

## ELBOW EXAMINATION

*If referred pain is suspected, or elbow examination is unremarkable, consider examining the shoulder and hand/wrist*

### INSPECTION

- Swelling
  - Joint swelling: loss of para-olecranon groove
  - Olecranon bursitis: swelling on posterior aspect of olecranon
- Erythema
- Atrophy
  - Biceps
  - Triceps
  - Brachioradialis
  - Wrist flexors (attached to medial epicondyle)
  - Wrist extensors (attached to lateral epicondyle)
- Deformities
  - Carrying angle
    - Observe with patient standing, arms at side, elbows extended, palms facing forwards
    - Angle that the forearm makes with a line drawn straight down through the humerus
    - Normally 5-10° in men, 10-20° in women.
  - Flexion contractures
- Skin changes or scars
  - Rheumatoid nodules (rubbery nodules overlying olecranon)
  - Gouty tophi (hard nodules overlying olecranon)

### PALPATION (tenderness, warmth)

- Triceps, olecranon and olecranon bursa
- Biceps, biceps tendon in antecubital fossa, brachial artery pulsation
- Wrist flexors (attached to medial epicondyle)
- Wrist extensors (attached to lateral epicondyle)
- Supra-trochlear lymph nodes (above medial epicondyle)
- **Elbow effusion**
  - *Palpate lateral para-olecranon between the lateral epicondyle and the olecranon*
  - *With thumb and index fingers in the para-olecranon groove, flex and extend the elbow checking for a bulge forming*
- **Medial epicondylitis**
  - Tenderness at medial epicondyle and common flexor tendon
- **Lateral epicondylitis**
  - Tenderness at lateral epicondyle and common extensor tendon
- Radial head
  - *Felt by pronating and supinating forearm/hand with elbow flexed 90° and examiner's thumb just distal to the lateral epicondyle*
- Bony crepitus

### RANGE OF MOVEMENT

- Flexion (140° +/- 10°)
- Extension: full extension defined as 0°, up to 10° of hyperextension especially women

- Pronation and supination
  - Arms at side, elbows flexed, thumbs up
  - Turn palms down: pronation (75-90°)
  - Turn palms up: supination (8-90°)
- Assess passive ROM and note end-feel if active is limited

### POWER ASSESSMENT

- Resisted isometric testing
- Flexion, extension, pronation, and supination with humerus stabilized

### SPECIAL TESTS

- **Stability**
  - **Medial (Ulnar) Collateral Ligament**
    - Hold the elbow to stabilize while keeping it flexed at 30°
    - Apply a valgus (outward) force against the forearm, while stabilizing the elbow
    - Excess laxity with valgus force may indicate medial **collateral ligament injury**
  - **Lateral (Radial) Collateral Ligament**
    - Hold the elbow to stabilize while keeping it flexed at 30°
    - Apply a varus (inward) force against the forearm, while stabilizing the elbow
    - Excess laxity with varus force may indicate **lateral collateral ligament injury**
  - **Antero-posterior stability**
    - With the elbow flexed 90°, push and pull the humerus: there should be no movement
- **Lateral Epicondylitis (Tennis Elbow)**
  - Palpate for tenderness at lateral epicondyle and common extensor tendon
  - Resisted wrist extension: with elbow extended and wrist cocked backwards, examiner then tries to pull the hand down while patient resists
  - A positive test is pain at the lateral epicondyle
- **Medial Epicondylitis (Golfer's Elbow)**
  - Palpate for tenderness at medial epicondyle and common flexor tendon
  - Resisted wrist flexion: with elbow extended and wrist flexed (fingers pointing down), examiner then tries to pull the hand up while patient resists
  - A positive test is pain at the medial epicondyle
- **Cubital Tunnel Syndrome**
  - Caused by irritation or entrapment of the ulnar nerve in the cubital tunnel (groove between the medial epicondyle and olecranon)
  - **Tinel's Sign**
    - With the elbow flexed at 90°, tap over the ulnar nerve
    - A positive test positive test is pain or paresthesia radiating to 4th/5th fingers.
  - **Elbow Flexion Test**
    - Patient maximally flexes elbow with the wrist extended
    - Hold this position for 60 seconds to see if paresthesias (radiating to 4th/5th fingers) develop