

محاضرة التشريح الشعاعى - المرحلة الثانية

كلية المامون الجامعة

الفصل الأول

اعداد م د- عدى يوسف

NORMAL ANATOMY OF THE RADIUS AND ULNA BONES

RADIOLOGICAL FEATURES OF RADIUS AND ULNA BONES

OSSIFICATION CENTERS

The **radius** and **ulna** are long bones that make up the forearm, extending from the elbow to the wrist.

In the anatomical position, the radius is found in the lateral forearm, while the ulna is found in the medial forearm.

The radius is shorter than the ulna and has a small proximal end that articulates with the humerus, and a broad distal end that articulates with the carpal bones at the wrist. Compared to the radius, the dimensions of the ulna are reversed because it has a large proximal end which articulates with the humerus and a small distal end

The design of the radius and ulna as well as the joints between them enable pronation and supination of the forearm and hand

Key facts about the radius and ulna

Radius landmarks

Proximal end: Head, neck, radial tuberosity

Shaft (body): Anterior, posterior and interosseous borders; anterior, posterior and lateral surfaces

	Distal end: Ulnar notch, radial styloid process, dorsal tubercle
Ulna landmarks	Proximal end: Olecranon, trochlear notch, coronoid process, radial notch, ulnar tuberosity and sublime tubercle Shaft (body): Anterior, posterior and interosseous borders; anterior, posterior and lateral surfaces Distal end: Head, ulnar styloid process
Joints	Humeroulnar: Trochlear notch of ulna + trochlea of humerus Humeroradial: Head of radius + capitulum of humerus Proximal radioulnar: Head of radius + radial notch of ulna Middle radioulnar: Shaft of radius + shaft of ulna (interosseous membrane) Distal radioulnar: Ulnar notch of radius

	+ head of ulna Radiocarpal: Distal end of radius + scaphoid, lunate and triquetrum bones
Blood supply	Radial, ulnar, anterior and posterior interosseous arteries
Functions	Structural support, muscle attachment, formation of joints that enable movement

Radius

The radius is the lateral bone of the forearm. It is a long bone that has three main parts: a proximal end, shaft and a distal end.

The **proximal end** has a head which articulates with both the distal humerus and the proximal ulna, while the **distal**

end articulates with the head of the ulna and carpal bones at

the wrist. The **shaft** is firmly connected to that of the ulna by dense connective tissue called the **interosseous membrane**.

Proximal radius

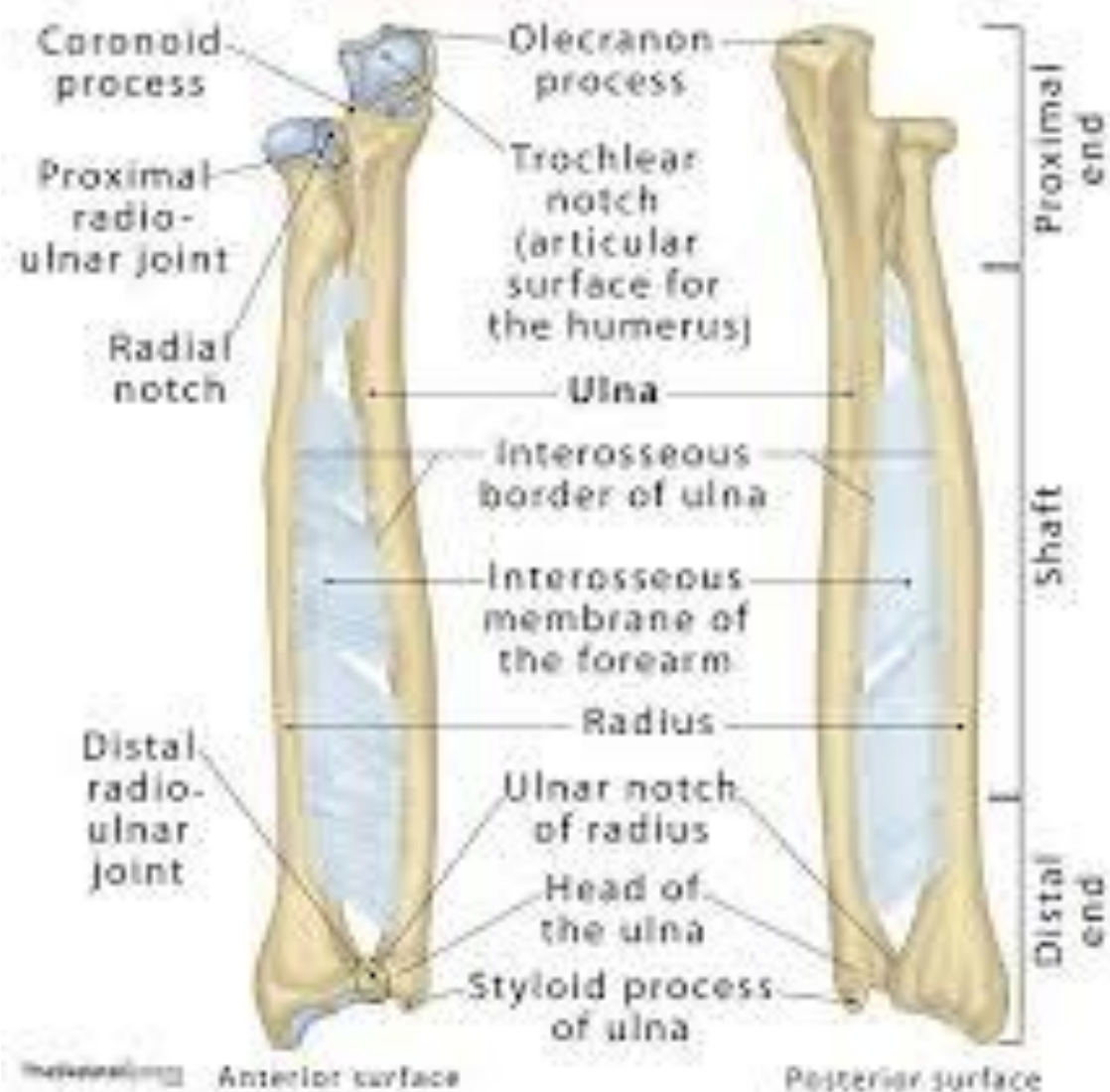
The proximal end of the radius bears

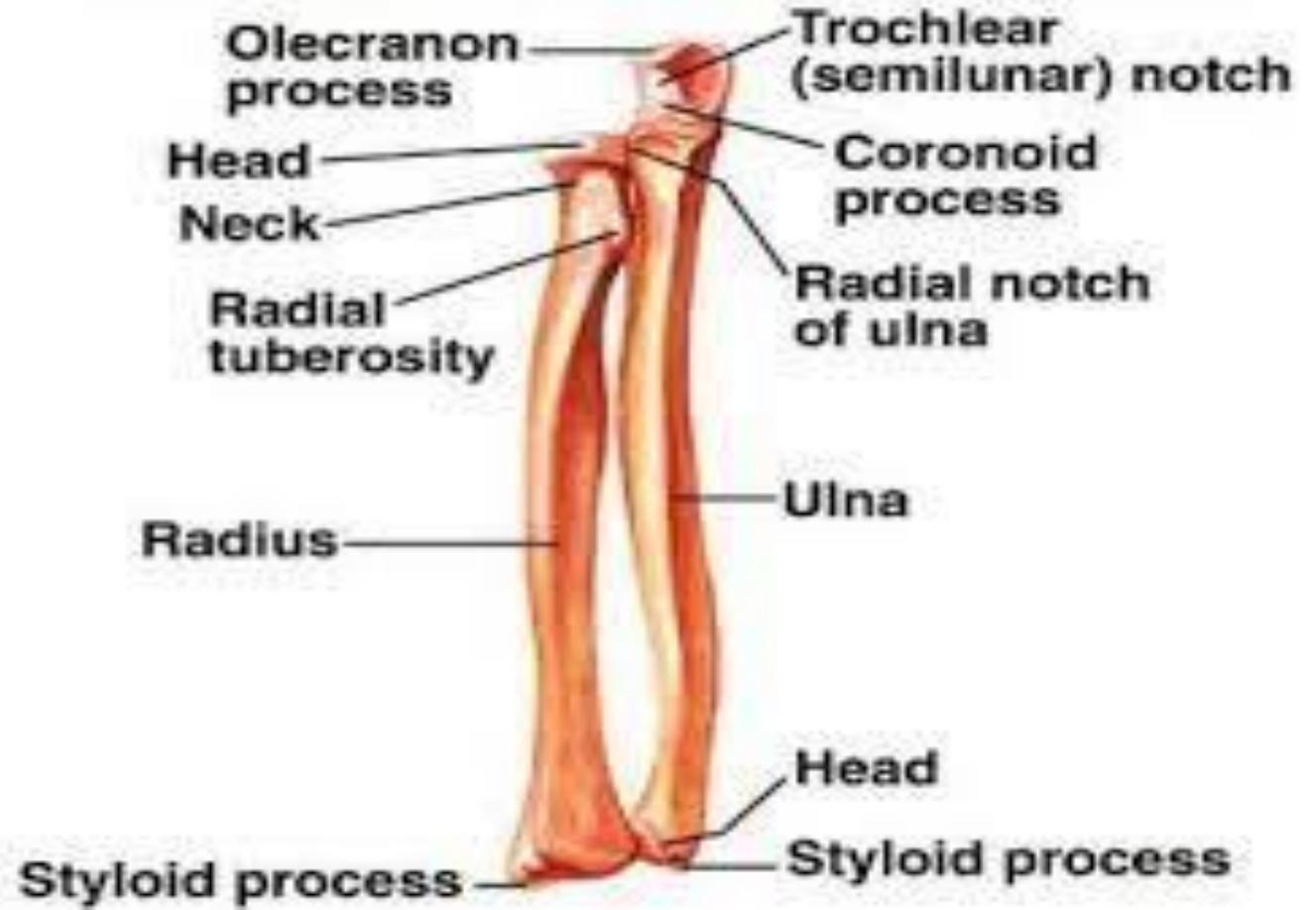
the head , neck and radial tuberosity ■

The disc-shaped head of the radius bears a concave superior surface which articulates with the capitulum of humerus and forms part of the compound elbow joint.

Additionally, the peripheral aspect of the radial head is placed within the radial notch of the ulna and enwrapped with the annular ligament, forming the proximal radioulnar joint.

The Ulna Bone





Radial shaft

The shaft of the radius is a long section of bone that continues distally from the neck and radial tuberosity.

It is narrow proximally but enlarges towards the wrist, where it broadens to form the distal end of radius.

Distal radius



The shaft of the radius expands to form a wide rectangular distal end which extends beyond the distal end of the ulna

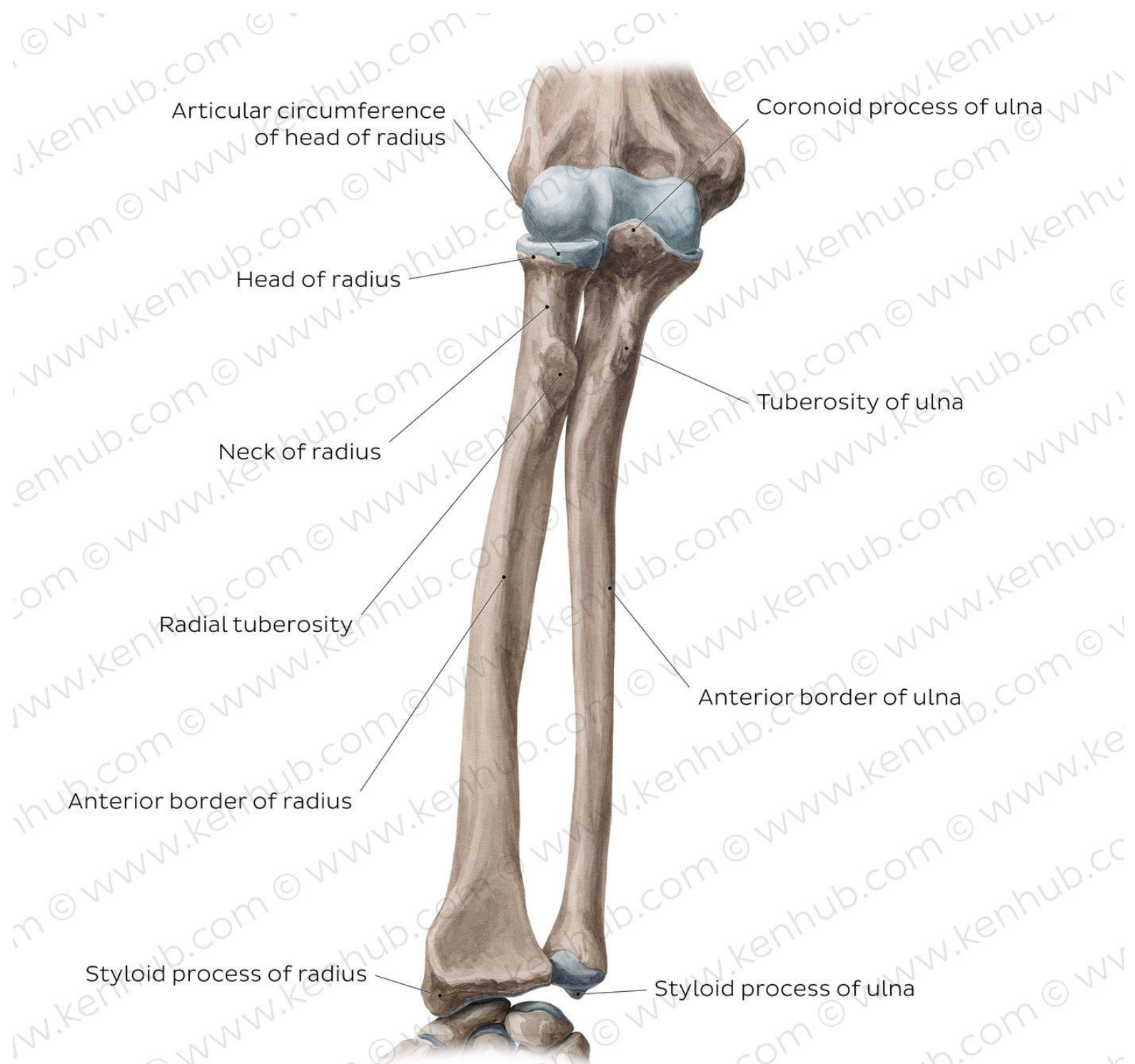
PROXIMAL RADIUS

- . Head.
- . Neck.

. Radial tuberosity.

DISTAL RADIUS

- . Styloid process.
- . Ulnar notch



Ulna

The ulna is the medial bone of the forearm and the longer of the two parallel forearm bones.

Like the radius, the ulna also has three main parts: a proximal end, shaft and a distal end.

The proximal end articulates with the distal humerus and the head of the radius.

The distal end, on the other hand, has a head which articulates with the distal radius. The interosseous membrane joins the shaft of the ulna to the shaft of the radius.

The proximal ulna is a large hook-shaped structure which articulates with the distal humerus and the head of the radius.

It bears the olecranon, trochlear notch, coronoid process, radial notch, sublime tubercle and ulnar tuberosity.

On the lateral aspect of the proximal ulna and just distal to the trochlear notch lies the shallow, rounded depression called the radial notch.

The radial notch articulates with the circumference of the radial head and forms the **proximal radioulnar joint**.

Distal ulna

The distal ulna consists of a small rounded head and an ulnar
styloid process ■

Blood supply

Both the radius and ulna receive arterial supply from branches of the radial, ulnar, and anterior and posterior interosseous arteries via several metaphyseal nutrient foramina.

Ossification centers of the distal radius and ulna

- distal radius: 1 year
- distal ulna: 5-6 years

Ossification of the carpal bones

Ossification of the carpal bones occurs in a predictable sequence, starting with the capitate and ending with the pisiform.

At birth, there is no calcification in the carpal bones. Although there is great individual variability, approximate ossification times are as follows ¹:

- capitate: 1-3 months
- hamate: 2-4 months
- triquetrum: 2-3 years
- lunate: 2-4 years
- scaphoid: 4-6 years
- trapezium: 4-6 years
- trapezoid: 4-6 years
- pisiform: 8-12 years



Fig. 38

Fig. 39

Fig. 38. Proximal callus was demonstrated at one week after injury.



