Lisa.

HANDS & WRISTS:

OA findings – Herberden's nodes (osteophytes on distal interphalangeal joints) or Bouchard's nodes (proximal interphalangeal joints).

RA findings:

Swan's neck- flexion contracture of metacarpophalangeal joint then hyperextension of proximal interphalangeal joint & flexion of distal interphalangeal joint.

Boutonniere deformity – knuckle looks as if being pushed through buttonhole. Common deformity (flexion of proximal interphalangeal joint and hyperextension of distal interphalangeal joint).

Carpal Tunnel Syndrome:

Phalen's Test– flex wrists at 90 degrees for one minute; numbness/burning indicates CTS.

Tinel's Sign – percuss medial nerve of wrist; burning/tingling positive for CTS.

ELBOWS:

Tennis Elbow – Epicondyles, head of radius and tendons are common sites of inflammation and local tenderness (due to excessive pronation & supination – i.e., racquet sports)

Gouty arthritis – effusion, synovial thickening (bulge or fullness in groove on either side of olecranon process)

Olecranon Bursitis – Goose egg and redness due to inflammation of bursa

Subcutaneous Nodules – raised, firm, non-tender nodules seen with RA (pictures in Jarvis text)

SHOULDERS:

Dislocation – due to trauma (need XR before & after resetting by MD, likely MEDEVAC)

Joint Effusion – excess fluid in joint capsule (RA)

Rotator Cuff Tear – "Hunched" position, limited abduction; occurs from fall on shoulder, throwing or heavy lifting; positive drop test as will not be able to sustain position due to pain.

Frozen Shoulder (Adhesive Capsulitis) – fibrous tissues form in joint capsule and cause stiffness, progressive limitation with ROM and pain (unable to reach overhead). Show pictures from Jarvis text.

SPINE:

Kyphosis – enhanced thoracic curve common in elderly

Lordosis – pronounces lumbar curve common in obesity

ROM – include from PE in "A" section but also flexion (touch toes)

Spinal curvature – dot each spinous process when patient touching toes

If pen dots in straight line when standing then no curvature (S shape when curvature is present)

Straight Leg Raise – raise affected leg to point where pain is noted then dorsiflex foot (pain is positive for sciatica, herniated disc)

HIPS:

Check hip flexion with knee straight and knee flexed.

Leg Length Discrepancy – Measure at fixed points from anterior iliac spine to medical malleolus. = or one cm discrepancy indicates not true bone discrepancy.

Ortolani Maneuver

Infant supine, flex knees while holding thumbs on inner mid-thigh, fingers over greater trochanter. **Adduct** legs until thumbs touch. Gently lift and **abduct,** moving knees apart and down so lateral aspects touch table. Normally feels smooth with no sound. Clunk is positive findings for hip dislocation though both clink/clunk will warrant further investigation (U/S, XR, harness depending on Dx of age of infant etc.). Should be done every infant/toddler wellness visit (until age 2).

Allis Test

Compare leg lengths. Place feet flat one table & flex knees up. Should be at same elevation. Note gluteal folds.

KNEES:

Inspect – shape, contour, distinct hollows on each side of patella, any fullness/swelling?

(Genu varum – bow legged; genu valgum – knocked knees).

Check for quadriceps wasting

Palpate – grasp fashion, muscles & soft tissues should feel sold (no warmth/thickening/nodularity)

Some crepitus in asymptomatic knee is not uncommon!

Effusion Tests:

1) **Bulge Test** – when push on area of effusion or sac, this will cause visible bulge on other side When swelling in suprapatellar pouch, firmly stroke medial aspect of knee 2-3 times then tap lateral aspect. If effusion is present then fluid wave will be seen on medial aspect of knee.
2) **Ballottement** – use left hand to compress suprapatellar pouch and use right hand to push patella firmly against femur (tap on patella will be heard if fluid has collected).

Definitions:

Menisci – cartilage that cushions tibia from femur

Cruciate ligaments – crisscross within the knee (anterior/posterior stability and help controls rotation)

Collateral ligaments – connect joint at both side, give medial and lateral stability and prevent dislocation

Tendons – the skeletal system is attached to bone by a tendon which is a strong fibrous cord

SPECIAL TESTS:

McMurray's Test (rule out torn meniscus)

Done when Hx of trauma, locking, giving way sensation, & pain to knee. Pt supine, stand on affected side, hold heel, flex knee and hip, place hand on knee & fingers on medial side and rotate knee to loosen joint. Externally rotate knee and push a valgus (inward) stretch on knee. Slowly extend knee. In a normal knee, extension is smooth and no pain. A meniscal tear the pain is reproduced or a click occurs with the pain. Symptomless clicks can be caused by tendons or other soft tissues snapping over bony prominences.

Anterior Drawers Sign (anterior cruciate ligament)

Patient supine, flex hips to 45 degrees, flex knees to 90 degrees. Inspect joint lines. Sit close to foot or on it, grasp leg just below the knee with both hands and jerk tibia forward. Look for forward displacement of tibia (up to 6 mm of movement is normal).

Posterior Drawers Sign – same maneuver as anterior drawer test but push tibia backwards.

5mm or greater movement – abnormal finding (tear of posterior cruciate ligament)

Lachman Test

With knee relaxed at 15 degree flexion, & external rotation. Simultaneously move tibia forward and femur back (most sensitive for ACL insufficiency). Compare to opposite knee. Increase movement = ACL injury (or greater movement from opposite knee).

Collateral Ligament Tests

Medial Collateral Ligament (MCL) – push lower leg outward with right hand, using left hand to apply valgus force (to open MCL).

Lateral Collateral Ligament (LCL) – place right hand on medial aspect of knee at level of joint. Push lower leg inwards with left hand and apply a varus forms with right hand (opens LCL). SHOW VIDEO

Varus/valgus should be applied with knee if full extension and with knee at 25 degrees

FEET & ANKLES

Use pinching motion with thumb & first digit when palpating interphalangeal joints

ROM – plantar flexion, dorsiflexion, inversion, eversion

Acute gout, bunions, hammer toes pictures in Jarvis text

FRACTURES

Closed (simple) fracture – fracture that does not communicate with external environment

Open (compound) fracture – fracture that communicates with the external environment (through laceration of skin)

Comminuted fracture – fracture involving 3 or more fragments

Avulsion fracture – fracture in which fragment of bone is pulled from normal position by muscular contraction or resistance of a ligament

Greenstick fracture – incomplete angulated fracture of long bone (seen most often in children)

Undisplaced fracture – fractured bone stays in alignment

Displaced fracture – fractured bone goes out of alignment

When describing fracture – note location, distal/proximal, open/closed, displaced/aligned (for example, closed, undisplaced # at distal 1/3 of tibia)

MSK MODULE

Review subjective & objective information under Health Assessment of Adult (Section A of orientation manual).

Review pictures & diagrams from Jarvis text

Review highlighted areas in clinical practice guidelines (summarize only)

Optional to show You Tube clips of McMurray's, Drawers sign, Lachman

Practice

Other Resources to Review:

"M" – Musculoskeletal section in red/blue manual

"O" – Ottawa ankle & knee rules

*** I tend to review these resources on day one of orientation (when going through components of red/blue manuals).

MSK NOTES (In addition to History of Adults under "A")

- Joint pain & loss of function (& injury) are common concerns of why patients seek care
- RA involves symmetrical joint, other Dx involve isolated or unilateral joints
- Joint pain 10-14 days after sore throat suggests rheumatic fever
- Myalgia with muscle weakness etc.
- Swelling, redness, heat & pain – cellulitis, RA (acute inflammation)
- Stiffness, decrease pain with movement – RA
- Increase pain with movement (but usually decreased stiffness) – OA
- Self-care behaviours – exercise regimen, weight gain, daily meds, safety equipment

Notes in Addition to MSK Physical Examination

Inspection – see notes under "A"

Deformities:

1) **Dislocation** – one or more bones in a joint being out of position
2) **Subluxation** – partial dislocation of joint
3) **Contracture** – shortening of a muscle leading to limited ROM of joint
4) **Ankylosis** - stiffness or fixation of a joint

Palpation:

When tenderness/pain occurs try to isolate to specific anatomical structures (skin, muscle, tendon, ligaments etc.). When synovial membrane is thickened if feels "doughy" or "boggy".

SHOW PICTURES FROM JARVIS TEXT

Joint Instability:

- "Giving out" sensation, sudden buckling suggests ligament injury

Range of Motion (ROM):

- Follow from PE section in "A" and Jarvis text
- Keep hand on joint with ROM as there should not be crepitus (not uncommon for asymptomatic knee in healthy adult though).
- **Crepitus** – audible & palpable crunching or grating that accompanies movement.
- **Normal discrete crack** – heard as tendon or ligament slips over bone during movement (i.e., knee bend)
- **Do passive motion when active ROM is limited! Passive motion** – anchor joint with one hand while other hand slowly moves joint to its limit.

TMJ NOTES:

Pain with ROM & crepitus = TMJ dysfunction

Audible snap or click with opening mouth is often normal.