

Musculo-Skeletal

1: Back Examination

- WALK, LOOK, FEEL, MOVE, MEASURE, COMPARE, X-RAY

Walk

- Quick way to check neurological status of legs.
- Walk normally
- Walk on toes (S1, S2)
- Walk on heels (L4, L5)
- ?Need do full neurological examination of lower limbs.

Look

- Skin: Scars, pigmentation, abnormal hair, unusual skin creases
- Shape and posture: scoliosis, kyphosis, lumbar lordosis

Feel

- Palpate spinous processes and interspinous ligaments for any tenderness, temperature, prominence, or a “step”

Move

- Flexion and extension (standing)
- Lateral flexion (standing)
- Rotation (sitting on chair to fixate pelvis)
- Straight leg raising

Joint above and below

Neuro exam of legs and abdo exam

2: Joint Examination - Hip

Hip examination

- Walking: normal, on toes (tests S1), on heels (test L5)
 - Antalgic: bad limb has a short stance phase
 - Broad based: cerebellar, drunk
 - Short leg
 - Foot drop
 - Trendelenburg: weak adductor causes opposite side to sag (look at hip and shoulder alignment)
- Observe from front and do Trendelenberg's test
- Look (need joint above and below)
 - Skin: Scars, redness
 - Soft tissue: Swelling
 - Muscle: Wasting of quads, hamstrings, abductors, adductors
 - Bone: Deformity
- Feel
 - Exclude other pathology (eg groin – hernias, lymph nodes, or femoral artery aneurysm)
 - Look for tenderness over greater trochanter
- Move and Measure
 - Thomas' test for fixed flexion deformity
 - Flexion and extension
 - Abduction (0-45°) and adduction (0-30°)
 - Internal rotation (0-25°) and external rotation (0-30°)
- Examine Joint Above And Below
- Check foot pulses
- X-ray

KNEE

Walk

- Stiff knee gait
- Varus
- Lateral thrust: Posterolateral insufficiency, knee goes posterolaterally, a result of Medial Compartment OA.
- Squat on their haunches:
 - Stimulates pain in the front then it is an anterior problem
 - In the popliteal fossa → could be a medial meniscal tear.
- Inspect the popliteal fossa (then you don't have to get them to roll over on the bed)

Look

- Swelling
- Muscle wasting
- Bony deformity
- Arthroscopy scars
- Push their knee down into the bed to test extension and look for muscle wasting in VM

Feel

- Feel for effusion (Meniscal pathology often produces an effusion)
 - Patellar tap
 - Stroke test
- Palpate joint line: Tenderness here may indicate a meniscal tear, above or below the joint line
- meniscus not causing it.

Move

- Raise their leg straight as high as they can. (checks extensor mechanism)

- Flex their knee and still keep their thigh pulled into their chest (testing knee flexion). Bring the other leg up with the knee in flexion to compare.

PCL

- Feet back down on the bed leaving both their knees in 90 degree flexion.
 - Look across the two knees for posterior sag, which could indicate a PCL rupture.
 - Stabilise the tibia (sit on their foot)

ACL

- Anterior draw to test the ACL + compare with the other side
- Lachman's test
- McMurray's test
- Pivot shift test
 - With the knee still in 15degree steady it as you pull the leg into valgus, this tests the medial collateral ligament and the ACL. Now Push it into Varus, this tests the lateral collateral ligament
 - Lay the leg flat and repeat with the knee in full extension.

Collateral Ligaments

- Valgus stress test
- Verus stress test

The Patellar-femoral joint

- Palpate
 - Border
 - Anterior surface
 - Tendon and ligament insertions
 - Posterior surface (by pushing it to one side and then the other)
- Grind or Friction test:
 - Move the patella up and down while pressing it lightly against the femur

- Will cause painful grating if the central portion of the articular cartilage is damaged.
- Patella apprehension test:
 - Press the patella laterally and hold it slightly subluxed → Watch the person's face and ask them to flex their knee → If they grimace or show signs of pain then the test is positive and is diagnostic of recurrent patellar subluxation or dislocation.
- Look at the direction that the patellar points in
- Have the patient flex and extend at the knee → should follow an inverted J course.

Joint Above and Below

- Check the Hip, the Ankle and the foot pulses.

Shoulder

- LOOK, FEEL, MOVE, MEASURE, COMPARE, X-RAY

Look

- Skin: scars, sinuses (don't forget to look in axilla)
- Shape
 - Asymmetry of shoulder
 - Winging of scapula
 - Wasting of deltoid or short rotators
 - AC dislocation (look from behind)
 - Joint swelling
 - Wasting of pectoral muscles (from front)
- Position: if arm held internally rotated, think posterior dislocation of shoulder

Feel

- Skin: temperature
- Soft tissues: swelling

- Palpation: start with sterno-clavicular joint → follow clavicle laterally to AC joint → onto
- anterior edge of acromion → around acromion to back of the joint
- Tenderness and crepitus

Move

- Best done actively, with both arms at same to compare
- Abduction and adduction
- Flexion and extension
- External and internal rotation
 - Arms close to body and elbows flexed to 90 degrees, the hands are separated as widely as possible (external) and brought together across the body (internal)
- External rotation in abduction: clasp fingers behind neck
- Internal rotation in adduction: reach up back with their fingers
- Test passive movements if active movements are limited
- Note arc of pain

Test power of upper limb

- Remember to test serratus anterior (push up against wall)

X-ray

3: Abnormal Gait

Abnormal gait is due to

- Pain
- Deformity
- Weakness
- Neurological abnormality (eg balance problems, Parkinson"s)

Testing Gait

- Walk normally, then turn around quickly and walk back
- Walk heel-to-toe to exclude midline cerebellar lesion
- Walk on toes (S1 lesion makes this difficult)
- Walk on heels (L4 or L5 lesion causing footdrop makes this difficult)
- Squat then stand up, or sit in low chair and then stand (tests for proximal myopathy)
- Stand erect with feet together and eyes closed

Specific Causes

- Cerebellar: wide base, unstable, can"t walk heel-to-toe steps, eg: posterior fossa tumour,
- alcohol or phenytoin toxicity
- Extra-pyramidal: Flexed posture, shuffling feet, slow to start, postural instability, eg:
- Parkinson"s
- Hemiplegia: Foot is plantar flexed and leg is swung in lateral arc
 - Frontal (Apraxic): Shuffling, difficulty getting feet off floor ("magnetic"), eg: Normal pressure hydrocephalus
 - Sensory: Wide base, falls, worse in poor light, decreased joint position and vibration, eg: Tabes dorsalis, cervical spondylosis
 - Spastic: Stiff, narrow base, short paces, circumduction
 - Psychogenic: Wild flinging of arms/legs, usually no falls, or overcautious, "like walking on ice", eg: Depression

- Proximal myopathy: Waddling gait
- Foot drop: High stepping gait
- Antalgic: Short stance phase to avoid pain
- Trendelenburg: Pelvis sags on affected, non-weight bearing side; trunk moves to opposite side
- to compensate

Investigations

- Imaging: Spinal X-ray, CT, MRI, CXR (Tb, Ca bronchus)
- Bloods: FBC, ESR, syphilis serology, serum B12, U&E, LFT, PSA, PTT/INR
- Other: LP, EMG, muscle biopsy, serum electrophoresis (myeloma)