

# Humerus

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## General Features

- **Longest and strongest bone of the upper limb.**
- Situated in the **arm (brachium)**, between the scapula and bones of the forearm.
- Proximal end articulates with **glenoid cavity of scapula** ? shoulder joint.
- Distal end articulates with **radius and ulna** ? elbow joint.

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## Parts of Humerus

### 1. Upper End

- **Head** ? rounded, directed medially, upward and backward, articulates with glenoid cavity.
- **Anatomical neck** ? constriction around head.
- **Greater tubercle** ? lateral, three facets for supraspinatus, infraspinatus, teres minor.
- **Lesser tubercle** ? anterior, for subscapularis.
- **Intertubercular sulcus (bicipital groove)** ? lodging long head of biceps tendon; bounded by lips for pectoralis major (lateral), teres major (medial), latissimus dorsi (floor).
- **Surgical neck** ? narrow, common fracture site, close relation to axillary nerve.

### 2. Shaft

- Cylindrical above, triangular below.
- Surfaces:
  - **Anterolateral** ? deltoid tuberosity (insertion of deltoid).
  - **Anteromedial** ? nutrient foramen.
  - **Posterior** ? spiral (radial) groove, transmitting radial nerve and profunda brachii vessels.
- Borders: anterior, medial, lateral.

### 3. Lower End

- Expanded, forms condyles of humerus.
- **Capitulum** ? articulates with head of radius.
- **Trochlea** ? articulates with ulna.
- **Medial epicondyle** ? prominent, gives attachment to flexors; ulnar nerve passes behind.
- **Lateral epicondyle** ? smaller, gives attachment to extensors.
- **Fossae**:
  - Radial fossa (above capitulum).
  - Coronoid fossa (above trochlea, anterior).
  - Olecranon fossa (posterior, for olecranon of ulna).

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## Ossification of Humerus

- **Primary center**: shaft, appears in **8th week intrauterine life**.

- **Secondary centers:**

- Head ? 1 year.
- Greater tubercle ? 3 years.
- Lesser tubercle ? 5 years.
- All fuse to form upper epiphysis by 7 years.
- Capitulum ? 1 year.
- Trochlea ? 9–10 years.
- Lateral epicondyle ? 12 years.
- Medial epicondyle ? 5 years.

- **Fusion:**

- Upper epiphysis unites with shaft at about **20 years**.
- Lower epiphysis unites with shaft at about **16–17 years**.

- **Total: 1 primary + 7 secondary centers.**

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## **Clinical Anatomy**

- **Fractures of Humerus**

- **Surgical neck** ? injures axillary nerve.
- **Shaft** ? injures radial nerve in spiral groove.
- **Supracondylar fracture (children)** ? dangerous, may injure brachial artery (Volkmann's ischemic contracture).
- **Medial epicondyle fracture** ? injures ulnar nerve.

- **Dislocations**

- Anterior dislocation of shoulder joint ? common, may damage axillary nerve.

- **Clinical landmarks**

- Medial epicondyle easily palpable ? used in locating ulnar nerve.
- Surgical neck important for radiology and surgical reference.

- **Ossification centers** are valuable in **forensic age estimation**.