Screening Examination of the Lower Extremities

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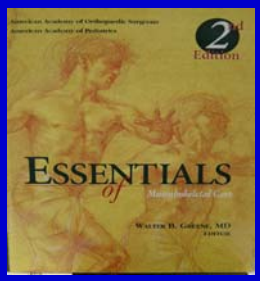
BUY THIS BOOK!

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



Lower Extremity Screening Exam

- Inspect, Palpate, and Examine Lower Extremities (skin, muscles, joints).
- Test for ROM and muscle strength.
- Observe for specific joint deformities, tenderness, soft tissue swelling, joint effusions, bony enlargement, and synovial thickening.

Lower Extremity Screening Exam

- Skin - Special attention is given to signs of chronic arterial or venous insufficiency.
  - Nails – inspect for infection, color
  - Feet/legs -
    - inspect skin for signs of chronic arterial or venous insufficiency
    - inspect for abnormalities of position, varus or valgus angulation, symmetry of legs and joints
    - Note any muscle atrophy, fasciculations, or involuntary movements

Lower Extremity Screening Exam

- Inspect for size, length, shape, and symmetry of the legs and joints. Note any abnormalities of position, swelling, or redness.
- Palpate for bony or muscle abnormalities.
  - Knee – patella tendon, patella, medial and lateral femoral epicondyles, proximal tibia
  - Hip - palpate area of greater trochanter, note any pain

Lower Extremity Screening Exam

- Test ROM of each joint.
  - Ankle:
    - dorsiflexion (20°)
    - plantarflexion (45°)
    - eversion (20°)
    - inversion (30°)
  - Knee: Note crepitus with ROM
    - flexion (130°)
    - extension (10°)
  - Hip
    - Flexion (120°)
    - Internal Rotation (40°) *When the lower leg swings laterally, the femur rotates internally at the hip joint*
    - External Rotation (45°) *When the lower leg swings medially, the femur rotates externally at the hip joint.*

Lower Extremity Screening Exam

- Manual Motor Testing
- Always grade muscle strength on a scale of 0 to 5:
- 0—No muscular contraction detected
- 1—A barely detectable flicker or trace of contraction
- 2—Active movement of the body part with gravity eliminated
- 3—Active movement against gravity
- 4—Active movement against gravity and some resistance
- 5—Active movement against full resistance without evident fatigue. This is normal muscle strength.

Lower Extremity Screening Exam

- Grade *the following* muscle strength in each leg:
  - Hip flexion (iliopsoas muscle – L2, L3, L4 – femoral nerve)
  - Knee flexion (hamstrings – L5, S1, S2 – sciatic nerve)
  - Knee extension (quadriceps – L2, L3, L4 – femoral nerve)
  - Ankle dorsiflexion (L4, L5 – peroneal nerve)
  - Ankle plantar flexion (S1, S2 – tibial nerve)

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

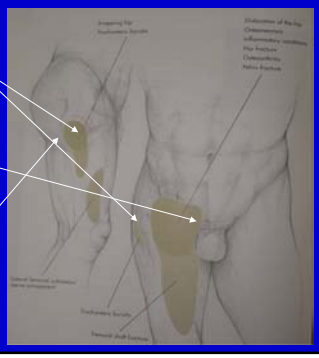
- How far can you walk?
- Do you use any assistive devices?
- Do you limp?
- Can you tie your shoes , put on your socks, and clip your toenails?
- Do you climb stairs normally or one at at time? Which foot first?
- How long can you sit?
- Do you have pain with the first steps after sitting?

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

Hip Exam

- Palpation
  - Greater trochanter bursitis
  - Pubic rami fractures
  - Ischium – fractures, bursitis, sciatic nerve

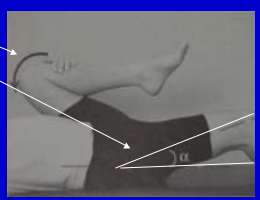


Hip Exam

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

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)

Internal Rotation

External Rotation

Hip Range of Motion

External Rotation

Seated

Internal Rotation

Hip Range of Motion

- Palpate ASIS to feel when pelvis begins to rotate

ABduction

ADDuction

Knee History

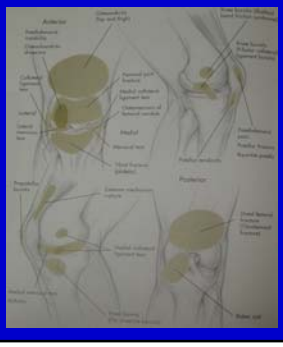
- Knee pain stays in the knee
- Hip pain may be felt in the knee
- The knee is more complex than the hip
- More things can hurt in the knee

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

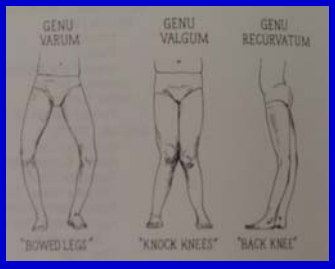
Knee History

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



Knee Exam

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

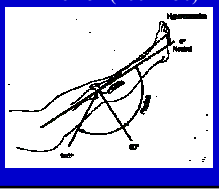


Gait Analysis - Knee

- 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
  - Extension (0 - -10)
  - Flexion (100 - 150)



Go Examine Yourselves!