HAND AND WRIST EXAMINATION

INSPECTION
- Swelling
- Erythema
  - Palmar erythema associated with portal hypertension, chronic liver disease, pregnancy, rheumatoid arthritis, thyrotoxicosis, etc.
- Atrophy
  - Thenar and hypothenar
  - Interossei muscles
  - Dupuytren’s contracture
    - Caused by thickening and puckering of the palmar fascia
    - Non-specific, but associated with diabetes, epilepsy, alcoholism, liver disease or cirrhosis
- Deformities
  - Osteoarthritis
    - Squaring of the wrist
    - Bouchard’s nodes (PIP)
    - Heberden’s nodes (DIP)
  - Rheumatoid arthritis
    - Joint swelling (DIPs are spared)
    - Prominent ulnar head
    - Radial deviation of wrist
    - Ulnar deviation and subluxation of the MCPs
    - Swan neck deformity (PIP hyperextension with DIP flexion)
    - Boutonniere’s deformity (PIP flexion with DIP extension)
  - Psoriatic arthritis
    - Any joint involved including DIPs
    - Dactylitis (sausage digits)
- Scars and skin changes
  - Psoriasis
  - Psoriatic nail changes: pitting, onycholysis
  - Gouty tophi
  - Vasculitis: splinter hemorrhages (nail beds), peri-ungual infarcts
  - Scars (such as from a median nerve release procedure)

PALPATION
- Check for warmth and systematically palpate bones and soft-tissues for tenderness
- Ulnar head, ulnar styloid
- Triangular fibrocartilaginous complex (TFCC) (between ulnar head and carpal bone)
- Abductor pollicis longus and extensor pollicis brevis (DeQuervain’s tenosynovitis)
- Anatomical snuffbox
  - Floor of snuff box formed by scaphoid
  - Tenderness may suggest fracture
- Pisiform, Hook of hamate
- Metacarpals (swelling and point tenderness can be found with a fracture)
- Wrist effusion
  - Using one’s thumbs, palpate radio-carpal joint space
  - Check for tense or boggy sensation (effusion) and slide thumbs over radial joint line (if indistinct, this suggest synovitis or effusion)
Try to ballot fluid between one’s thumbs

**MCP Effusion**
- Joint line is 1 cm distal to tip of knuckle with MCP flexed
- Use 4-finger technique: middle fingers to support the underside, tip of thumbs to palpate joint line
- Check for tenderness, fullness; try to ballot fluid between thumbs

**PIP and DIP Effusion**
- 4-finger technique: thumb and index of one hand on the dorsal and volar aspect, while using the thumb/index of the other hand to feel the sides of the joint
- Check for tenderness, fullness; try to ballot fluid between fingers

**Flexor tendonitis**
- Palpate flexor tendons in palm for tenderness, check for nodules or crepitus while passively flexing and extending each finger

**RANGE OF MOVEMENT**
- Quick screen: make a fist with thumb out, then extend all fingers
- PIPs: finger tuck (DIPs flex 0-80°, PIPs flex 100-120°)
- MCPs: extension (10-20°), flexion (90-100°), abduction and adduction
- Thumb
  - Flexion, extension, adduction, abduction, circumduction
  - Opposition (touch thumb to tip of each finger)
- Wrists
  - Flexion (70-90°)
  - Extension 70-90°
  - Radial and ulnar deviation
  - Supination, pronation, circumduction
  - Tuck sign
    - During active wrist/finger extension, look for a bulge forming on the dorsal aspect of the wrist
    - This is found with extensor tenosynovitis

**SPECIAL TESTS**
- **Stability Testing**
  - Wrist
    - Stabilize forearm, grasp hand and gently try to sublux wrist up and down
  - Piano key sign
    - Hold patient’s hand while gently pressing down the ulnar head
    - If it depresses and comes back up like a piano key, this indicates disruption of the (distal) radioulnar ligament (found in rheumatoid arthritis)
  - MCPs
    - With MCPs flexed, try to sublux proximal phalanx anteriorly and posteriorly (similar to anterior-posterior drawer test of the knee; small amount of movement normal)
    - **Collateral ligaments at the MCPs**
      - With the MCPs flexed try move the finger to each side (varus and valgus stress)
      - There should be little or no movement
  - IPs
    - Apply varus and valgus stress to assess collaterals
- **Carpal Tunnel Syndrome**
  - **Phalen's sign**
    - Patient holds wrist in complete flexion by holding dorsal surfaces of hands together for approximately one minute
    - If burning or paresthesias over the first, second, third or fourth fingers occurs, this suggests **carpal tunnel syndrome**
  - **Tinel's sign**
    - Tap at the median nerve at the inside of the wrist
    - If burning or paresthesias occur over the thumb, index, and middle finger, this may indicate **carpal tunnel syndrome**

- **DeQuervain's tenosynovitis**
  - **Finkelstein's test**
    - This is caused by inflammation of the sheaths of the abductor pollicis longus and extensor pollicis brevis tendons
    - Patient makes a fist with the thumb in, then examiner passively moves the wrist into ulnar deviation
    - Sharp pain along the radial aspect of the wrist indicates **DeQuervain's tenosynovitis**

**NEUROLOGICAL SCREEN**
- **Power assessment**
  - Grip strength: power across MCPs, PIPs, DIPs
  - Finger extension, flexion
  - Dorsal interossei (abduct fingers against resistance): Ulnar nerve
  - Palmar interossei (adduct fingers against resistance): Ulnar nerve
  - Thumb abduction, flexion, opposition: Median nerve
  - Thumb extension: Radial nerve
  - Wrist flexion: Median nerve
  - Wrist extension: Radial nerve

- **Reflexes**
  - Biceps (C6)
  - Triceps (C7)
  - Brachioradialis

- **Sensory and Motor Assessment**

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<thead>
<tr>
<th>Nerve</th>
<th>Motor</th>
<th>Sensory</th>
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<tbody>
<tr>
<td>Median nerve</td>
<td>“Okay” sign</td>
<td>Palmar aspect of the index finger</td>
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<tr>
<td>Radial Nerve</td>
<td>“Thumbs up”</td>
<td>Dorsal side of the radial half of hand or 1st web space</td>
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<tr>
<td>Ulnar Nerve</td>
<td>Finger abduction</td>
<td>Fifth finger</td>
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