

THE ULNA

Type: Typical long bone. Forms by cartilage ossification.

Location: Medial bone of the forearm.

To identify right or left side:

1. Upper end is large and hook-shaped (trochlear notch).
2. Lower end is smaller. Bears head and styloid process.
3. Trochlear notch curves forward.
4. Lateral (interosseous) border is sharp.

General features

Body has shaft and two ends: upper and lower. Bone is hook-shaped.

A. Upper end

Holds two processes: coronoid and olecranon. Has two notches: trochlear and radial. Shows two muscle sites: ulnar tuberosity and supinator fossa.

1. Olecranon process:

- a. Forms top of ulna and upper trochlear notch.
- b. Bends forward into a clear beak.
- c. Fits into humerus olecranon fossa during full extension.
- d. Back surface is smooth and under skin.

2. Coronoid process:

- a. Sticks out forward like a wide beak.
- b. Top surface makes lower trochlear notch.
- c. Front surface has rough spot: ulnar tuberosity.
- d. Front border fits into humerus coronoid fossa during full flexion.

3. Trochlear notch:

- a. Made by front of olecranon process and top of coronoid process.
- b. Joins trochlea of humerus.

4. Radial notch:

- a. On outer side of coronoid process.
- b. Joins edge of radius head at superior radio-ulnar joint.

5. Ulnar tuberosity:

- a. Depressed spot below radial notch.
- b. Back edge has sharp ridge: supinator crest.
- c. Supinator fossa and crest start supinator muscle.

B. Lower end

Smaller than upper end. Made of head and styloid process.

1. Ulna head:

- a. Round. Points outward. Felt under skin.
- b. Outer surface joins radius ulnar notch at inferior radio-ulnar joint.
- c. Outer surface stays apart from carpal bones by triangular disc.
- d. Back surface has groove to styloid process.

2. Styloid process:

- a. Sticks down from back-inner head.
- b. Felt under skin when supinated.

The Shaft of the Ulna

The shaft is thick at the top. It narrows at the bottom.

The upper three-fourths has a triangular cross-section. The lower one-fourth is round.

It has three borders—anterior, interosseous, and posterior—and three surfaces—anterior, medial, and posterior.

1. Interosseous border:

- a. It is sharp and points laterally. It attaches the interosseous membrane.
- b. The top end joins the supinator crest.

2. Anterior border:

- a. It is round. It begins below at the lower end of the medial border of the coronoid process.
- b. It ends at the base of the styloid process.

3. Posterior border:
 - a. It stands out. It starts at the tip of the posterior surface of the olecranon process.
 - b. It lies just under the skin. It ends at the base of the styloid process.
4. Anterior surface: Lies between the anterior and interosseous borders.

The upper third shows a nutrient foramen. This opening points toward the elbow.
5. Medial surface: Lies between the anterior and posterior borders. It is smooth and has no features.
6. Posterior surface: Lies between the interosseous and posterior borders.

The upper third may have an oblique ridge. The lower two-thirds may have a vertical ridge.

Particular Features

A. Six muscles attach to the upper end:

1. Triceps muscle inserts on the posterior part of the upper surface of the olecranon process.
2. Anconeus muscle inserts on the lateral surface of the olecranon process and upper half of the posterior surface.
3. Brachialis muscle inserts on the ulnar tuberosity.
4. Supinator muscle starts from the supinator fossa and crest.
5. Flexor digitorum superficialis muscle (ulnar head) starts from the medial border of the coronoid process.

6. Pronator teres muscle (ulnar head) starts from the medial border of the coronoid process.

B. Two muscles attach to the anterior and medial surfaces:

1. Flexor digitorum profundus starts from the upper three-fourths of the anterior and medial surfaces.
2. Pronator quadratus starts from the lower fourth of the anterior surface of the ulna.

C. Three muscles start from the posterior surface of the ulna:

1. Abductor pollicis longus.
2. Extensor pollicis longus. They start in that order, from top to bottom, on the upper two-thirds of the posterior surface.
3. Extensor indicis.

D. Three muscles start from the posterior border of the ulna:

1. Flexor carpi ulnaris (ulnar head).
2. Extensor carpi ulnaris. All start from a shared tendon sheet called the ulnar aponeurosis.
3. Flexor digitorum profundus.