ELBOW EXAMINATION

What’s the problem
- Pain
- Instability
- Stiffness
- Disability

Which hand?
How old?
Occupation
Any history of injury

Assess disability
- Work and ADL
  1. Can you lift heavy weights?
  2. Can you reach for things in the cupboard?
  3. Can you comb your hair?
  4. Can you reach your mouth?
  5. Can you take care of bowel hygiene?
  6. Can you do hammering?

Sleep: Affected or not
- Pain in particular range: terminal extension or flexion
- Pin and tingly sensation; any weakness
- Any previous treatment?
- Medical problem? Diabetes;

A. Inspection

1. Carrying angle
   - Patient standing with arm closed to the chest with forearm supinated
   - Angle by the axis arm to the axis of the forearm give: carrying angle

   Normal:
   - Males: 7°
   - Females: 14°

   - In the presence of a fixed flexion deformity of the elbow, this angle cannot be commented

2. Attitude of the limb:
   - How limb is placed?

   Right side:
   - Shoulder abducted and internal Rotation and elbow is flexed: Erb’s palsy
3. Any deformity of the elbow
   Flexion deformity is common following elbow injury or arthritis
   Valgus deformity: in lateral condylar fracture or sometimes in supracondylar fractures
   Varus or gunstock deformity: is a classical malunion of supracondylar fracture

4. Muscle wasting [Mention about FCU wasting: ulnar nerve]

5. Any surgical scar, sinus

6. Screening test for elbow movement:

   B. Palpation
   1. Tenderness   Start from Lateral condyle,
      Olecranon,
      Radial head,
      Medial epicondyle,
      Biceps tendon and ulnar nerve

   How to feel radial head?
   Elbow in flexion
   Feel the lateral condyle
   Below the lateral condyle there is a fossa
   In the fossa feel the radial head
   Confirm it by rotating the forearm

   Bony relation
   Medial Epicondyle; tip of the
   Olecranon and lateral epicondyle relation

   With elbow extended:
   They are at same level

   With elbow flexed:
   Isosceles triangle with elbow at 90°
C. Range Of Movement

Elbow flexion and extension

- **Normal range**: 0° - 140°
- **Functional range**: 30° - 130°
  [up to 10° hyperextension is normal]

Rotation

- Joints involved are radiocapitular joint,
- Superior and inferior radioulnar joint.

- **Supination**: 90°
- **Pronation**: 90°

**Functional range**: 50° each direction

Impingement:

- Presence of loose body or osteophytes in the olecranon fossa pain on hyperextension and osteophytes in the radial fossa pain on flexion

D. Ulnar Nerve test:

- Gently palpate the nerve between Medial epicondyle and Olecranon.
- Now flex and extend.
- On flexion, there is subluxation of the nerve anteriorly with a palpable snap
- 15% of population ulnar nerve subluxates
**Ulnar stretch test:**
Elbow flexion; forearm
Supination and wrist in dorsiflexion
Provocative test for ulnar entrapment
At the elbow joint

**E. Instability signs**
Valgus and Varus with elbow in 30° and 0°
With shoulder in internal rotation for varus test
and external rotation for valgus test

Varus or valgus force is given with in 30° joint
open out if there is any laxity

**Driscoll’s sign**
Only performed if there is any instability,
Mainly for postero-lateral subluxation

Technique:
Patient supine and arm overhead
Supination and valgus with axial compression
Elbow is now flexed; at 40-70°, the radial head is
maximally subluxated
Additional flexion caused a visible clunk of reduction

**Chair test for Posterolateral instability:**
Reluctant to full extend the elbow when rising from
a chair
F. Tests for Tennis elbow

**Cozens sign** (Active):
Elbow 90°; Forearm pronate, 
Now dorsiflex wrist against resistance 
Positive when pain at lateral epicondyle

**Mills sign** (Passive)
While palpating the lateral epicondyle 
The examiner pronates the patients forearm 
Passive flexion of the wrist fully and then extends 
the elbow

**Resisted extension of the middle finger**
Resistance just distal to PIP joint of the middle finger 
with forearm in pronation. 
Positive in tennis elbow with pain at lateral epicondyle 
In radial tunnel syndrome: pain is 4 cm distal to 
epicondyle

**Golfer’s elbow:**
Resisted wrist flexion 
Pain near medial epicondyle

**G. Ulnar nerve screening**
Wasting : Interossie, FCU 
Sensation in little ring finger 
Tinel’s sign at elbow 
Subluxation of the ulnar nerve

**Intrinsic examination:**
1. Test for dorsal interossie 
2. Test for palmar interossie 
3. Test for abductor pollices brevis
**Median Nerve**

**Anterior interosseous Nerve palsy**
- Common nerve involved in supracondylar fracture
- “O” sign
- Ask the patient to make zero with thumb and Index finger
- If present means FDP and FPL are intact
- In there is no flexion: means involvement of anterior interosseous nerve

**Median nerve entrapments**
1. Tinel’s test
2. Resisted pronation of forearm with elbow extended: Pronator teres
3. Resisted Supination elbow flexion and supination: lacertus fibrosus
4. Pain on resisted flexion of PIP joint middle finger: FDS arch