

THE UPPER LIMB

BONES OF THE UPPER LIMB

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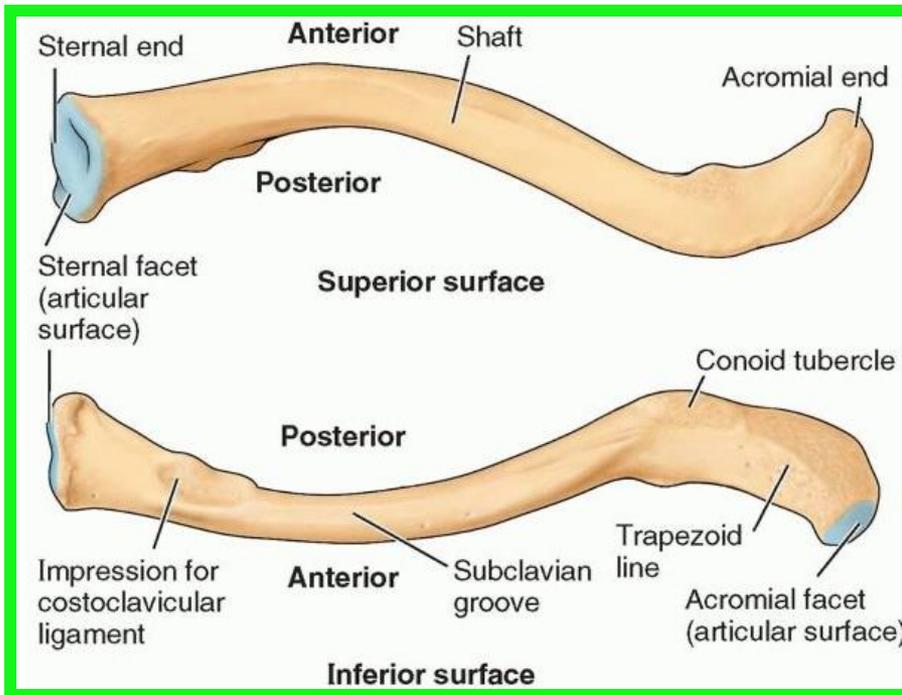
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Bones of the Shoulder Girdle

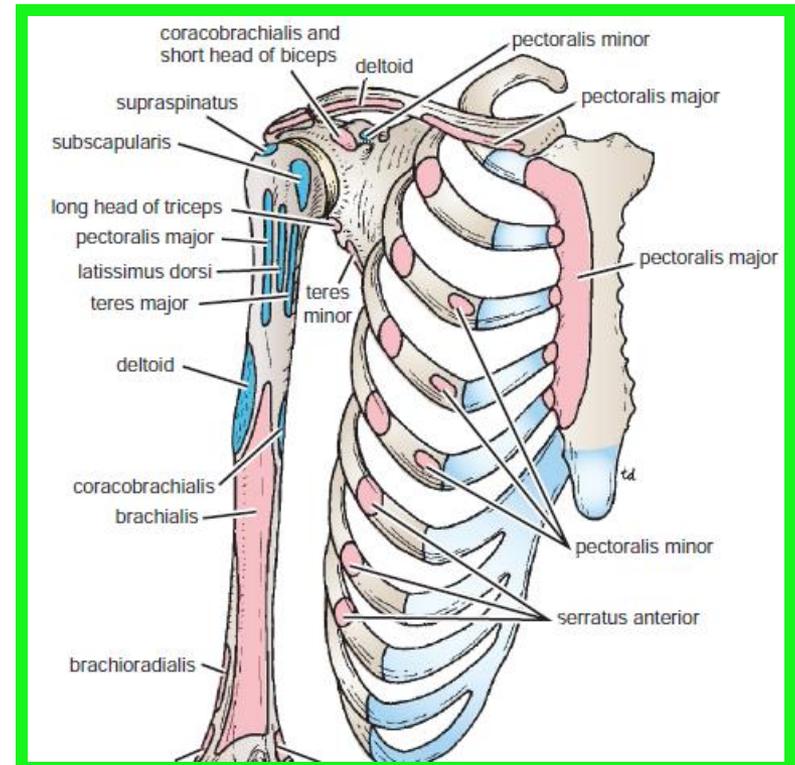
The shoulder girdle consists of the **clavicle** and the **scapula**.

Clavicle

It articulates with the sternum and 1st costal cartilage medially and with the acromion process of the scapula laterally.



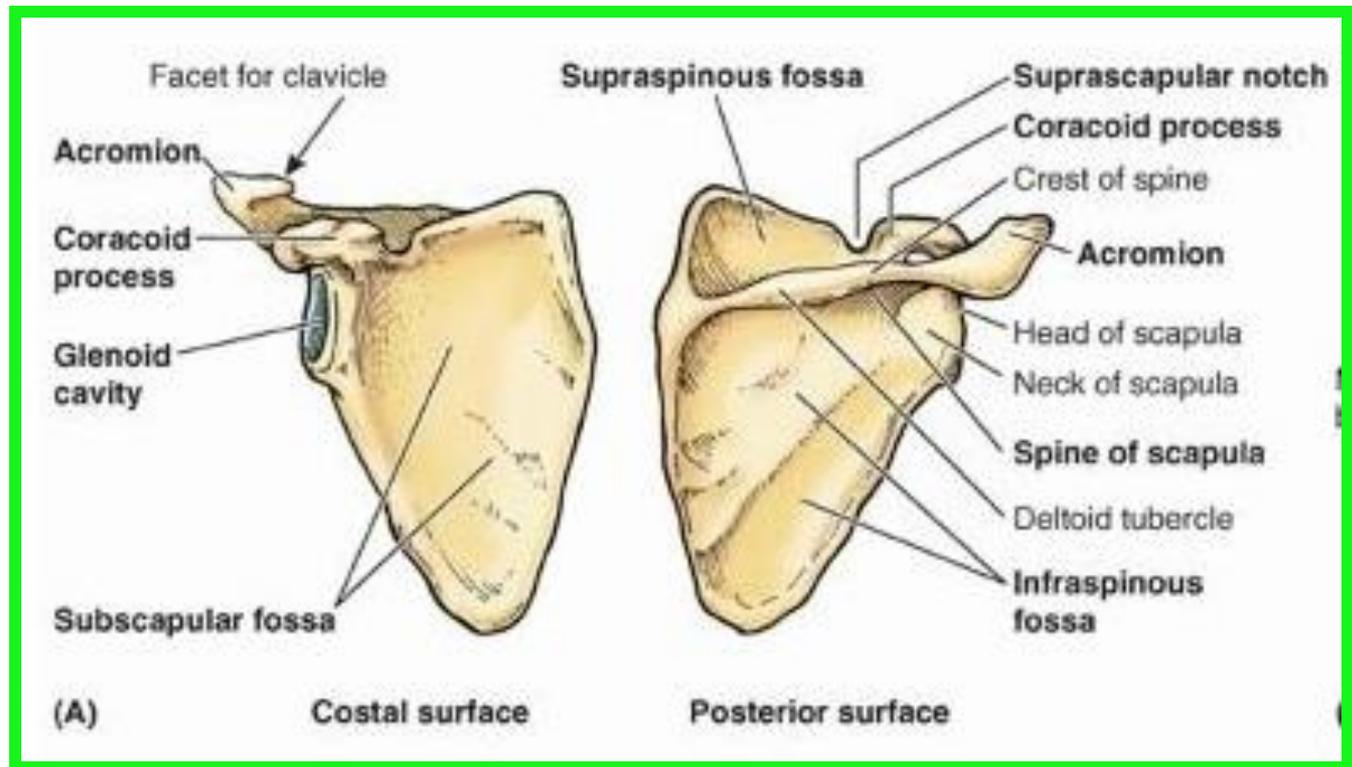
The **medial two thirds** of the clavicle is **convex** forward and its **lateral third is concave** forward.



Bones of the Shoulder Girdle

Scapula

- ❖ The scapula is a **flat triangular bone**
- ❖ On its posterior surface, the **spine of the scapula projects backward**.
- ❖ The lateral end of the spine is free and forms the **acromion**, which articulates with **the clavicle**.

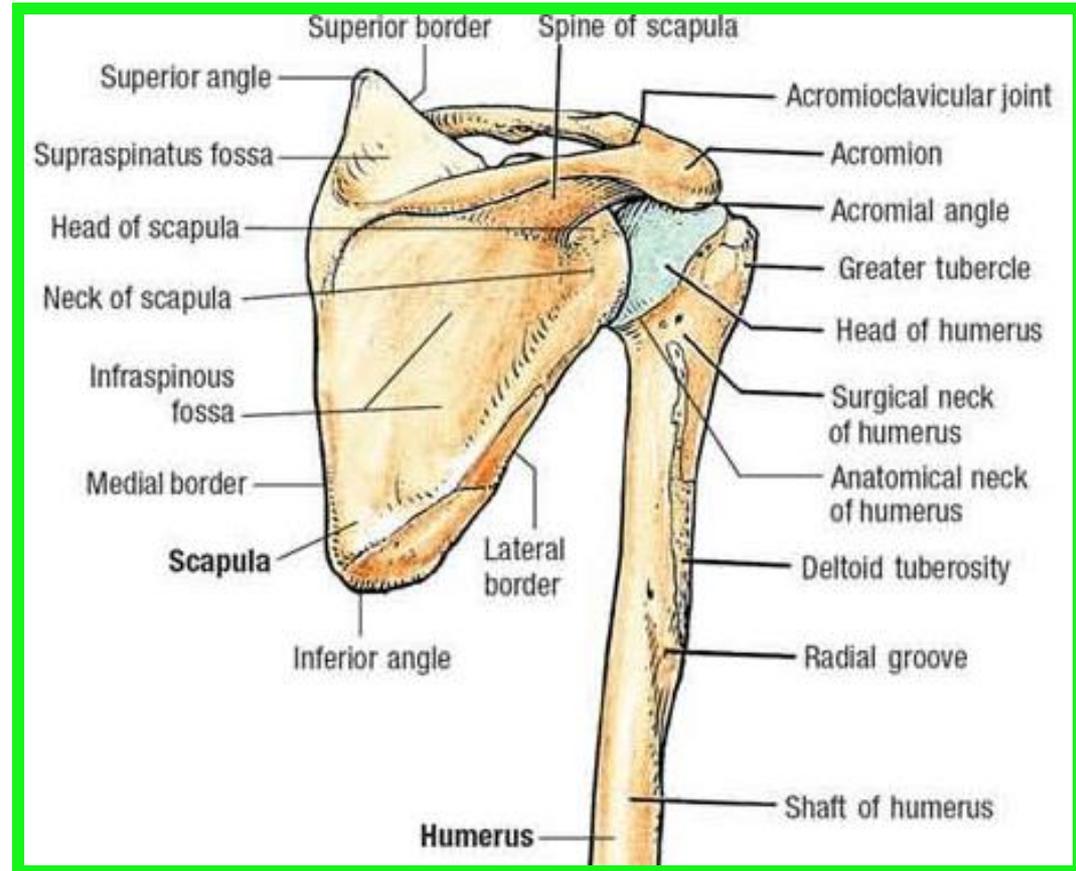


Bones of the Shoulder Girdle

Scapula

❖ The superolateral angle of the scapula forms the pear-shaped **glenoid cavity**,
❖ OR **fossa**, which articulates with the head of the humerus at **the shoulder joint**.

❖ The **coracoid process** projects upward and forward above **the glenoid cavity** and provides attachment for muscles and ligaments. Medial to the base of the coracoid process is **the suprascapular notch**.

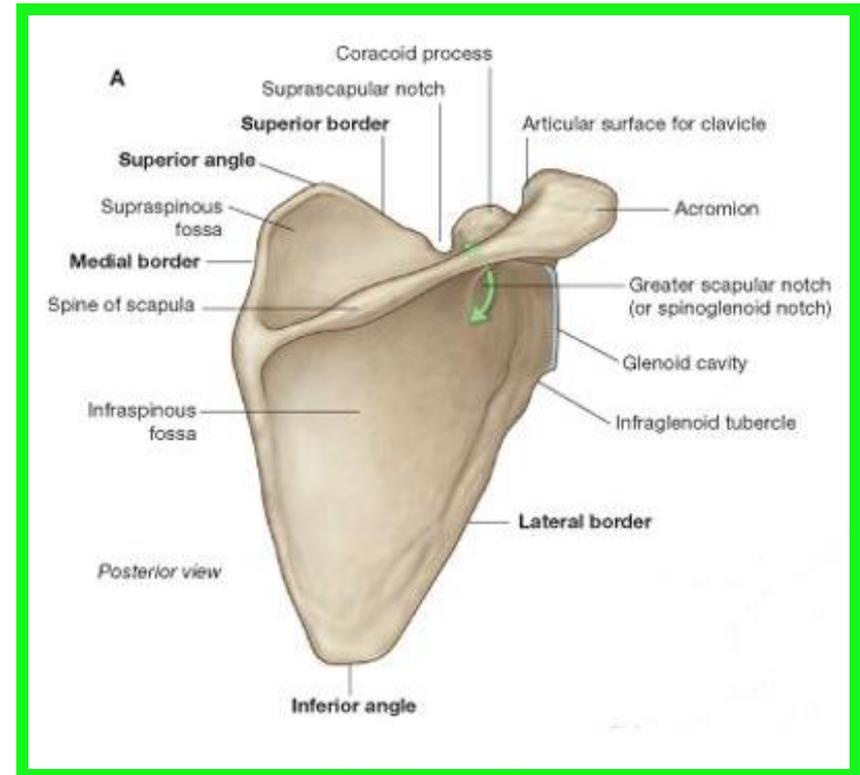
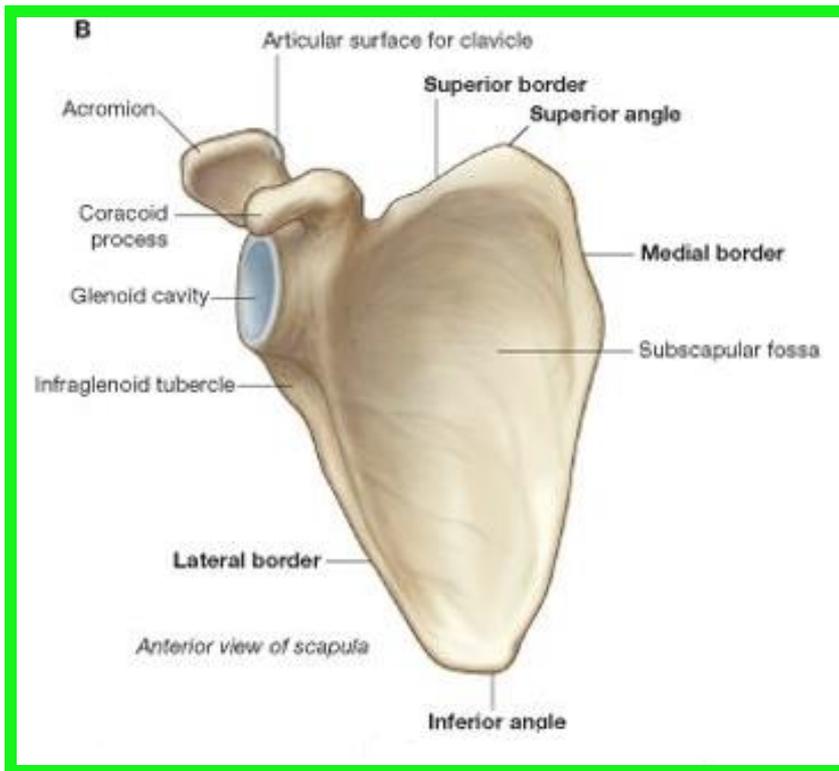


Bones of the Shoulder Girdle

Scapula

❖ The **anterior surface** of the scapula is **concave** and forms the shallow **Subscapular fossa**.

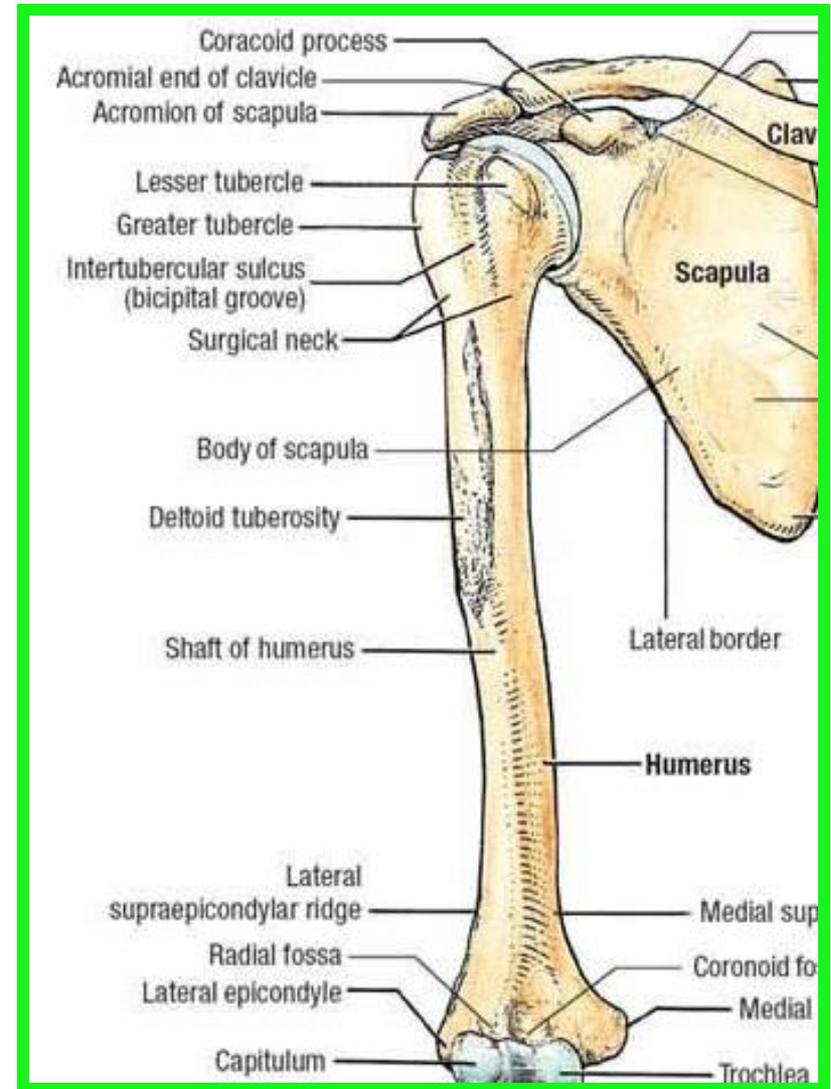
❖ The **posterior surface** of the scapula is divided by the **spine** into the **Supraspinous fossa above** and an **Infraspinous fossa below**



Bones of the Arm

Humerus

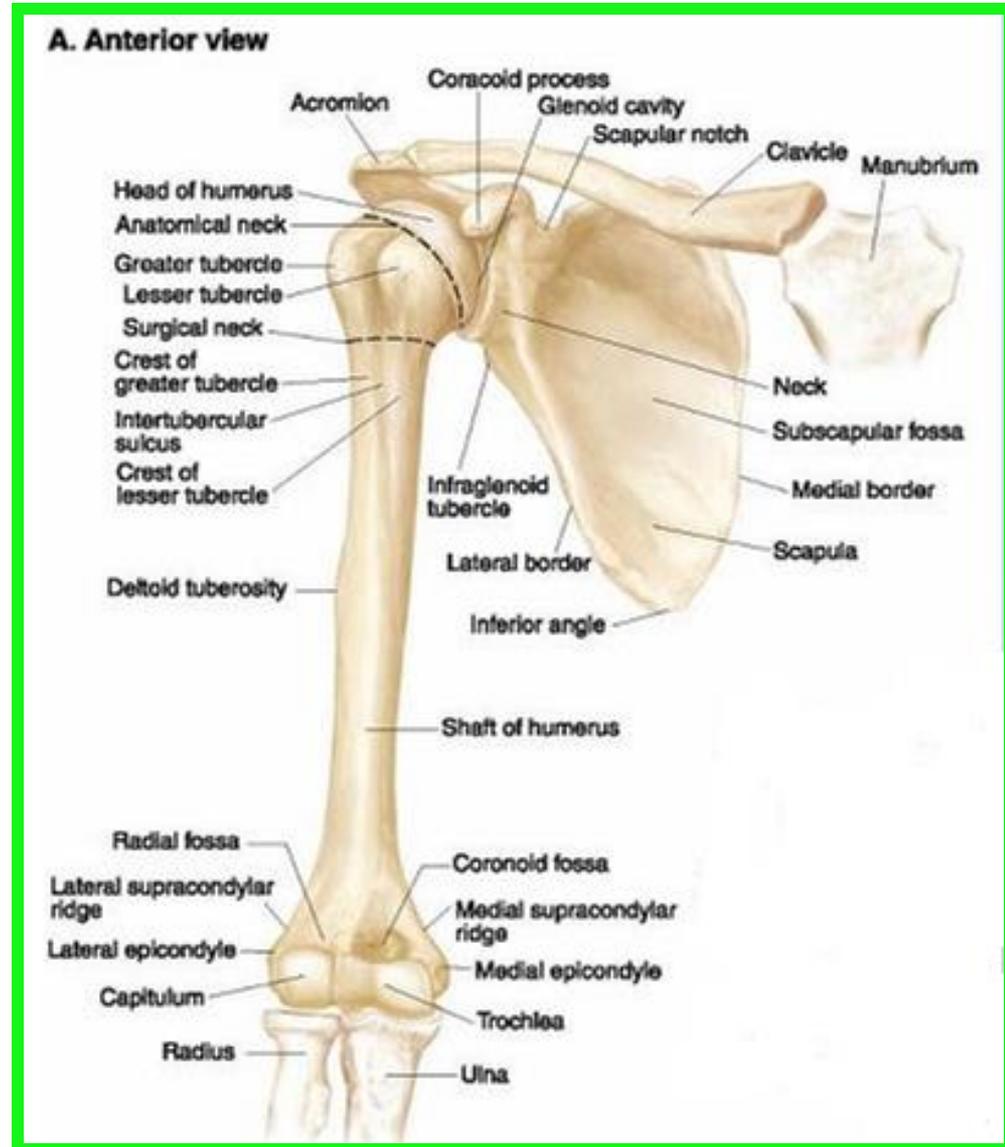
- ❖ The humerus articulates with the scapula at **the shoulder joint**
- ❖ With the radius and ulna at **the elbow joint.**
- ❖ The upper end of the humerus has a **head** which forms about **one third of a sphere** and articulates with the **glenoid cavity of the scapula.**



Bones of the Arm

Humerus

- ✓ Immediately below the head is the anatomical neck.
- ✓ Below the neck are **the greater and lesser tuberosities**, separated from each other by **the bicipital groove**.
- ✓ Where the **upper end** of the humerus joins the **shaft** is a narrow surgical neck

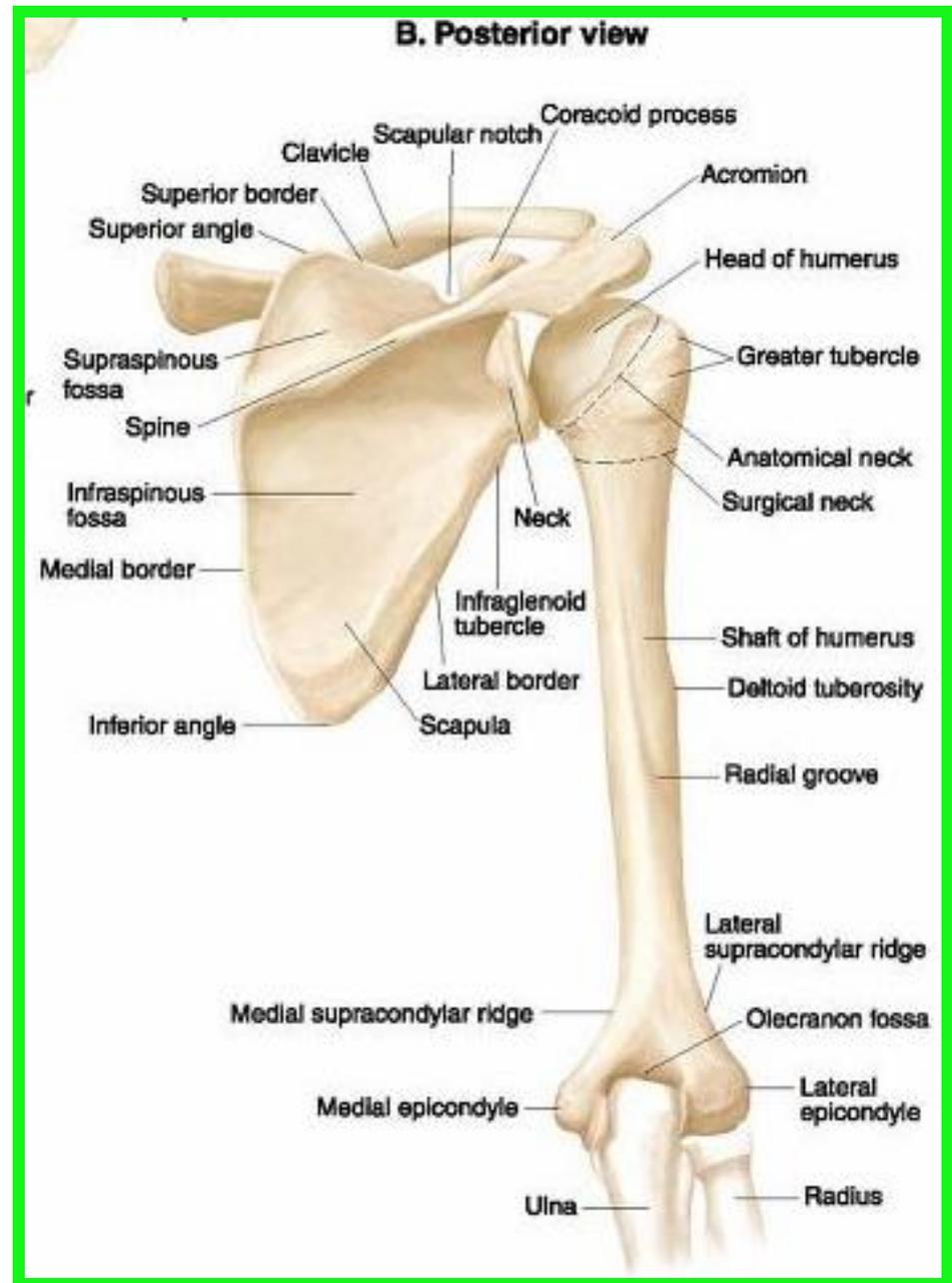


Bones of the Arm

Humerus

✓ About **halfway down** the lateral aspect of the shaft is a roughened elevation called **the deltoid tuberosity**.

✓ Behind and below the tuberosity is **a spiral groove**, which accommodates **the radial nerve**.



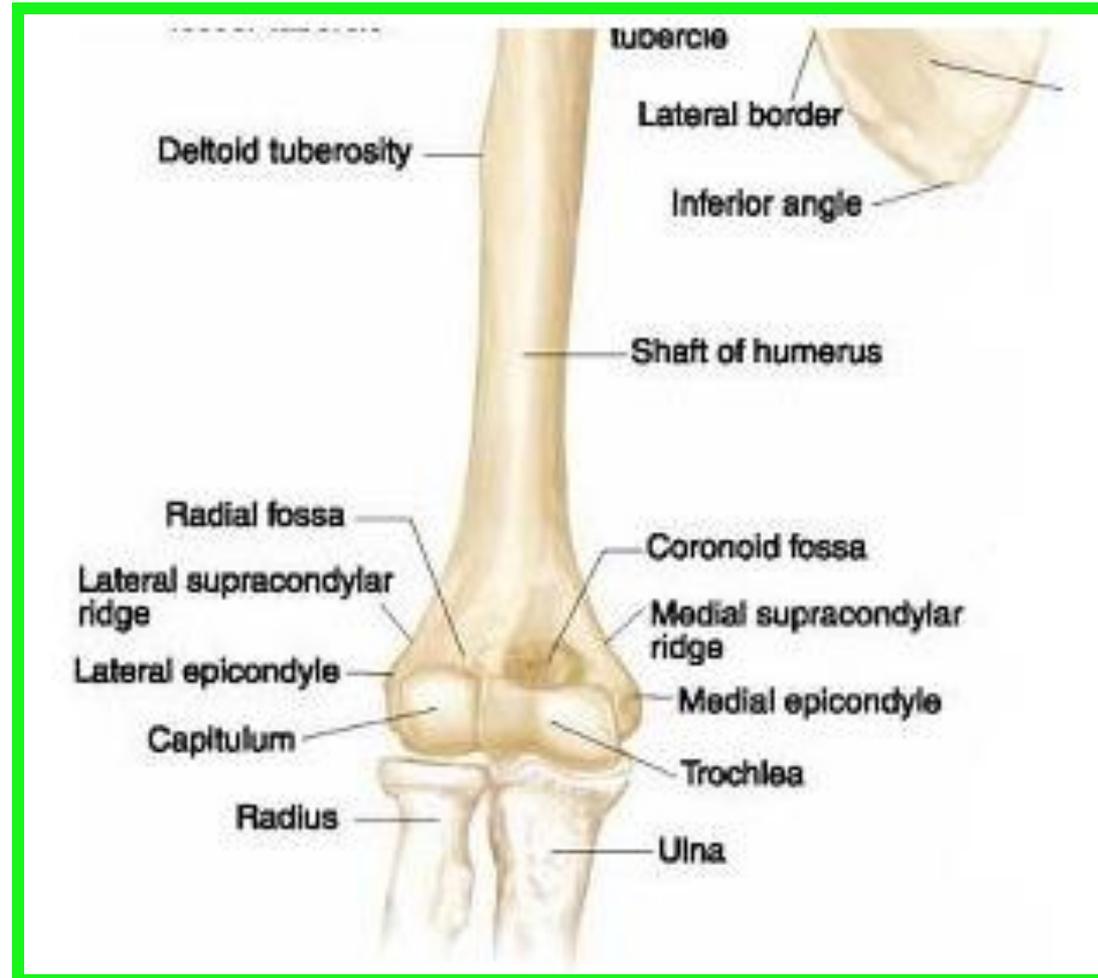
Bones of the Arm

Humerus

✓ The lower end of the humerus possesses **the medial** and **lateral epicondyles** for the attachment of muscles and Ligaments.

✓ The **rounded capitulum** for articulation with the **head of the radius**.

✓ And the **pulley-shaped trochlea** for articulation with the **trochlear notch of the ulna**

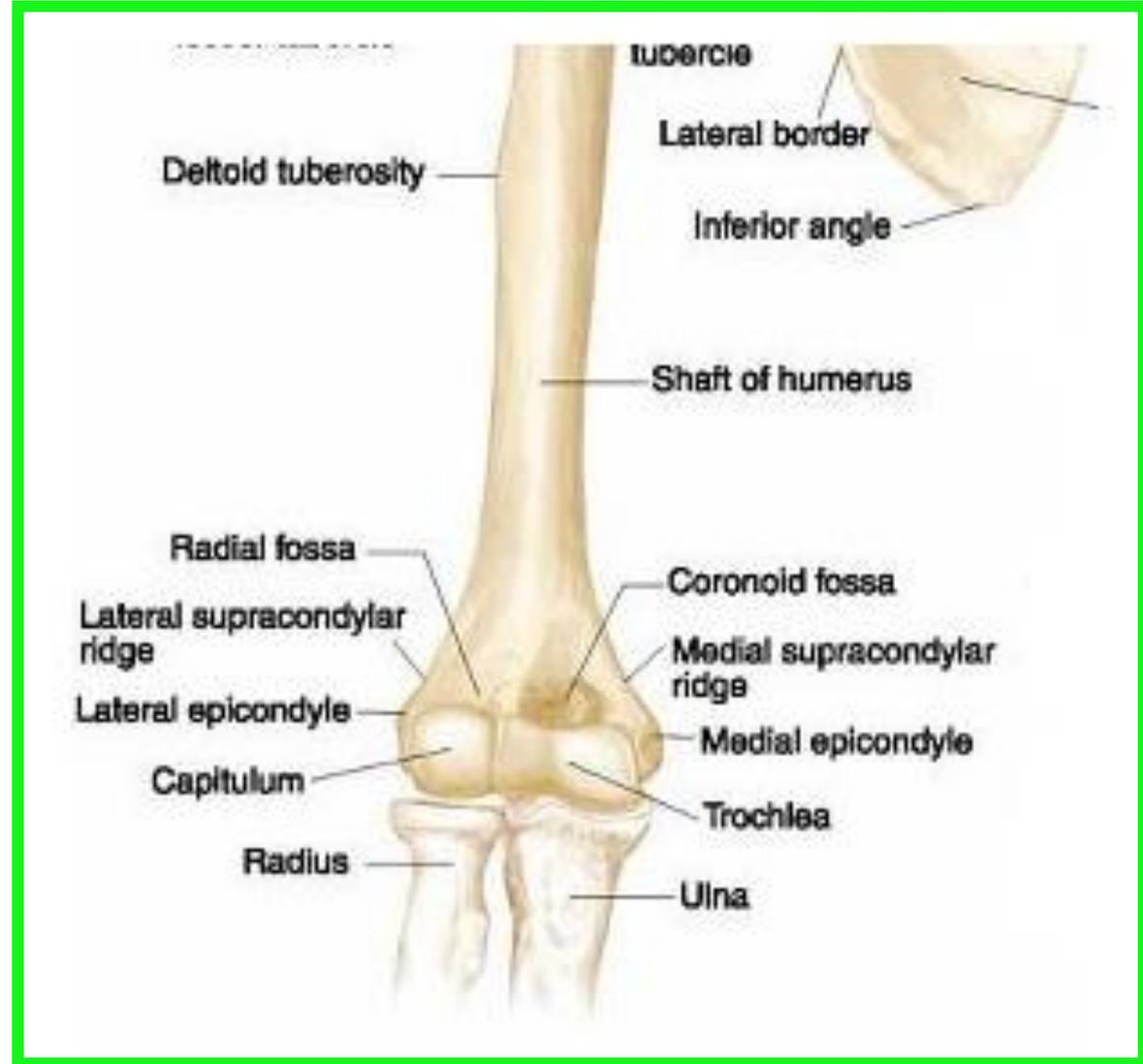


Bones of the Arm

Humerus

✓ Above the **capitulum** is the **radial fossa**, which receives the head of the radius when the elbow is flexed.

✓ Above the **trochlea** anteriorly is the **coronoid fossa**, which during the same movement receives the coronoid process of the ulna

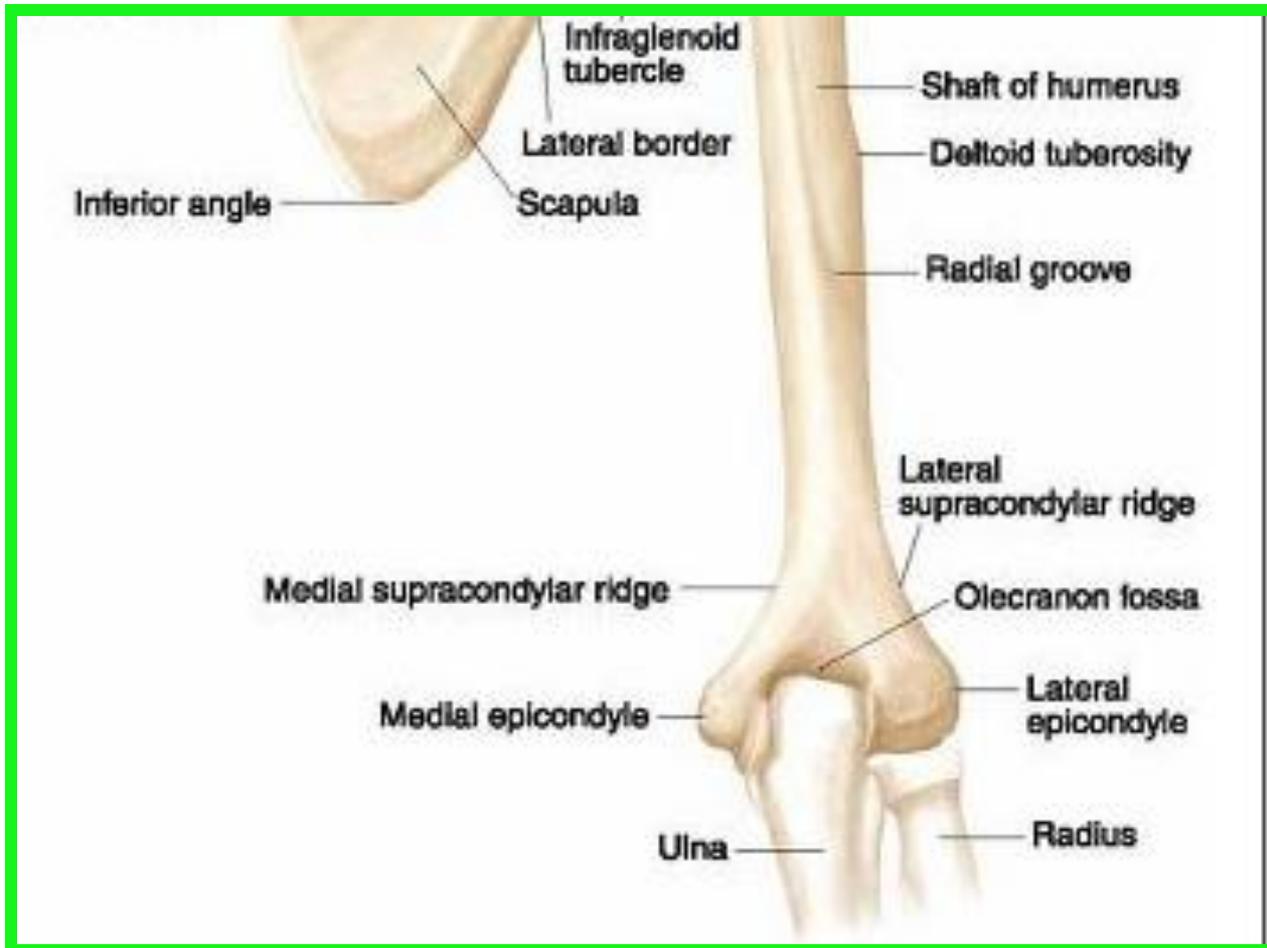


Bones of the Arm

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Humerus

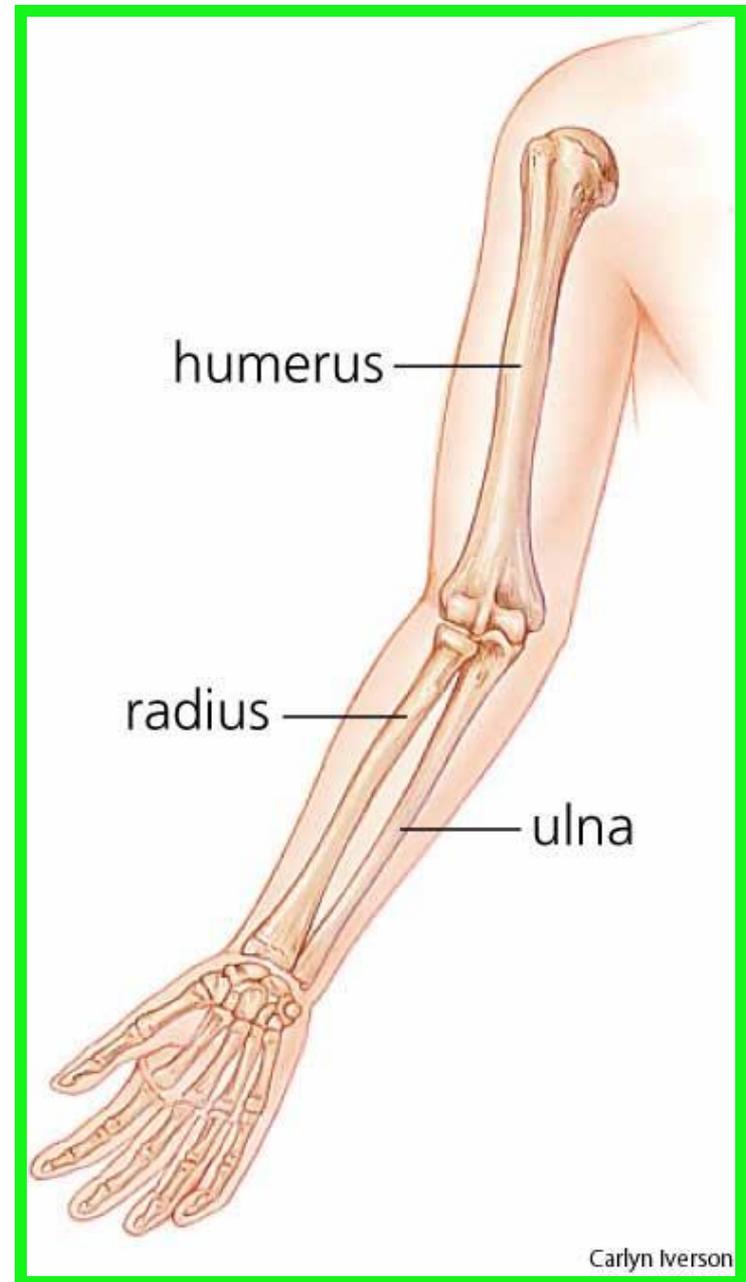
✓ Above the **trochlea posteriorly** is **the olecranon fossa**, which receives the **olecranon process** of the ulna when the elbow joint is extended



Bones of the Forearm

Radius

- ✓ Is the lateral bone of the forearm
- ✓ **Its proximal end** articulates with the humerus at **the elbow joint** and with the ulna at **the proximal radioulnar joint**.
- ✓ **Its distal end** articulates with the **scaphoid** and **lunate** bones of the hand at **the wrist joint** and with the ulna at **the distal radioulnar joint**



Radius

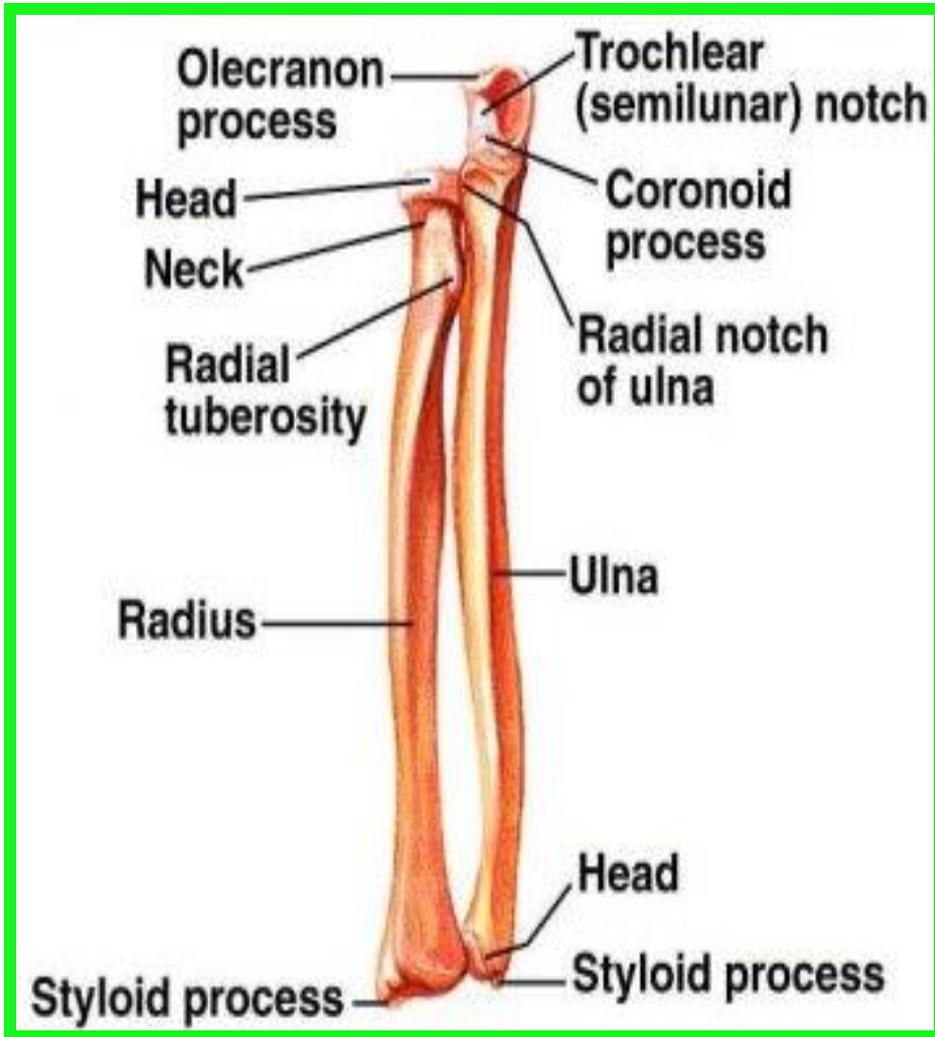
➤ At the proximal end of the radius is the small circular Head

➤ The **upper surface of the head is concave** and articulates with the **convex capitulum of the humerus**.

➤ The circumference of the **head articulates with the radial notch of the ulna**.

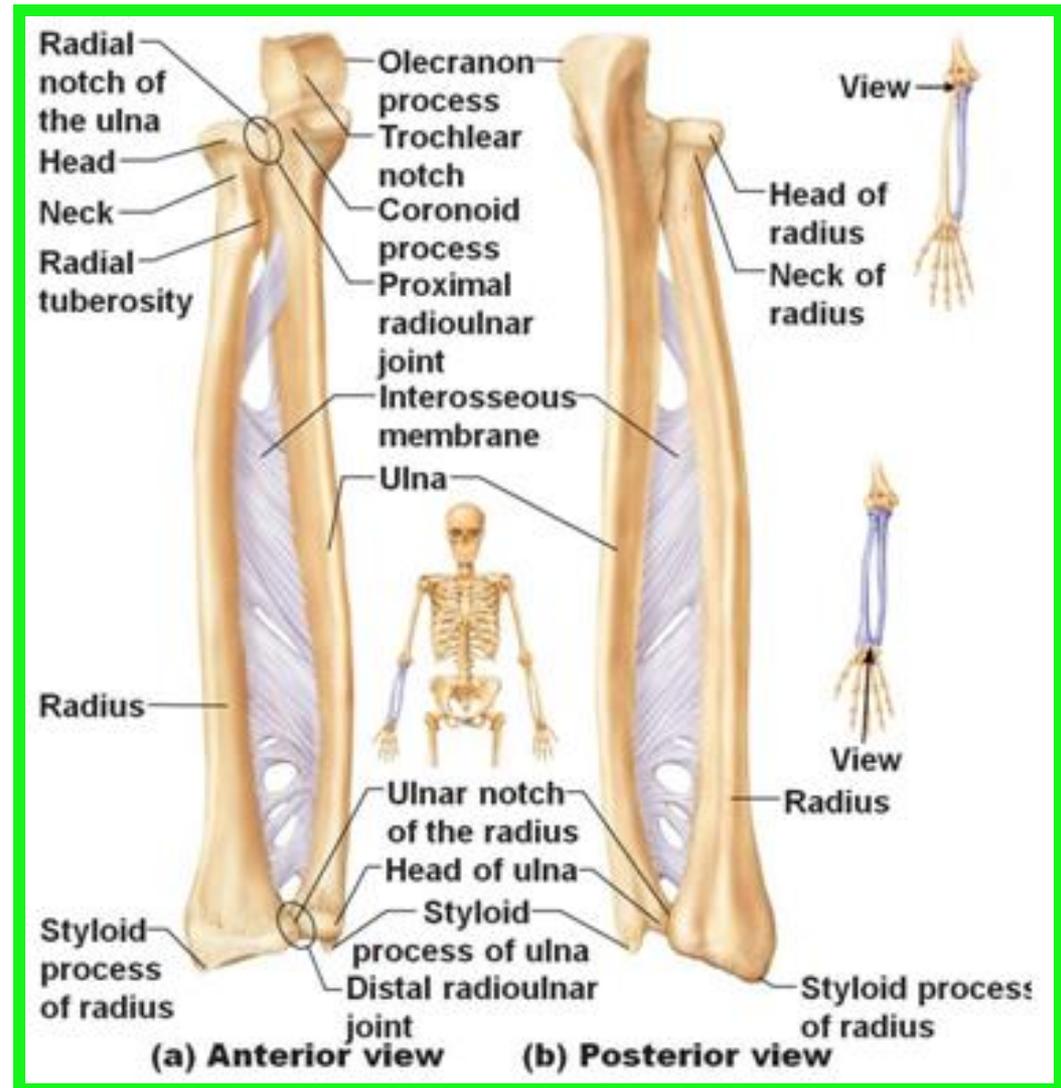
➤ Below the head, the bone is constricted to form the Neck.

➤ Below the neck is the bicipital tuberosity for the insertion of the biceps muscle.



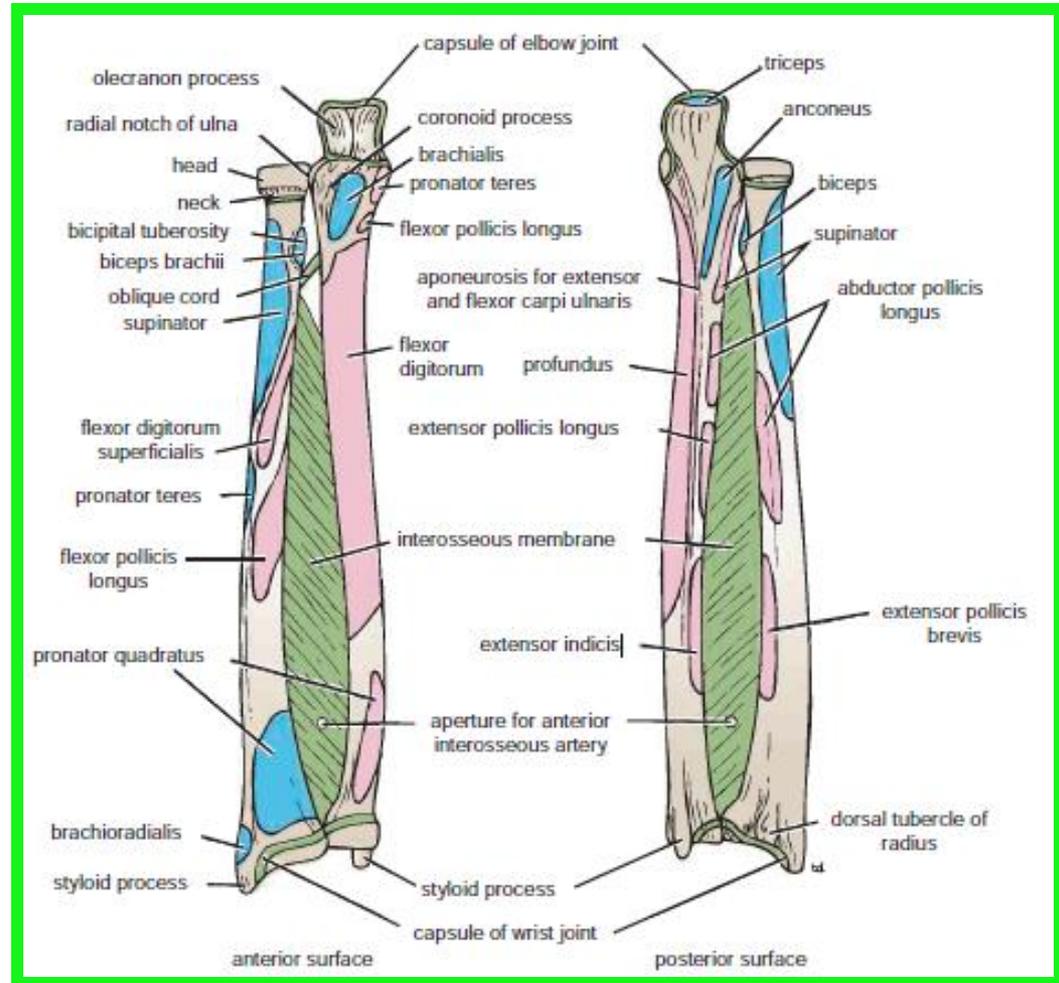
Radius

- The shaft of the radius is wider below than above.
- It has a sharp **interosseous border medially** for the attachment of **the interosseous membrane** that binds the **radius** and **ulna** together.
- At the distal end is **the styloid process**; projects distally from its lateral margin



Radius

- On the medial surface of the lower end is the ulnar notch, which articulates with the head of the ulna.
- On the posterior aspect of the distal end is a small tubercle, the dorsal tubercle, which is grooved on its medial side by the **tendon of the extensor pollicis longus**.



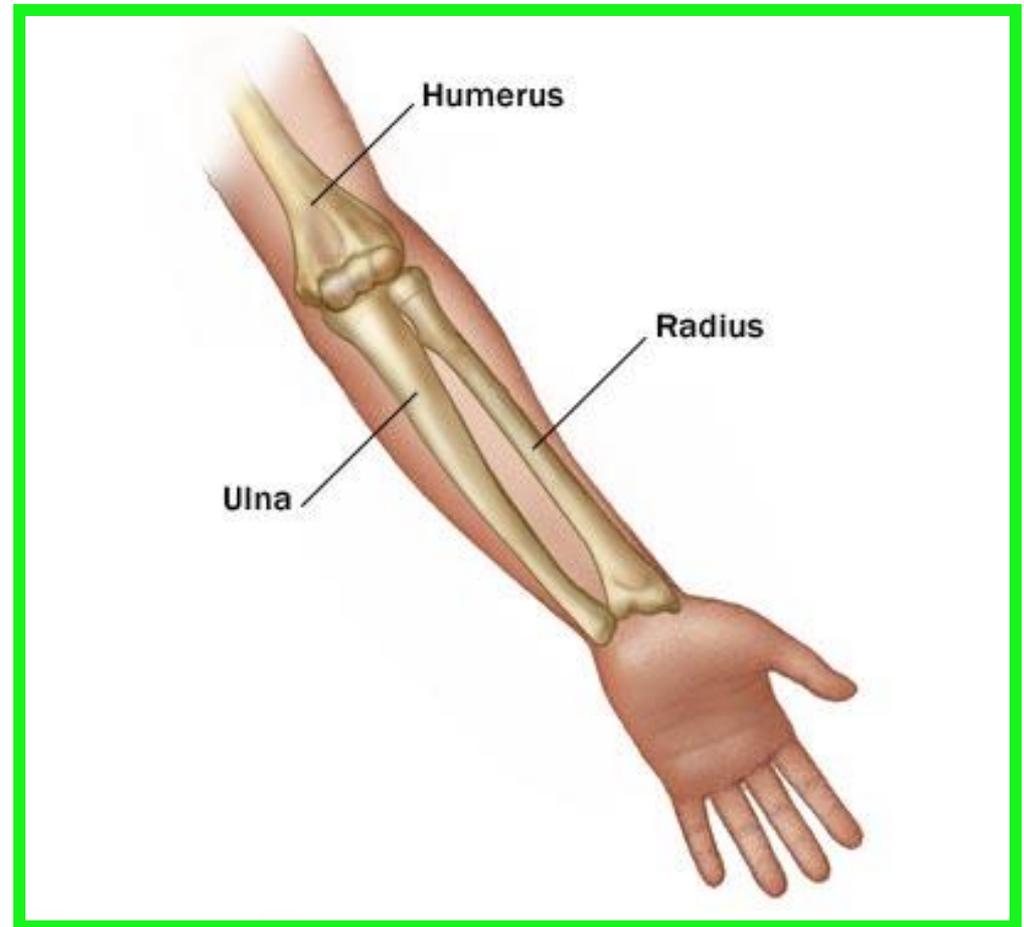
Bones of the Forearm

Ulna

❖ The ulna is the medial bone of the forearm

❖ Its proximal end articulates with the humerus at **the elbow joint** and with the head of the radius at **the proximal radioulnar joint**.

❖ Its distal end articulates with the radius at **the distal radioulnar joint**, but it is excluded from the wrist joint by the articular disc.



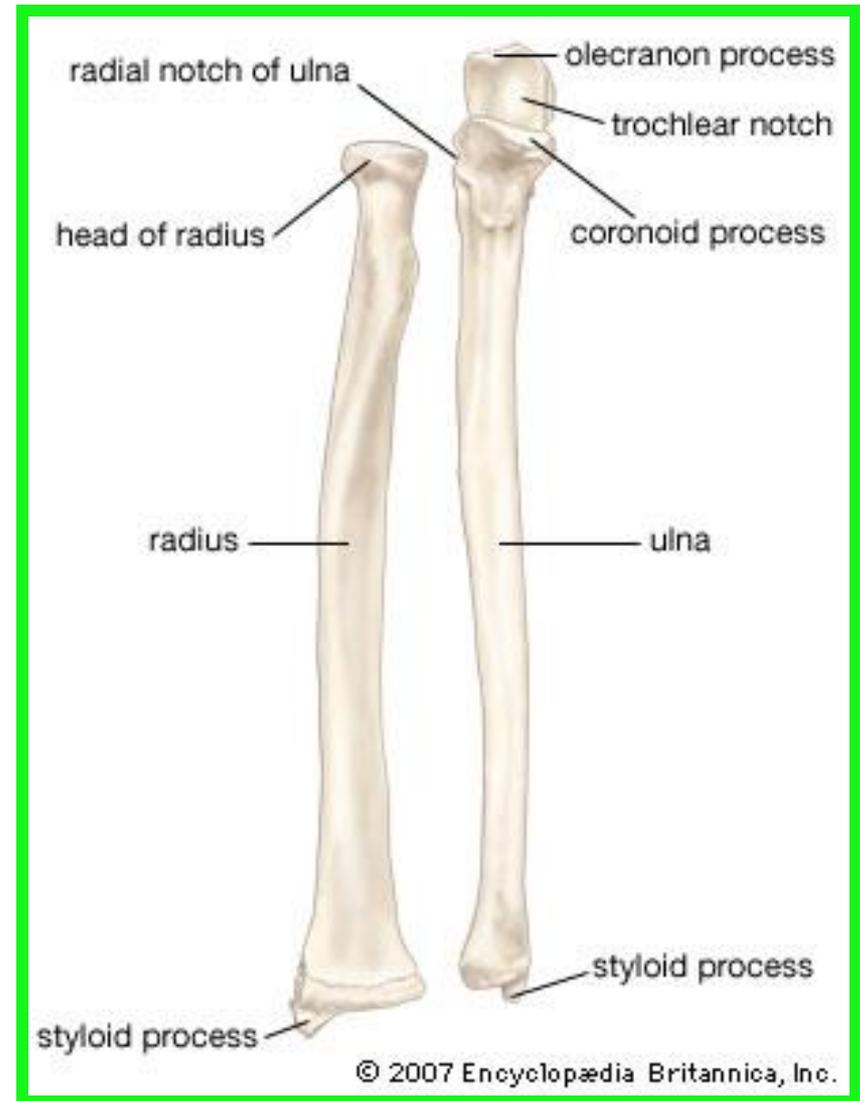
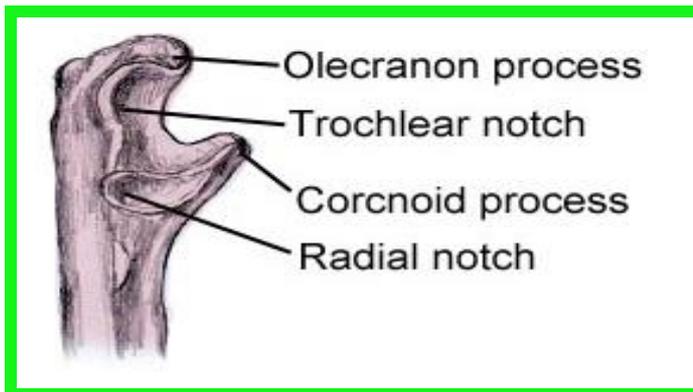
Ulna

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✓ The proximal end of the ulna is large and is known as the olecranon process this forms the prominence of the elbow.

✓ It has a notch on its anterior surface, the trochlear notch, which articulates with the trochlea of the humerus.

✓ Below the trochlear notch is the triangular coronoid process, which has on its lateral surface the radial notch for articulation with the head of the radius.

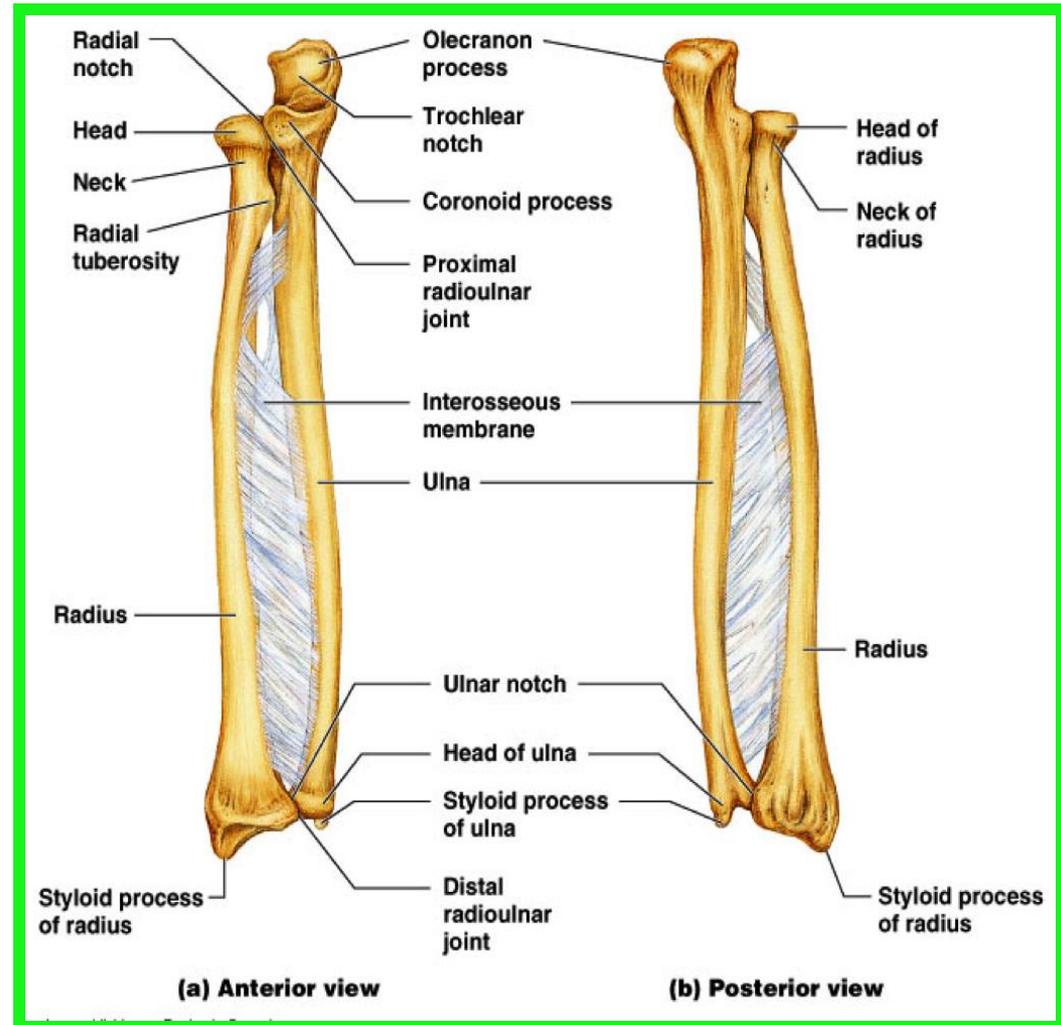


Bones of the Forearm

Ulna

❖ It has a sharp interosseous border laterally for the attachment of the interosseous membrane.

❖ The posterior border is rounded and subcutaneous and can be easily palpated throughout its length.



Bones of the Hand

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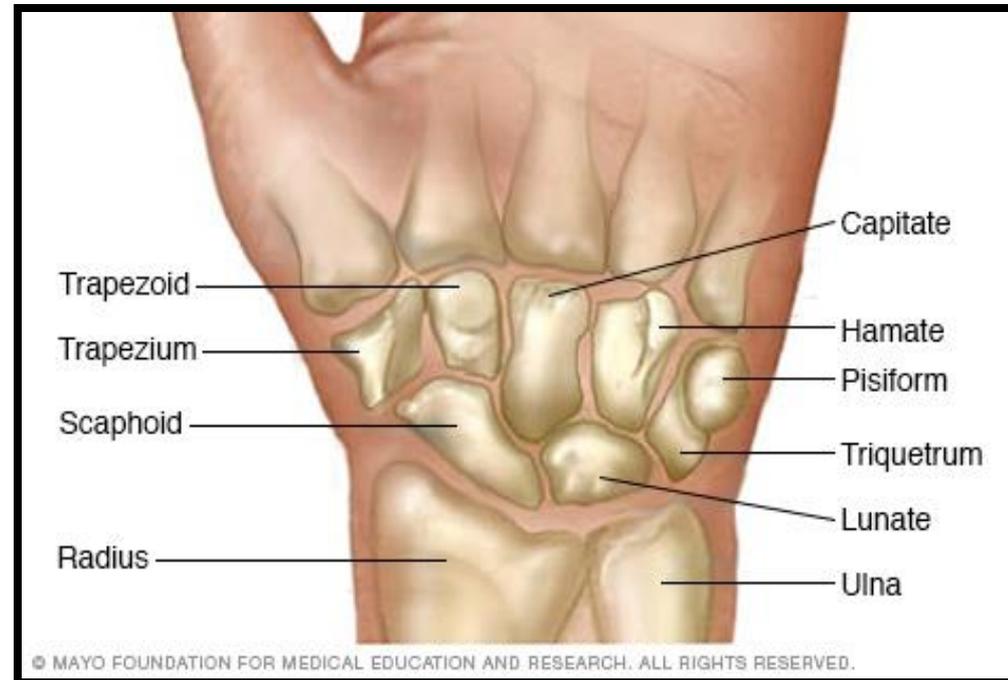
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❑ There are **eight carpal bones**, made up of two rows of four.

❑ **The proximal row** consists of the **Scaphoid, Lunate, Triquetral, and Pisiform** bones.

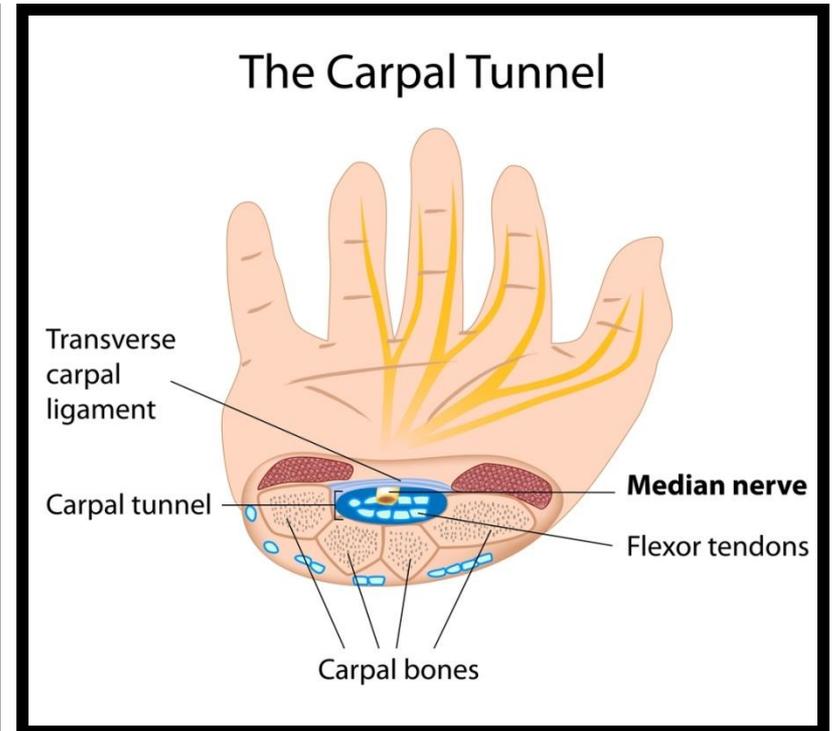
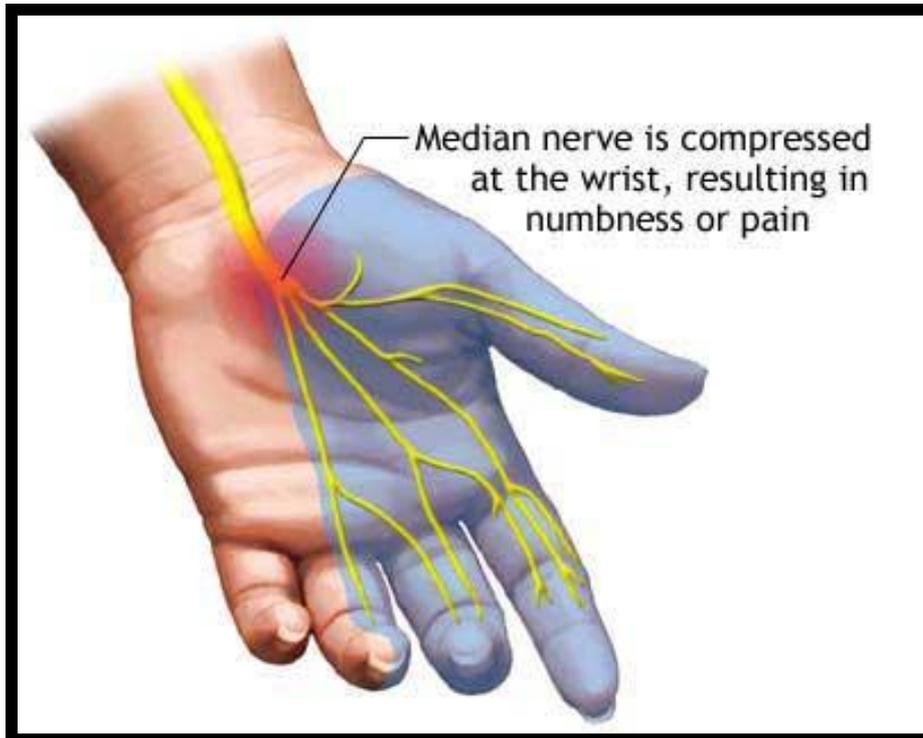
❑ **The distal row** consists of the **Trapezium, Trapezoid, Capitate, and Hamate** bones.



Bones of the Hand

❑ Together, the bones of the carpus present on their anterior surface a **concavity**, to the lateral and medial edges of which is attached a **strong membranous band** called **the flexor retinaculum**.

❑ In this manner, an osteofascial tunnel, **the carpal tunnel**, is formed for the passage of **the median nerve and the flexor tendons of the fingers**



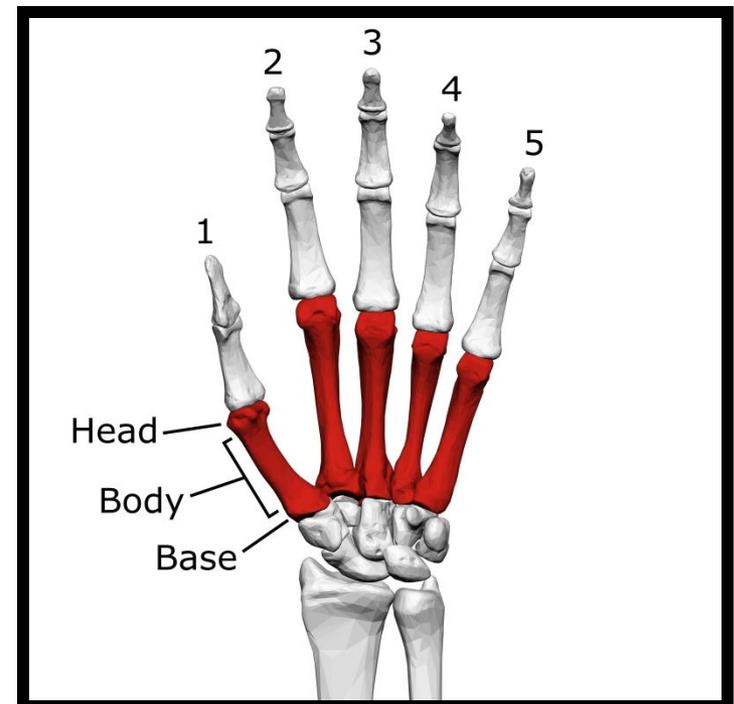
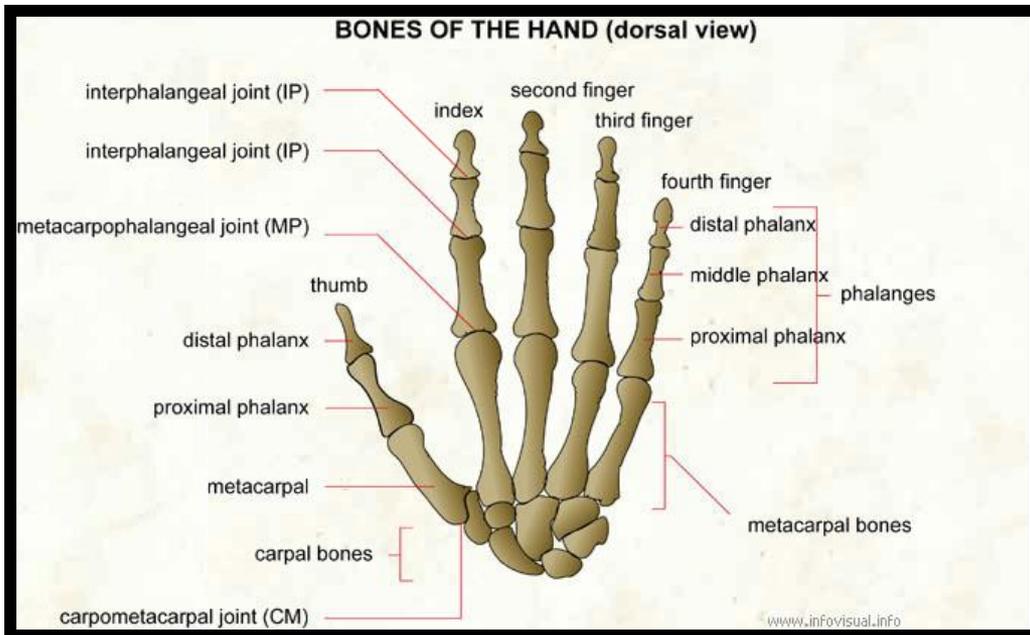
The Metacarpals and Phalanges

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- ❖ There are **five metacarpal bones**, each of which has a **base**, a **shaft**, and a **head**
- ❖ The first metacarpal bone of the thumb is the shortest and most mobile.
- ❖ The **bases of the metacarpal bones** articulate with the distal row of the carpal bones; the **heads**, which form **the knuckles**, articulate with the proximal phalanges
- ❖ There are three phalanges for each of the fingers but only two for the thumb



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