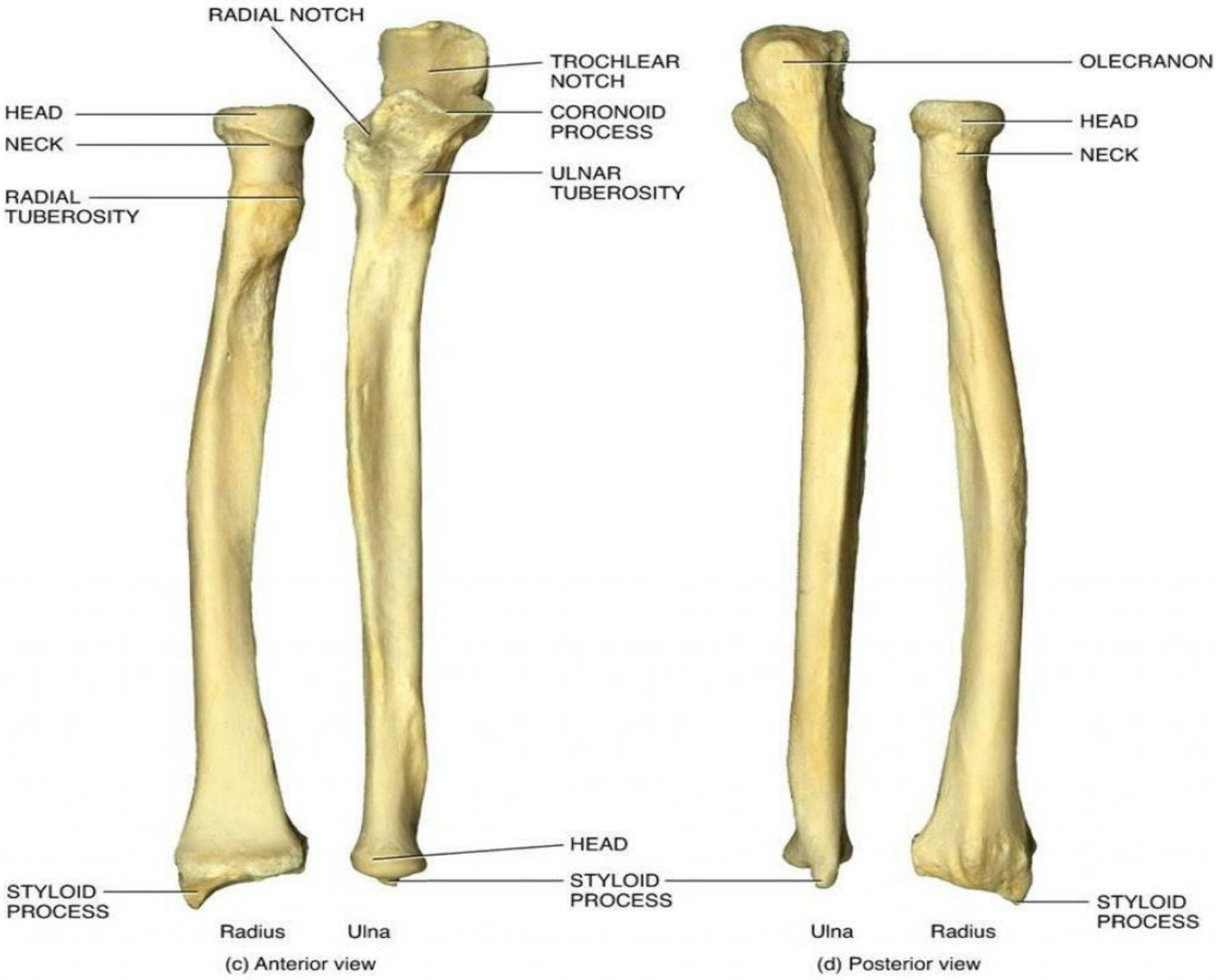
Radius

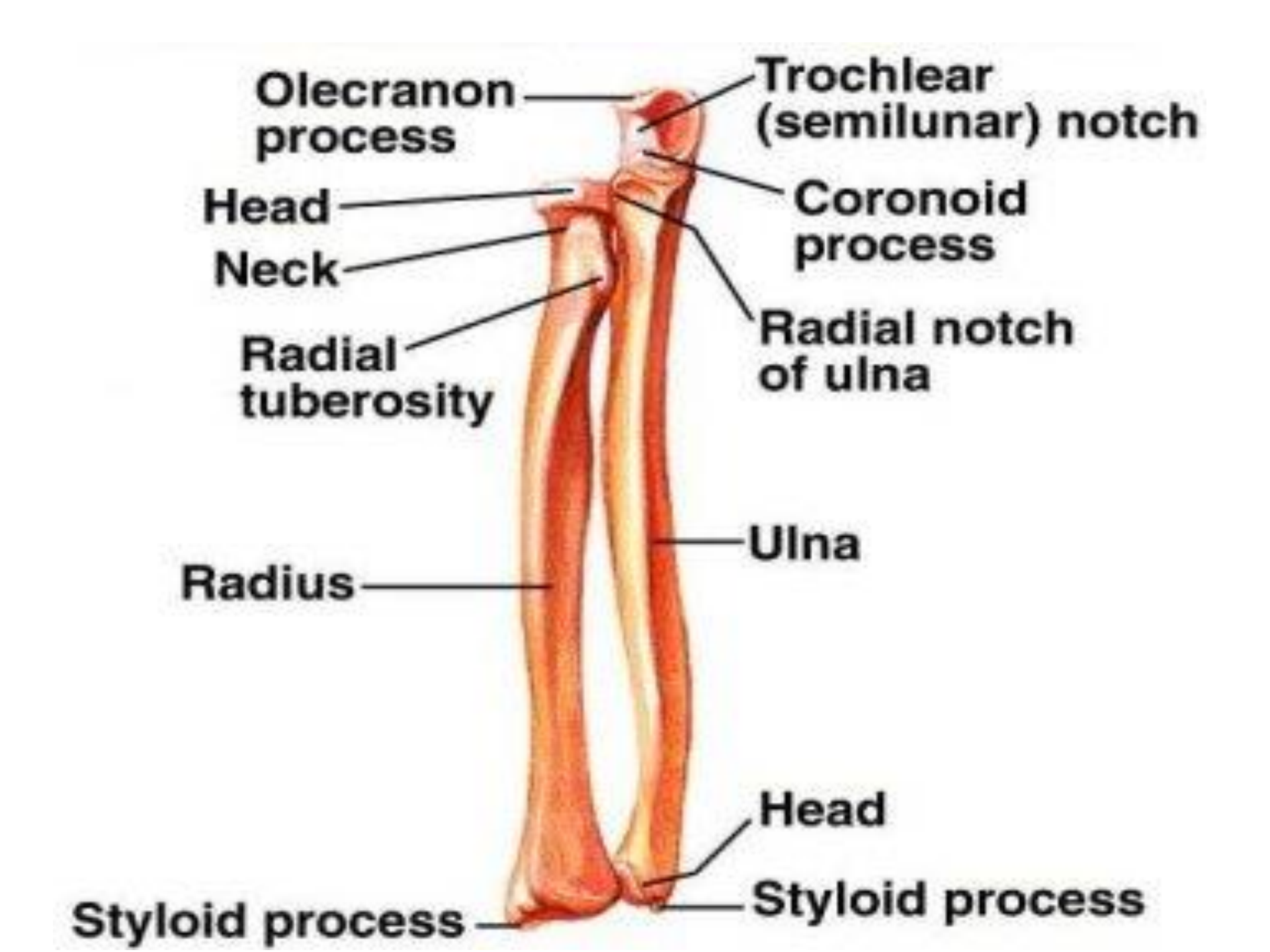
- **The radius is the lateral bone of the forearm and is homologous with the tibia of the lower limb.**
- **It has an upper end, lower end and a shaft**

Side determination-

1. Upper end is having disc shaped head while lower end is expanded with a styloid process.

2. **At the lower end, the anterior surface is in the form of thick prominent ridge. while the posterior surface presents 4 grooves for the extensor tendons.**
3. **The sharpest border of the shaft is the medial border**
4. **Lower end presents a tubercle on the posterior surface called as dorsal tubercle.**


RADIAL NOTCH
TROCHLEAR NOTCH
HEAD
NECK
CORONOID PROCESS
ULNAR TUBEROSITY
RADIAL TUBEROSITY
HEAD
STYLOID PROCESS
STYLOID PROCESS
Radius
Ulna
(c) Anterior view
OLECRANON
HEAD
NECK
STYLOID PROCESS
Ulna
Radius
(d) Posterior view


Olecranon process
Trochlear (semilunar) notch
Head
Coronoid process
Neck
Radial notch of ulna
Radial tuberosity
Ulna
Radius
Head
Styloid process
Styloid process

Features-

Upper end-

- **The head is disc shaped. It has a superior concave surface which articulates with the capitulum of the humerus and form the elbow joint.**
- **The circumference of the head is also articular.**
- **it fits into a socket formed by the radial notch of the ulna and the annular ligament, thus forming the superior radioulnar joint.**

- The tuberosity lies just below the medial part of the neck.

Shaft

borders – 3

- Anterior- extends from the anterior margin of the radial tuberosity to the styloid process.
- it is oblique in upper part and vertical in lower part. The oblique part is called the anterior line.

Posterior- it is mirror image of the anterior border

Medial and interosseous – it is sharpest border. It extends from radial tuberosity to the posterior margin of the ulnar notch.

The interosseous membrane is attached to its lower 3/4th .

Surfaces- anterior , posterior, lateral.

- **Lower end**

Widest part

5 surfaces

Anterior sur.- it is in the form of a thick prominent ridge. The radial artery is palpated against this surface.

Posterior surface presents 4 grooves for the extensor tendons. The dorsal tubercle of lister lies lateral to an oblique groove.

The medial sur. Is occupied by the ulnar notch for the head of the ulna.

- ✓ **The lateral sur. - Is prolonged downwards to form the styloid process.**
- ✓ **The inferior sur.- Bears a triangular area for the scaphoid bone and a medial quadriangular area for the lunate bone. This surface takes part in forming the wrist joint.**

- Attachments-

1. The biceps brachii- into the posterior part of radial tuberosity.
2. The supinator – into the upper part of the lateral surface ,
3. The pronator teres- into the middle of the lateral surface.
4. Brachioradialis- into the lowest part of the lateral surface just above the styloid process.
5. The radial head of the flexor digitorum supercialis – anterior oblique line

6. Flexor pollicis longus- from upper 2/3rd of the anterior surface
7. Pronator quadratus- into the lower part of the anterior surface and into the triangular area on the medial side of the lower end.
8. Abductor pollicis longus and extensor pollicis brevis – from posterior surface.

Ossification- 1 primary

2 seconadary

ulna

- ✓ The ulna is the medial bone of the forearm and is homologous with the fibula of the lower limb.
- ✓ It has upper end, shaft and lower end.
- ✓ Side determination
- ✓ The upper end is hook like, with its concavity directed forwards.
- ✓ The lateral border- sharp and crest like.
- ✓ Pointed styloid process lies posteromedial to the head of ulna.

- Features-

Upper end-

1. Olecranon process projects upwards from the shaft.

It has superior, anterior, posterior, medial and lateral surfaces.

- Anterior surface is articular, it forms the upper part of the trochlear notch.
- Posterior surface forms a triangular subcutaneous area which is separated from the skin by a bursa.

- The medial surface is continuous inferiorly with the medial surface of the shaft.

2. Coronoid process- it projects forwards from the shaft just below the olecranon and has 4 surfaces- superior, anterior, medial, lateral.

Sup. Surface- forms the lower part of the trochlear notch.

Ant. Sur.- triangular, its lower part shows a rough projection called the ulnar tuberosity.

Lateral sur.- the upper part of its shows a concave articular facet called the radial notch.

- The radial notch articulates with the head of the radius forming the sup. Radioulnar joint.
- A depression is seen just below the radial notch.
- The posterior border of this depression is formed by a ridge called the supinator crest.

Shaft –

The shaft of the ulna has a sharp lateral or interosseous border and less prominent anterior and posterior border.

1. Interosseous border- extends from supinator crest to lateral side of the head.
2. Anterior border- from ulnar tuberosity to front of the styloid process.
3. Posterior border- from posterior aspect of olecranon process to styloid process.

Surfaces- anterior, posterior and medial.

Posterior surface- it is bounded by the interosseous and posterior borders. It is marked by 2 lines that divide it into 3 areas.

- The upper end of these lines runs obliquely downwards and medially across the upper part of the surface. It starts at the posterior end of the radial notch and terminates by joining the posterior border.
- The part of the posterior surface above the oblique line is triangular. The part below the oblique line is subdivided into medial and lateral parts by a vertical ridge.

Lower end-

- The lower end of the ulna consists of a rounded head and a styloid process.
- The head has a circular inferior surface. This surface is separated from the cavity of the wrist joint by an articular disc which comes in apposition with the triquetral bone. Hence, the ulna bone does not take part directly in the formation of the wrist joint.
- The head has another convex articular surface on its lateral side. This surface articulate with the ulnar notch of the radius to form the inferior

Radioulnar joint.

- The styloid process is a small downward projection that lies on the posteromedial aspect of the head.
- Between the styloid process and the head, the posterior aspect is marked by a vertical groove for extensor carpi ulnaris.

- Attachment-

1) Triceps brachii- into the rough posterior part of the superior surface of the olecranon.
2) Brachialis- into the anterior surface of the coronoid process including the tuberosity of the ulna.
3) Anconeus- into the lateral aspect of the olecranon process and the upper 1/4th of the posterior surface.
4) supinator- from the supinator crest.
5) Ulnar head of the flexor digitorum superficialis- from a tubercle at the upper end of the medial margin of the coronoid process.

6. The ulnar head of the pronator teres- from the medial margin of the coronoid process.

7. The flexor digitorum profundus – from upper $3/4^{th}$ of the anterior and medial surfaces. The muscle also takes origin from the posterior border.

8. Flexor pollicis longus (ulnar head)- from the tubercle at the upper end of the medial margin of the coronoid process.

9. pronator quadratus- from the oblique ridge on the lower part of the anterior surface of the shaft.

10. Flexor carpi ulnaris (ulnar head)- from the medial side of the olecranon process and from the upper 2/3rd of the posterior border.

11. Extensor carpi ulnaris (ulnar head)- from the posterior border.

12. Lateral part of posterior surface gives origin from above downwards—

- The uppermost part- abductor pollicis longus
- The next part- extensor pollocis longus
- The lower part- extensor indicis
- The lowest part- it is devoid of attachments.