Class 7 OAS Notes
Elbow

Active movements

1. Flexion is 140-150 degrees, (140 or greater)
2. Extension is 0-10 degrees, (0 degrees)
3. Supination is 90 degrees, (80 degrees or greater)
4. Pronation is 80-90 degrees, (80 degrees or greater)
5. Humeroulnar, humeroradial, proximal radioulnar joint

Passive movement

1. Flexion
2. Extension
3. Supination
4. Pronation

Resisted isometric movement

1. Flexion
2. Extension
3. Supination
4. Pronation

Special test

1. Ligamentous instability test (Varus and Valgus test of elbow) – Valgus: The examiner places the patients elbow in approximately 20 degrees of flexion while palpating the medial joint line and stabilizing the distal humerus with one hand and applying a valgus stress to the elbow with the other hand. The test is considered positive if the patient experiences pain or excessive laxity is noted compared to the contralateral side. As with the varus stress test, this test can be repeated in varying degrees of elbow extension to test different portions of the MCL. Varus: With the patient is standing, the therapist places the patient's elbow in slight flexion while palpating the humeroulnar joint line. The therapist then applies a varus force to the elbow (pushes on medial side of the elbow). This test is considered positive if the patient experiences pain or excessive laxity is noted and compared to the contralateral side. The test can be repeated in varying degrees of elbow flexion. Test LCL.
2. Medial epicondylitis (Golfer's elbow) test– while examiner palpates medial epicondyle patients' forearm is supinated and the elbow and wrist are extended.
3. Lateral epicondylitis test (Tennis elbow)
    a. Cozen's (method 1) – examiner stabilizes elbow (thumb of stabilizing hand is on the lateral epicondyle). Patient is asked to make a fist, pronate

forearm, laterally deviate, and extend the wrist while examiner resists the motion. Positive – sudden severe pain in the area of lateral epicondyle.
   b. Mill's (method 2) – while palpating lateral epicondyle examiner pronates the patient's forearm, flexes fully the wrist and extends the elbow. Positive – pain over lateral epicondyle.
   c. Method 3 – examiner resists extension of the third digit distal to the proximal interphalangeal joint, stressing the extensor digitorum muscle. Positive pain over lateral epicondyle.
4. Tinel's sign at the elbow – tapping in the groove between olecranon and medial epicondyle. Positive – tingling sensation in the ulnar distribution.
5. Wartenberg's sign – patient sits with hands on the table. Examiner separates patient fingers and asks patient to bring them together. Inability to bring the little finger back indicates ulnar neuropathy.
6. Elbow flexion test – patient flexes elbows and extends the wrists, and shoulder depression. Patient maintains this position for 3 to 5 min. Positive – tingling or numbness in ulnar nerve distribution.
7. Test for Pronator Teres syndrome – patient sits with elbow flexed to 90 degrees. Examiner strongly resists pronation. Positive – tingling or numbness in median nerve distribution.
8. Pinch Grip test – patient is asked to pinch the tips of index finger and thumb together. If cannot – positive sign for anterior interosseous nerve problem.

Reflexes and cutaneous distribution

1. Reflexes
   a. biceps (C5, C6 from musculocutaneous nerve)
   b. triceps (C6, C7 from the radial nerve)
   c. brachioradialis (C6, C7 from radial nerve)

Forearm, wrist, and hand

Common deformities

1. Swan Neck – flexion of MCP (MP) and DIP, with extension of PIP. RA or trauma
2. Claw finger – MCP hyperextended, PIP hyperextended, and DIP flexed. Due to median and ulnar nerve palsies
3. Ulnar drift – ulnar deviation of digits at MCP joints. Seen in RA
4. Ape hand – thumb falls in line with other fingers due to thenar eminence muscle weakness. No opposition of other fingers. Median nerve damage. (Carpal tunnel syndrome, Pronator teres syndrome)
5. Bishop's hand – wasting/weakness of hypothenar eminence, interossei and lumbricals muscles. Flexion of digits 4 and 5.

6. Trigger finger – due to thickening of the flexor tendon sheath, which causes sticking of the tendon when patient attempts to flex the finger. Lets go often with the snap. Must be passively moved back. Risk factors: women, diabetes, repetitive motion, arthritis It is worse in the morning
7. Dupuytren's contracture – due to thickening of palmar fascia in Dupuytren' disease. Nodule forming under the skin of the palm. Tendons are not involved in this contracture. Development of thick palmar fascial cords. Etiology – unknown, men, northern Europeans
8. "Z" deformity – thumb flexed at MCP and extended at IP joint. RA or trauma
9. Boutonniere deformity – middle joint of affected finger does not straighten anymore
10. Drop wrist – hand cannot be extended due to radial nerve damage
11. Heberden's nodes - small, pea-sized hard bony swelling (growth) on **DIP** joints seen in **OA.** Caused by formation of osteophytes (calcific spurs) of the articular (joint) cartilage in response to repeated trauma at the joint
12. Bouchard's nodes - hard, bony outgrowths or gelatinous cysts on the proximal interphalangeal joints (PIP). Osteoarthritis, where they are caused by formation of calcific spurs of the articular (joint) cartilage. Rheumatoid arthritis, where nodes are caused by antibody deposition to the synovium.

Active range of motion at the wrist joint

1. Flexion: 80 -90 degrees
2. Extension: 70-90 degrees
3. Abduction (radial deviation): 20 degrees or greater
4. Adduction (Ulnar deviation): 30 -45 degrees

Active range of motion for fingers

1. Fingers II -V
   a. MCP flexion is 90 degrees, extension 30-45 degrees
   b. PIP flexion 100-115 degrees, 0 degrees
   c. DIP flexion is 80-90 degrees, extension 0 degrees
2. Abduction at MCP joint – 20 to 30 degrees
3. Thumb
   a. CMC joint flexion is 45 to 50 degrees, extension 0 degrees
   b. MCP (MP) flexion 50-55 degrees, extension 0 degrees
   c. IP joint: 85-90 degrees, extension 0 degrees
   d. Opposition – tip to tip
   e. Thumb abduction: 60-70 degrees
   f. Thumb adduction: 30 degrees

PROM – the same
RIM – the same

Functional assessment of the hand – grip

Special tests

1. Ligament instability test for fingers
2. Thumb ulnar collateral ligament instability test (Gamekeepers or skiers' thumb)
3. Test for tight retinacular ligaments
4. Murphy's sign
5. Watson (scaphoid shift) test
6. Scaphoid stress test
7. Piano keys test
8. Axial load test
9. Finkelstein test
10. Eichhoff's test
11. Boyes test
12. Tinel's sign at the wrist
13. Phalen's test
14. Reverse Phalen's test
15. Carpal compression test
16. Froment's sign
17. Wrinkle test (O'Riain's or Leukens' wrinkle test)
18. Weber's (Moberg's) Two-Point discrimination test
19. Allen test

1. Reflexes and cutaneous distribution

Elbow, Wrist and Hand Disorders

1. Medial Epicondylitis of the Elbow
2. Lateral Epicondyltitis of the Elbow
3. Olecranon Bursitis
4. Ulnar Nerve Entrapment (Cubital Tunnel Syndrome)
5. Median Nerve Entrapment
6. Carpal Tunnel Syndrome
7. Wrist Extensor Tendonitis
8. de Quervains Tenosinovitis
9. Metacarpophalangeal Joint Injury of the Thumb (Ulnar Collateral Ligament Injury)

10. Osteoarthritis of the Carpometacarpal Joint of the Thumb
11. Trigger Finger
12. Wrist Flexor Tendonitis
13. Dupyten's Contracture
14. Wrist Sprain