant drawer =ACL
- Post drawer = PCL
- Know where starting point is.
- Femoral Condyles are ~1cm posterior to anterior tibia normally.

Cruciate Ligaments

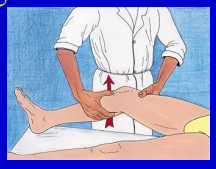
- Posterior Sag = PCL injury
- Quadriceps Active Drawer
  - Dynamic test for PCL



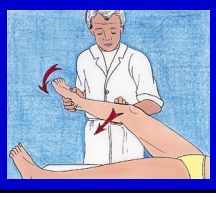
Posterior Sag = PCL injury

Cruciate Ligaments

- Lachman's Test
  - Ant drawer at 30 degrees of flexion
  - Most specific for ACL

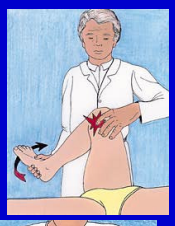


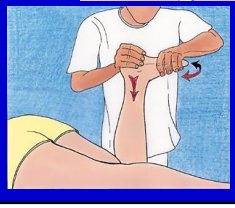
- Pivot Shift
  - Dynamic test for ACL



Knee Exam

- Menisci
  - McMurray's test
    - Flex/ext with varus/valgus and int/ext rotation
    - Goal is to get torn piece to pop in and out of place
    - Positive if pop or reproduction of pain
  - Apley's grind test
    - Isolates meniscii
    - Prone w/ knee flexed, axial load and rotation





Knee Exam

- Patellofemoral Joint
  - Patellar tracking/tilt
    - Should sit horizontally in the trochlear groove and track centrally with ROM
  - Patellar grind & shrug
    - Grind patella into trochlea
    - Contract quads while applying pressure to patella
    - Both will reproduce patellofemoral pain

Imaging Studies – Knee

- Radiographs
  - **Weight-bearing (Standing)** AP
  - **Weight-bearing (Standing)** AP
  - **Weight-bearing (Standing)** AP
  - **Weight-bearing (Standing)** AP
  - Lateral knee
  - Sunrise view

Imaging Studies – Knee

These are the same knee!

Non-Weight Bearing

Weight Bearing

What about an MRI?

- You probably do not need one!
- Go by the patients' symptoms and your exam
  - Good history for ligament/meniscus injury
  - True mechanical symptoms or instability
  - Positive physical exam findings
  - Normal x-rays (Always get these first!)
- Do not order if significant DJD
- 76% of all pts >45yo will have meniscal changes on MRI. 94% if there is DJD!
- If you want to waste money send me the $2500

Go Examine Yourselves!