

# ELBOW JOINT

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## TYPE

- Synovial joint
  - Hinge joint
  - Also includes pivot component (proximal radioulnar joint) ★
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## ARTICULATIONS

- Humero-ulnar → Trochlea of humerus ↔ Trochlear notch of ulna
- Humero-radial → Capitulum of humerus ↔ Head of radius

- Proximal radioulnar → Head of radius ↔ Radial notch of ulna
  - Articular surfaces are covered with hyaline cartilage
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## CAPSULE OF ELBOW JOINT

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### ◆ ATTACHMENTS

#### Proximal (Humerus)

- Above radial fossa
- Above coronoid fossa
- Above olecranon fossa

#### Distal

- Around trochlear notch of ulna
  - Blends with annular ligament of radius
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#### ◆ FEATURES ★

- Weak anteriorly and posteriorly
  - Strong medially & laterally (ligaments reinforce)
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## ● LIGAMENTS OF ELBOW JOINT

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- ◆ Ulnar Collateral Ligament (Medial) ★
- Triangular
- Medial epicondyle → Coronoid process & Olecranon
- Prevents valgus (abduction)

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- ◆ Radial Collateral Ligament (Lateral)

- Lateral epicondyle → blends with annular ligament
  - Prevents varus (adduction)
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- ◆ Annular Ligament ★

- Encircles head of radius
  - Attached to radial notch of ulna
  - Holds radial head in place
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- ◆ Lateral Ulnar Collateral Ligament


- Provides posterolateral stability
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## MOVEMENTS

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### ◆ Movements at elbow

- Flexion → Biceps brachii, Brachialis, Brachioradialis
- Extension → Triceps brachii, Anconeus

 Pronation & Supination → occur at proximal radioulnar joint

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## CARRYING ANGLE

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### ◆ Definition

- Angle between arm & forearm in extension
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- ◆ Values

- Male →  $\sim 10^\circ$
  - Female →  $\sim 15^\circ$
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- ◆ Clinical

- ↑ angle → Cubitus valgus
  - ↓ angle → Cubitus varus (gunstock deformity)
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## BURSAE AROUND ELBOW

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- Subcutaneous olecranon bursa
- Subtendinous olecranon bursa
- Intratendinous bursa

 Function → reduce friction

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◆ Clinical 

- Olecranon bursitis (Student's elbow) → swelling, redness over elbow
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 BLOOD SUPPLY (ANASTOMOSIS) 

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◆ Purpose

- Maintains blood flow during flexion
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◆ From Above (Arm)

- Superior ulnar collateral
  - Inferior ulnar collateral
  - Profunda brachii branches
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◆ From Below (Forearm)

- Radial recurrent
  - Anterior ulnar recurrent
  - Posterior ulnar recurrent
  - Interosseous recurrent
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💡 Flow concept:

Above → Collateral → Network → Recurrent ← Below

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● NERVE SUPPLY ★

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- Median nerve
  - Ulnar nerve
  - Radial nerve
  - Musculocutaneous nerve

 (Hilton's Law)

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## RELATIONS OF ELBOW JOINT

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- ◆ ANTERIOR  (Superficial → Deep)
  - Skin & fascia
  - Median cubital vein 
  - Bicipital aponeurosis
  - Biceps tendon

- Brachial artery
  - Median nerve
  - Brachialis
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Clinical:

- Bicipital aponeurosis protects artery & nerve during venipuncture
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#### ◆ POSTERIOR

- Triceps tendon
  - Olecranon process
  - Subcutaneous olecranon bursa
  - Subtendinous bursa
  - Capsule
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◆ MEDIAL ★

- Ulnar nerve (behind medial epicondyle)

💡 "Funny bone" sensation

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◆ LATERAL

- Common extensor origin
  - Supinator
  - Radial collateral ligament
  - Radial nerve nearby
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● CUBITAL FOSSA (IMPORTANT INTEGRATION) ★

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◆ Boundaries

- Lateral → Brachioradialis
  - Medial → Pronator teres
  - Floor → Brachialis + Supinator
  - Roof → Skin, fascia, bicipital aponeurosis
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◆ Contents (L → M)

👉 TAN

- T → Tendon (biceps)
- A → Artery (brachial → radial & ulnar)
- N → Nerve (median)

💡 Radial nerve lies laterally

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● CLINICAL CONDITIONS 🩺

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### ◆ 1. Posterior Dislocation

- Most common
  - Due to fall on outstretched hand
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### ◆ 2. Pulled Elbow (Nursemaid's Elbow) ★

- Children
  - Radial head slips from annular ligament
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### ◆ 3. Supracondylar Fracture

- Most common fracture around elbow

### ★ Complications:

- Brachial artery injury
  - Median nerve injury
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- ◆ 4. Ulnar Nerve Injury

- At medial epicondyle
  - Causes → Claw hand
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- ◆ 5. Tennis Elbow (Lateral Epicondylitis) 

- Extensor overuse
  - Pain on extension
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- ◆ 6. Golfer's Elbow (Medial Epicondylitis) 

- Flexor overuse
  - Pain on flexion
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- ◆ 7. Olecranon Fracture

- Triceps pulls fragment upward
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## QUICK REVISION:

Elbow = Hinge + Pivot

-> Articulations: HU, HR, PRU

-> Ligaments: UCL, RCL, Annular

-> Contents: TAN

-> Nerves: MURM

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-> The End <-