

Dr. Vohra

Elbow, Radioulnar & Wrist Joints

Elbow Joint

Articulation

Type

Fibrous Capsule

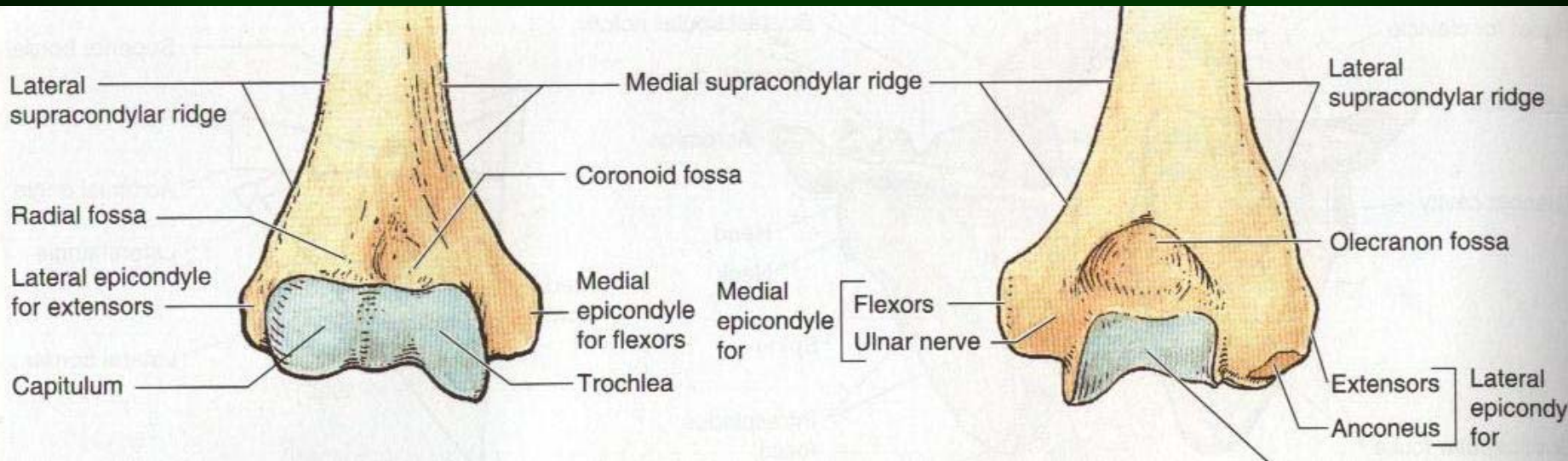
Synovial membrane

Ligaments

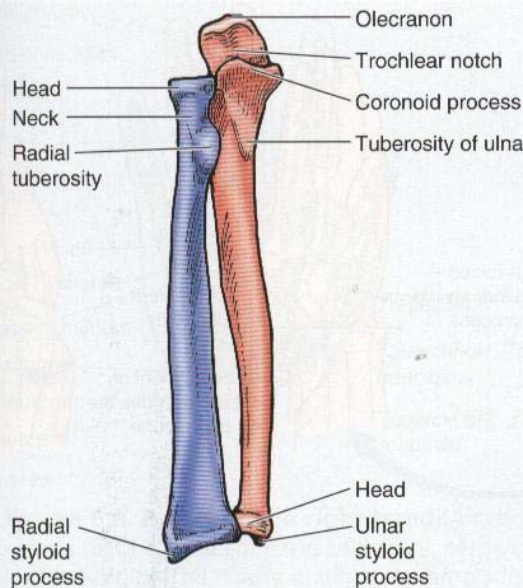
Lateral radial collateral

Medial ulnar collateral

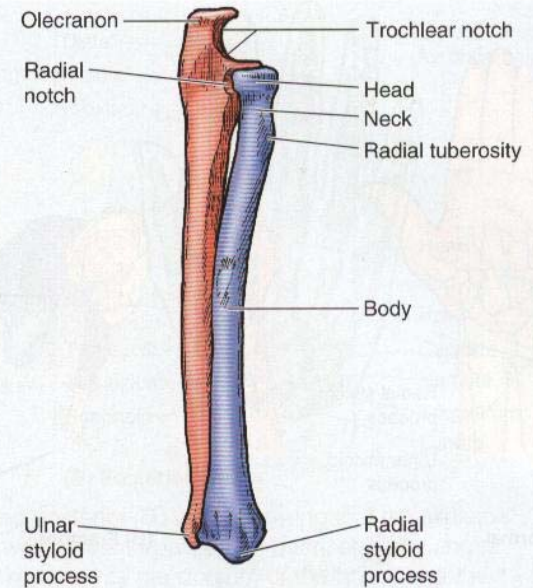
Bones involved in Elbow joint are



Articulation:
Trochlea and capitulum of the humerus and the trochlear notch of the ulna & the head of the radius



(A) Anterior view



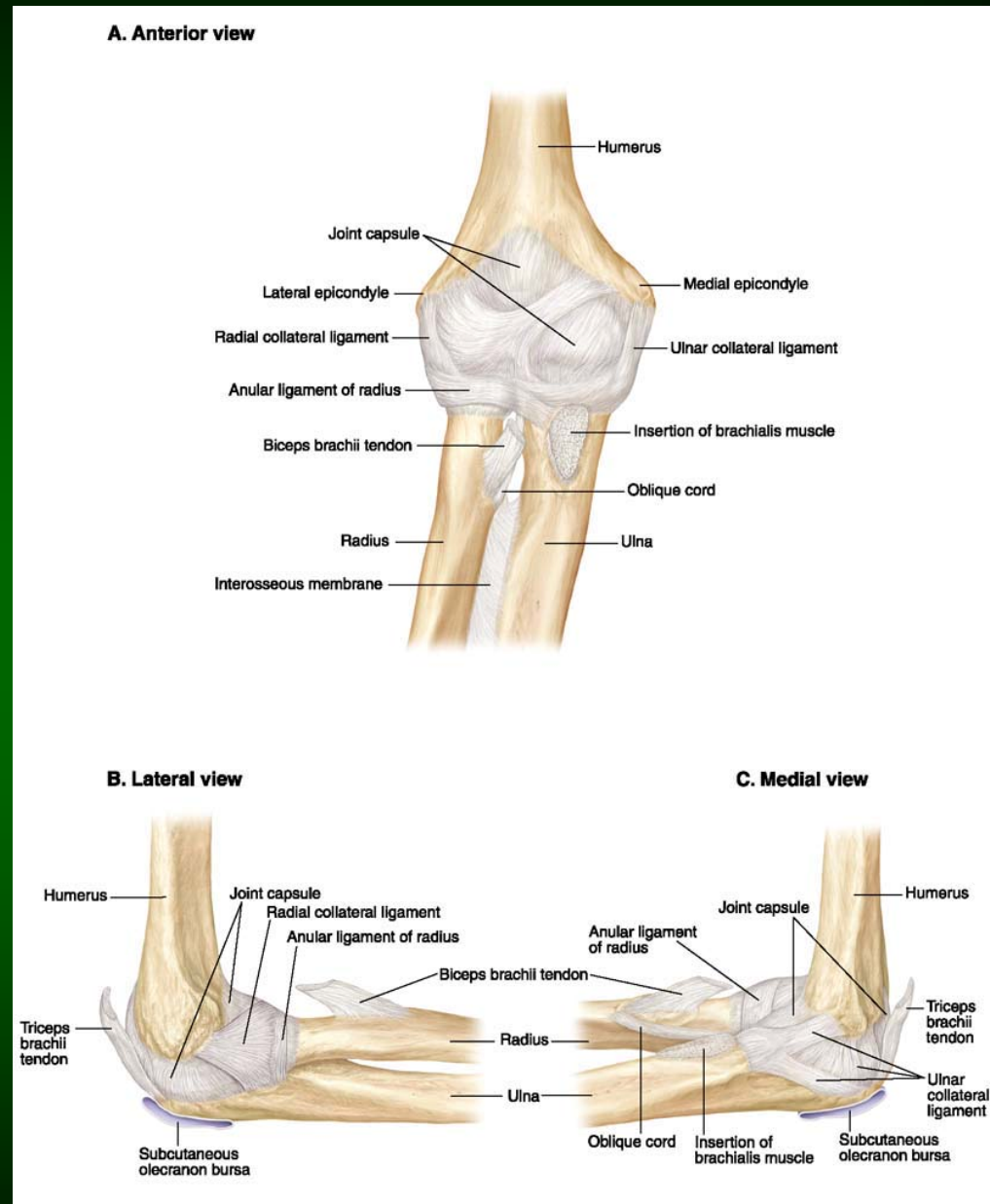
(B) Lateral view

Synovial membrane lines the capsule and covers fatty pads in the floors of the coronoid, radial, and olecranon fossae; it is continuous below with the synovial membrane of the proximal radioulnar joint.

Fibrous Capsule

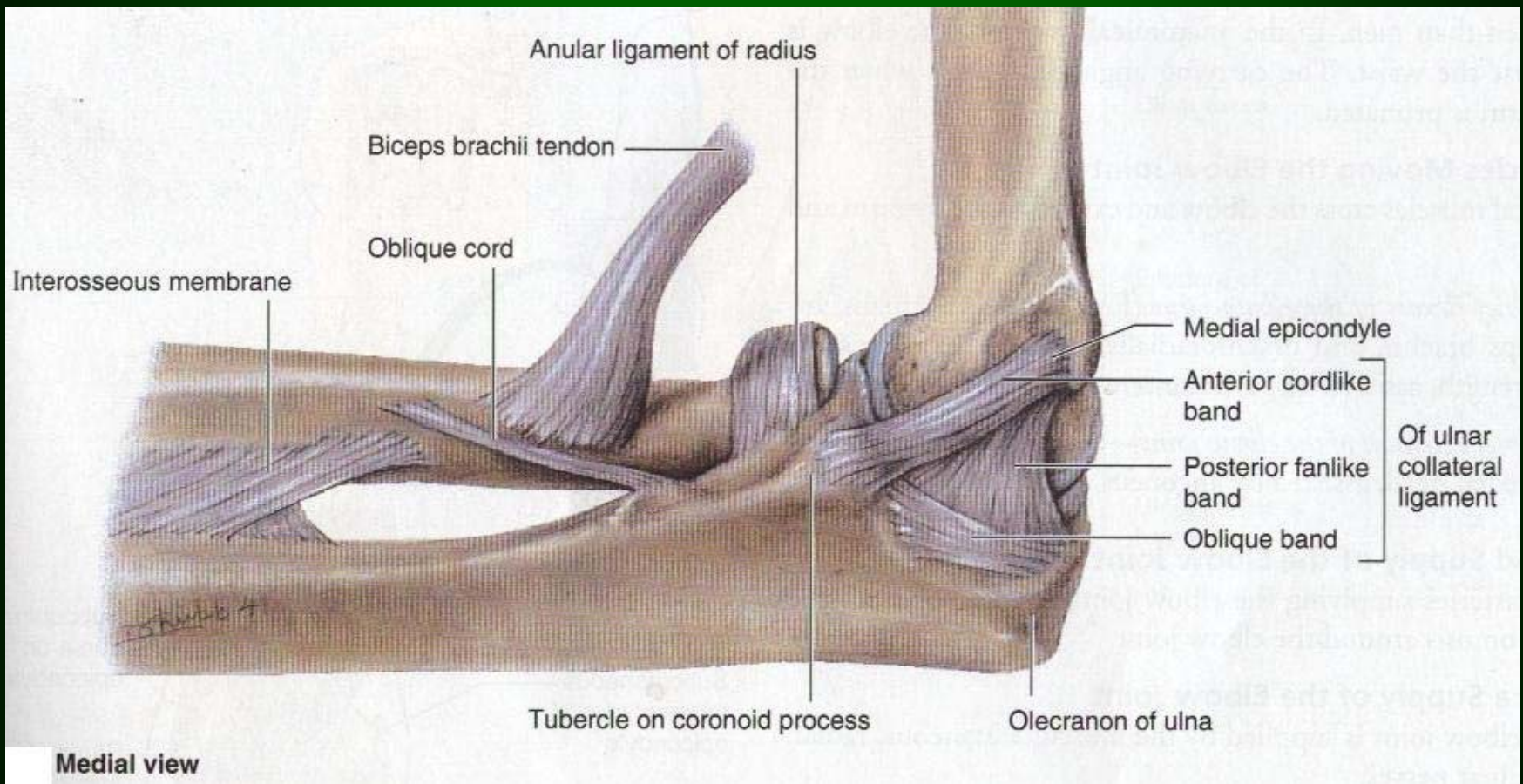
Anteriorly it is attached above to the humerus along the upper margins of the coronoid and radial fossae and to the front of the medial and lateral epicondyles and below to the margin of the coronoid process of the ulna and to the anular ligament, which surrounds the head of the radius.

Posteriorly it is attached above to the margins of the olecranon fossa of the humerus and below to the upper margin and sides of the olecranon process of the ulna and to the anular ligament.



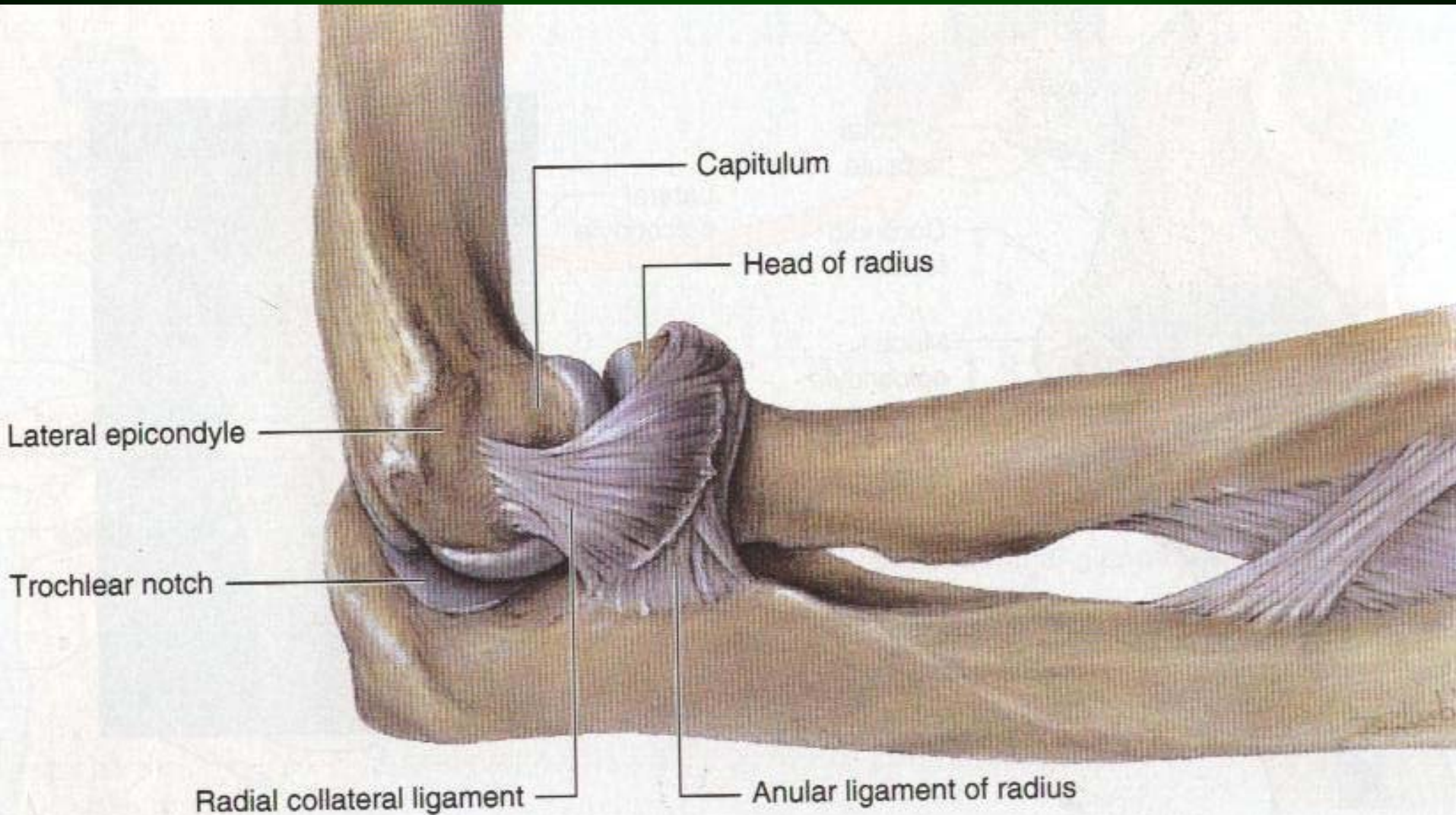
Ligaments *Medial ligament*

Consists principally of 3 strong bands: the **anterior band**, which passes from the medial epicondyle of the humerus to the medial margin of the coronoid process; the **posterior band**, which passes from the medial epicondyle to the medial side of the olecranon; and the **transverse band**, which passes between the ulnar attachments of the two bands.



Ligaments *Lateral ligament*

Is attached by its apex to the lateral epicondyle of the humerus and by its base to the upper margin of the anular ligament



Movements & muscles of the Elbow joint

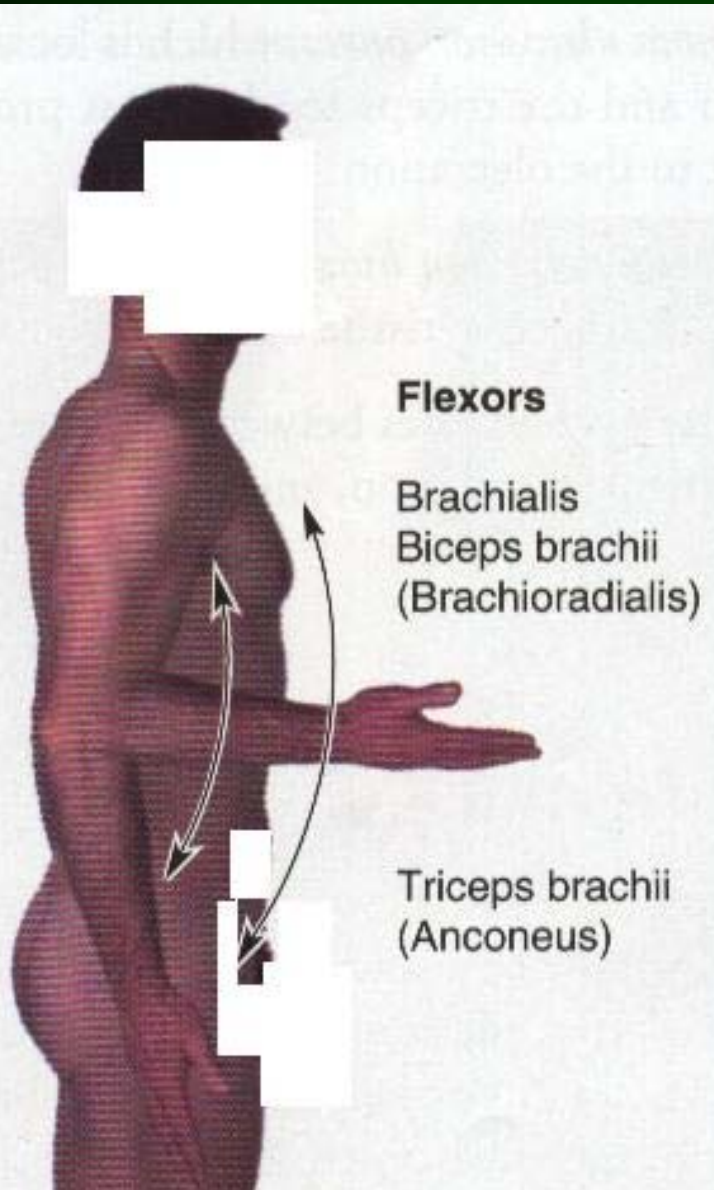
The elbow joint is capable of flexion and extension.

Flexion is performed by the brachialis, biceps brachii, brachioradialis, and pronator teres muscles.

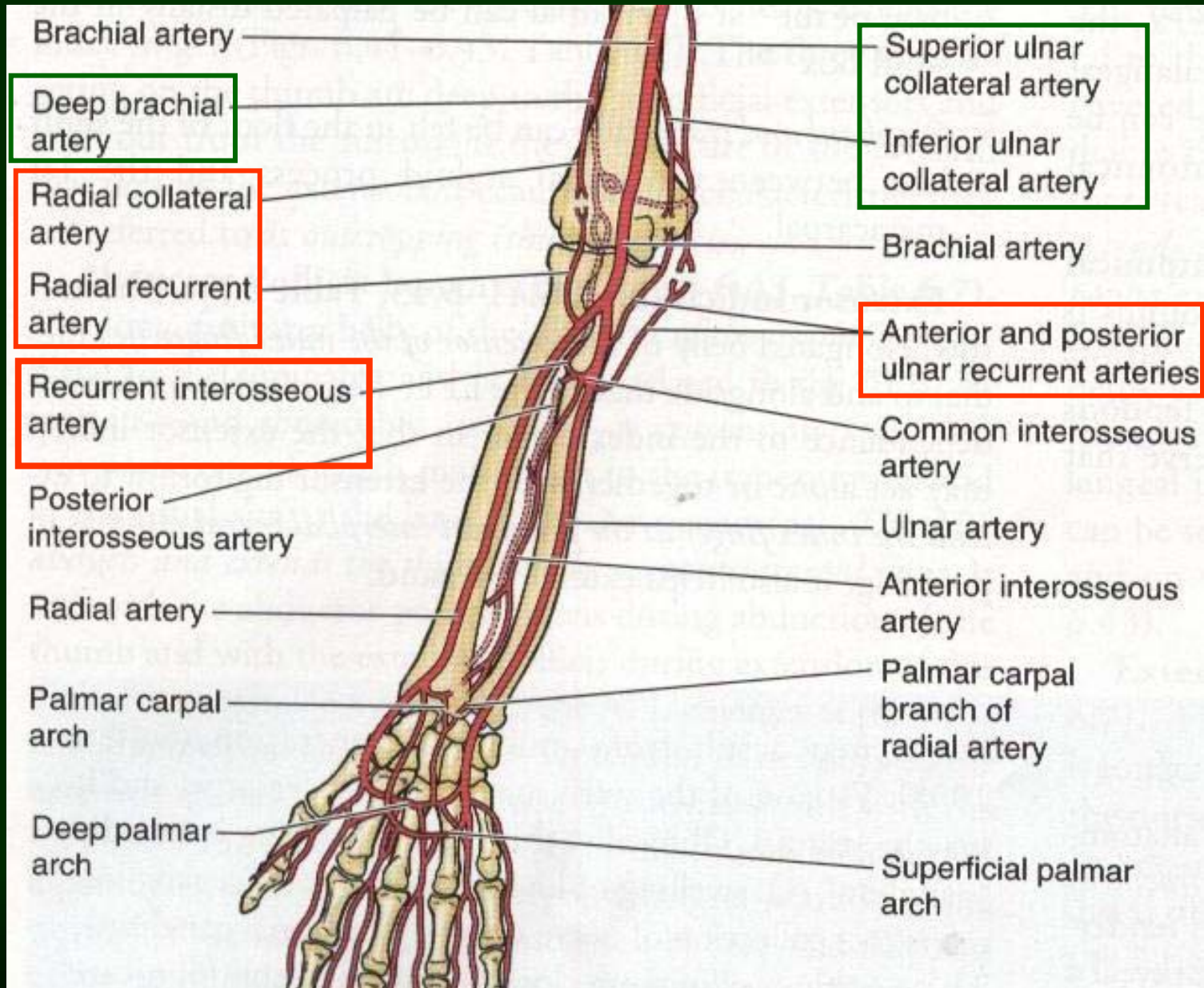
Extension is performed by the triceps and anconeus muscles.

This angle, which opens laterally, is called the carrying angle and is about 170° in the male and 167° in the female. The angle disappears when the elbow joint is fully flexed.

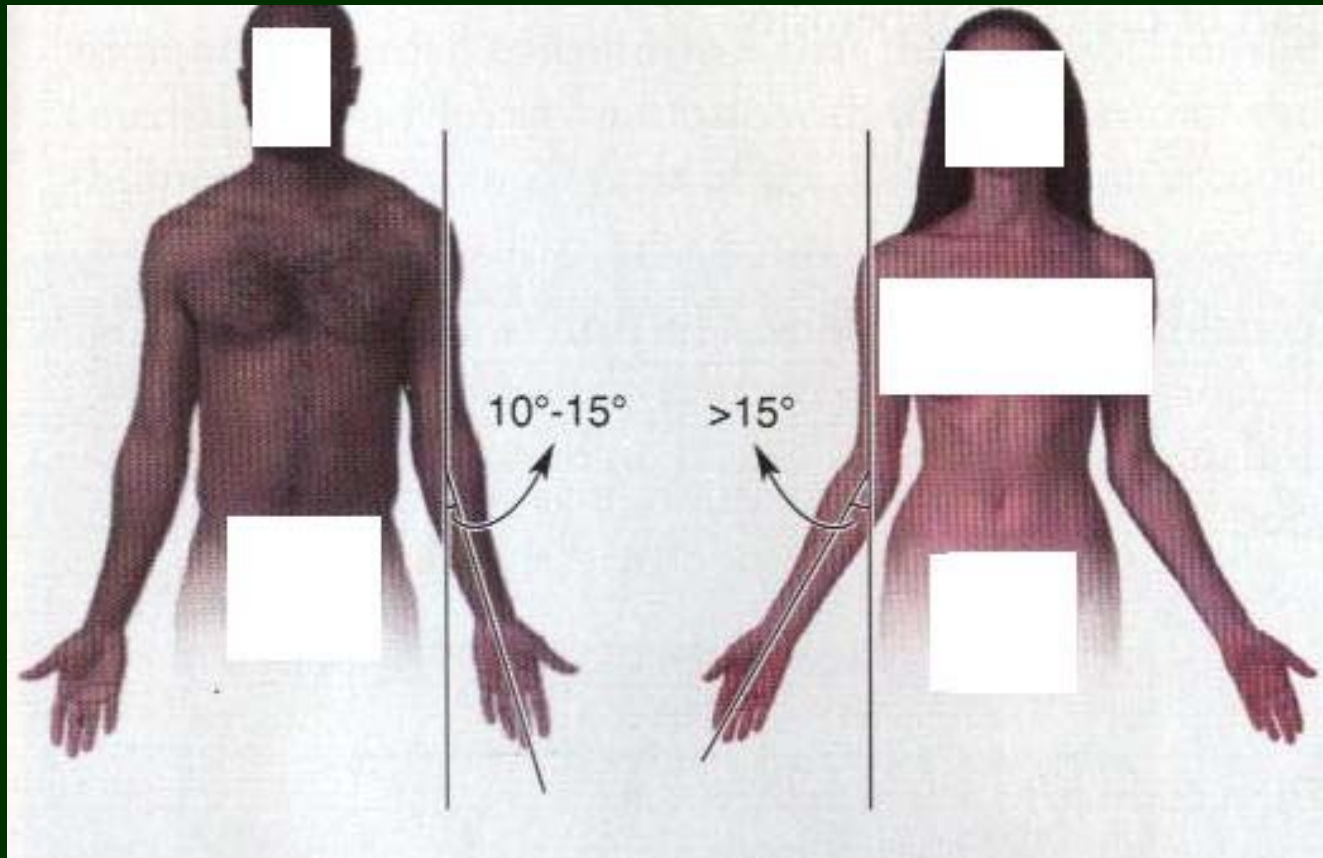
Nerve supply: Branches from the median, ulnar, musculocutaneous, and radial nerves



Blood supply of the Elbow joint



Carrying angle of the Elbow joint



Carrying angle of the elbow joint. The carrying angle is the angle made by the axes of the arm and forearm when they are fully extended and supinated. Note that the forearm diverges laterally, forming an angle that is greater in the woman; however, no significant functional difference exists.

Proximal Radioulnar Joint

Articulation: Between the circumference of the head of the radius and the annular ligament and the radial notch on the ulna

Type: Synovial pivot joint

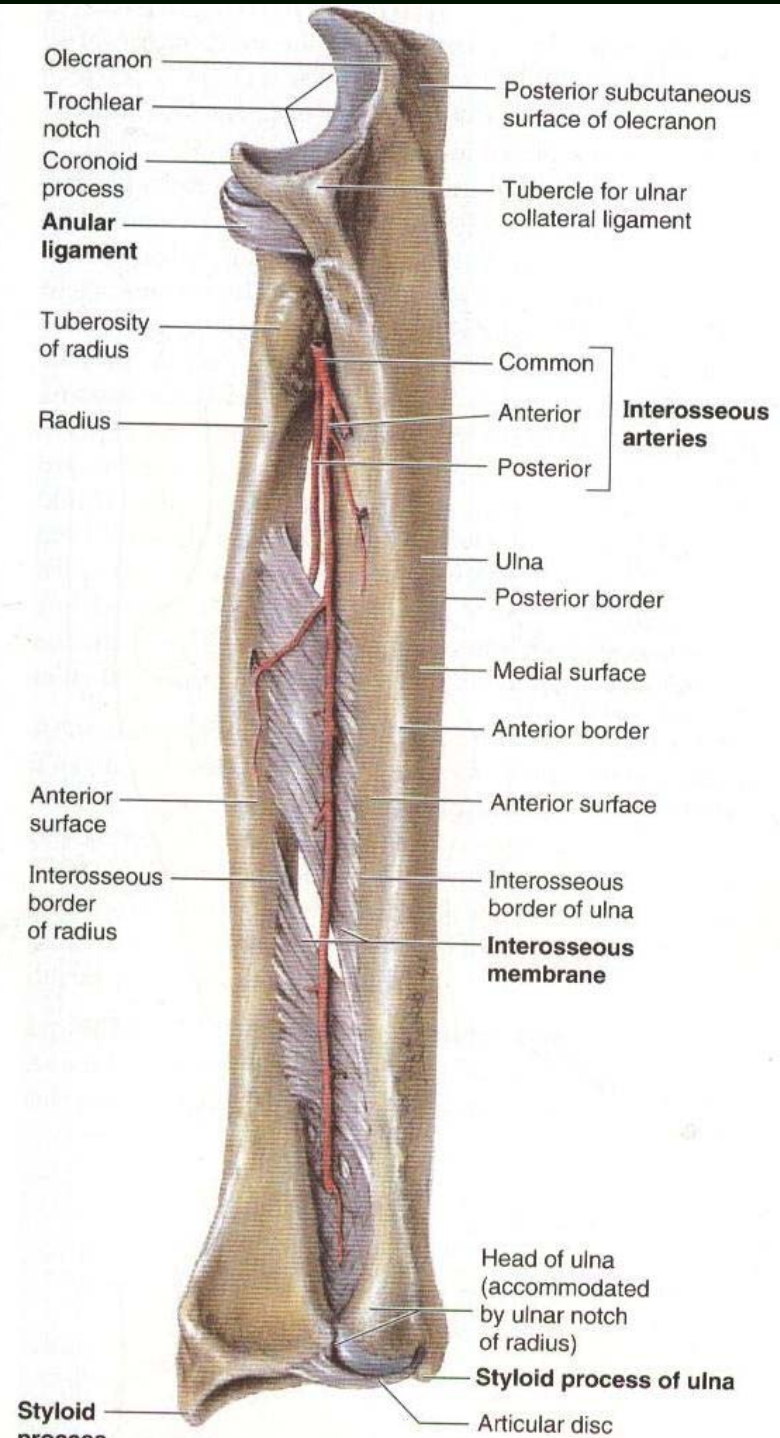
Capsule: The capsule encloses the joint and is continuous with that of the elbow joint.

Ligament: The **annular ligament** is attached to the anterior and posterior margins of the radial notch on the ulna and forms a collar around the head of the radius. It is continuous above with the capsule of the elbow joint. It is not attached to the radius.

Synovial membrane: This is continuous above with that of the elbow joint. Below it is attached to the inferior margin of the articular surface of the radius and the lower margin of the radial notch of the ulna.

Nerve supply: Branches of the median, ulnar, musculocutaneous, and radial nerves

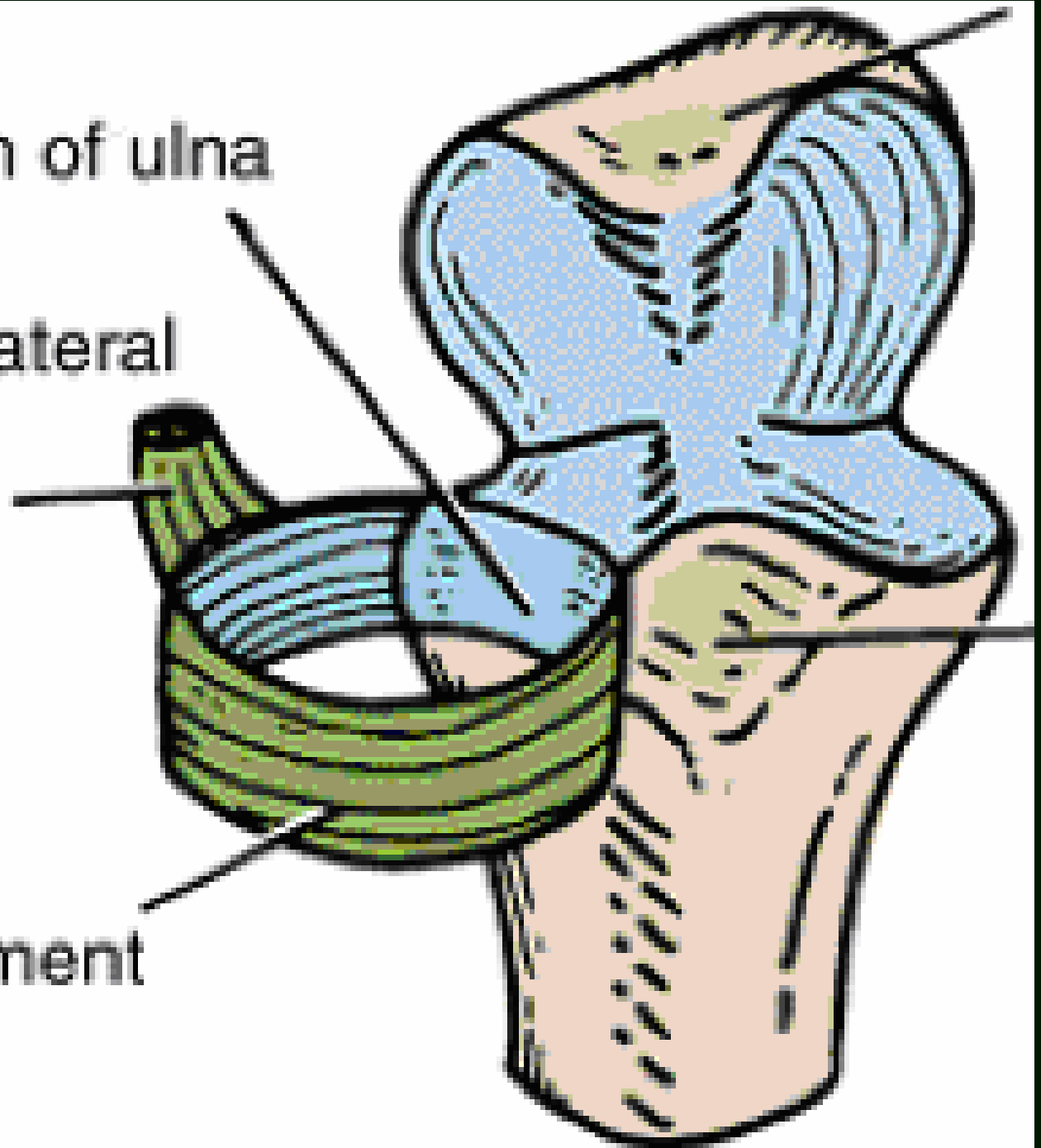
Proximal radioulnar joint



radial notch of ulna

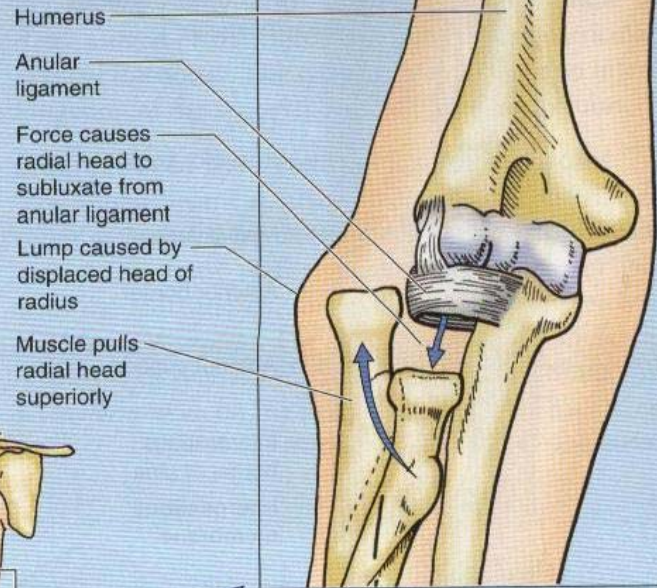
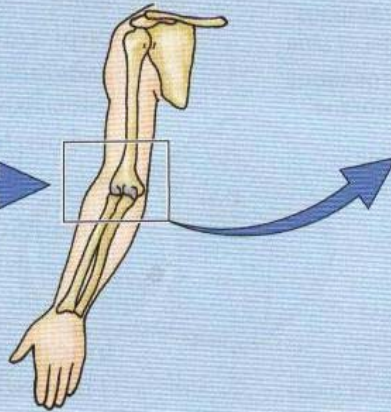
lateral collateral
ligament

annular ligament

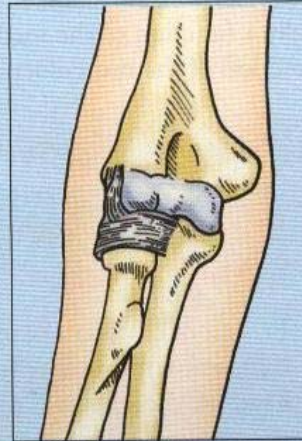




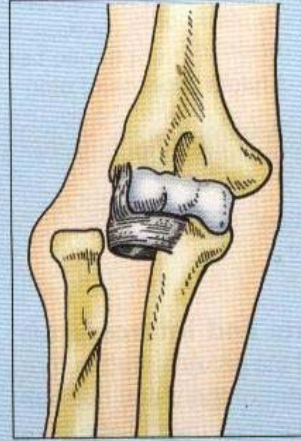
(A)



(B) Normal



Subclinical subluxation



Dislocation



Subluxation

Distal Radioulnar Joint

Articulation: Between the rounded head of the ulna and the ulnar notch on the radius

Type: Synovial pivot joint

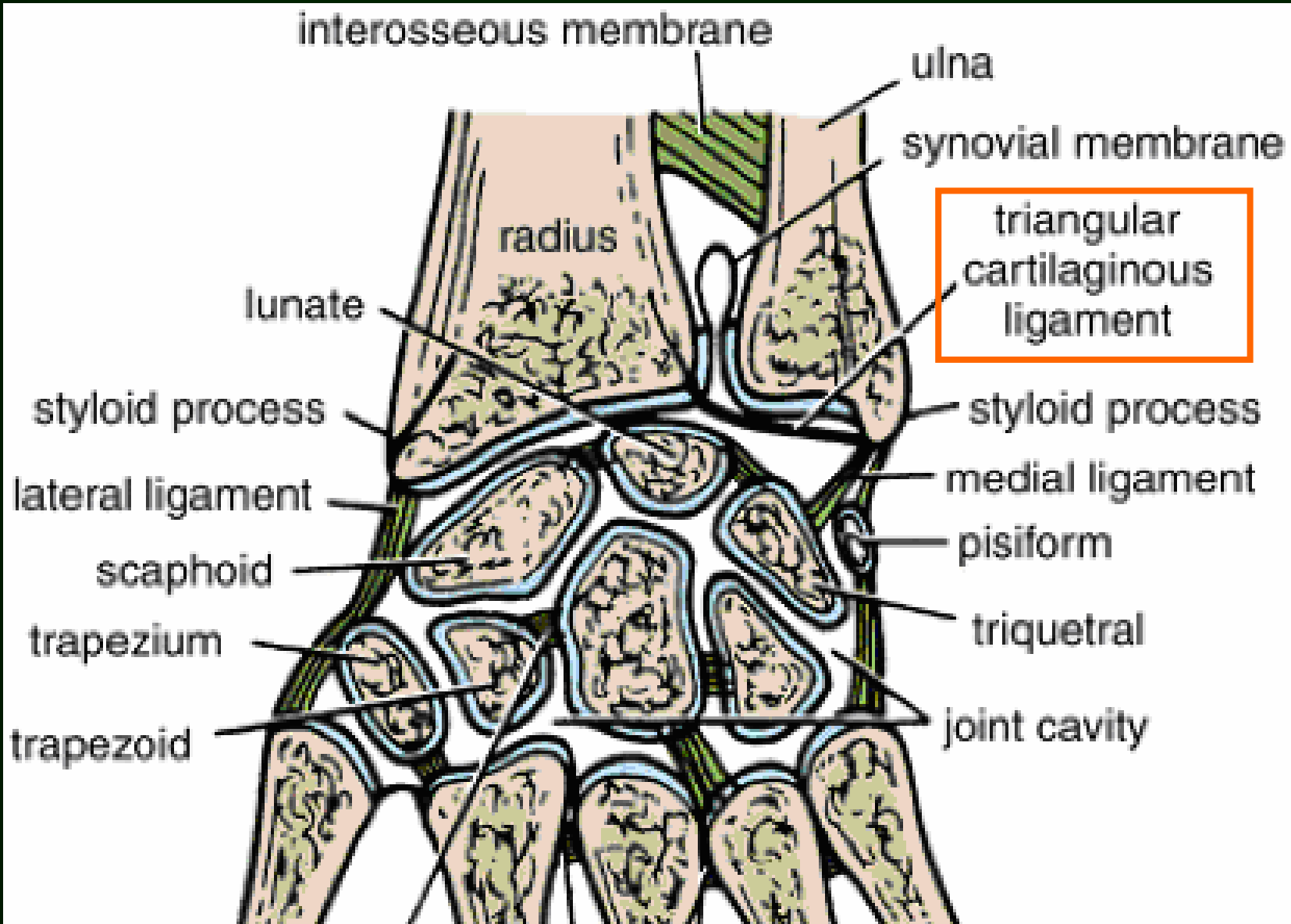
Capsule: The capsule encloses the joint but is deficient superiorly

Ligaments: Weak anterior and posterior ligaments strengthen the capsule

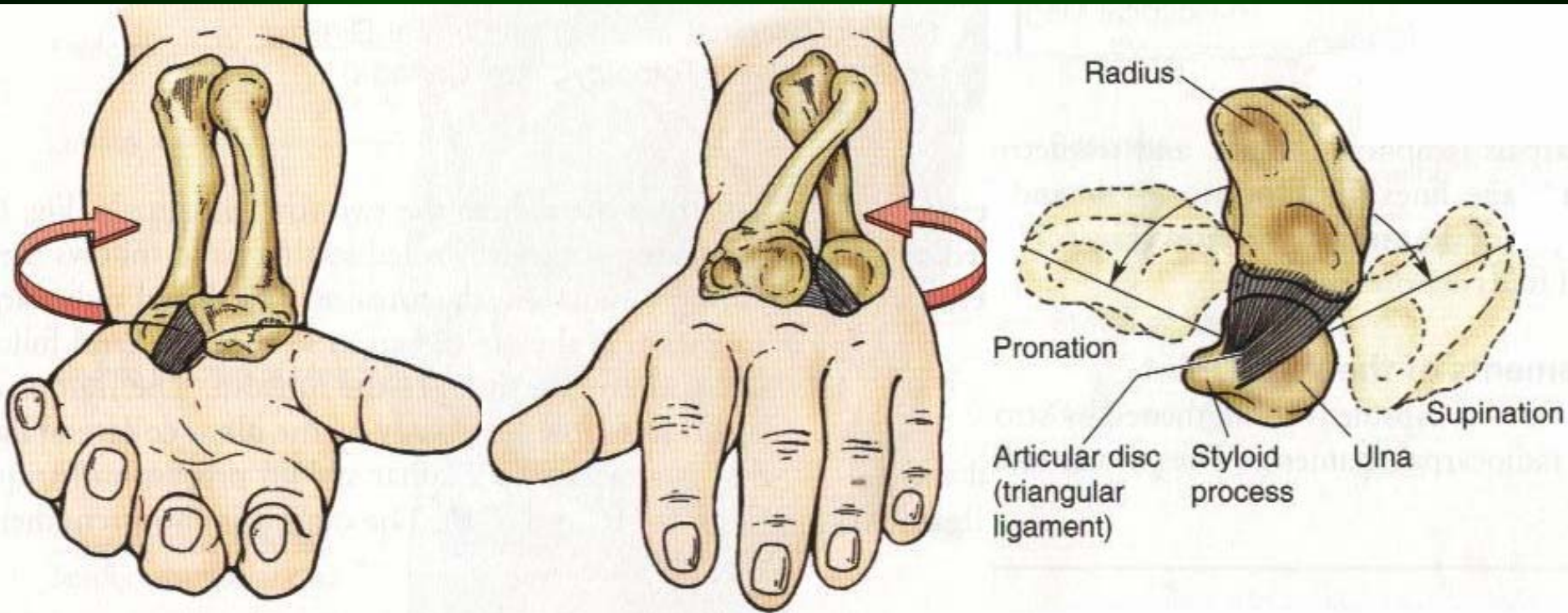
Articular disc: This is triangular and composed of fibrocartilage. It is attached by its apex to the lateral side of the base of the styloid process of the ulna and by its base to the lower border of the ulnar notch of the radius. It shuts off the distal radioulnar joint from the wrist and strongly unites the radius to the ulna

Synovial membrane: This lines the capsule passing from the edge of one articular surface to that of the other.

Nerve supply: Anterior interosseous nerve and the deep branch of the radial nerve



Distal radioulnar joint



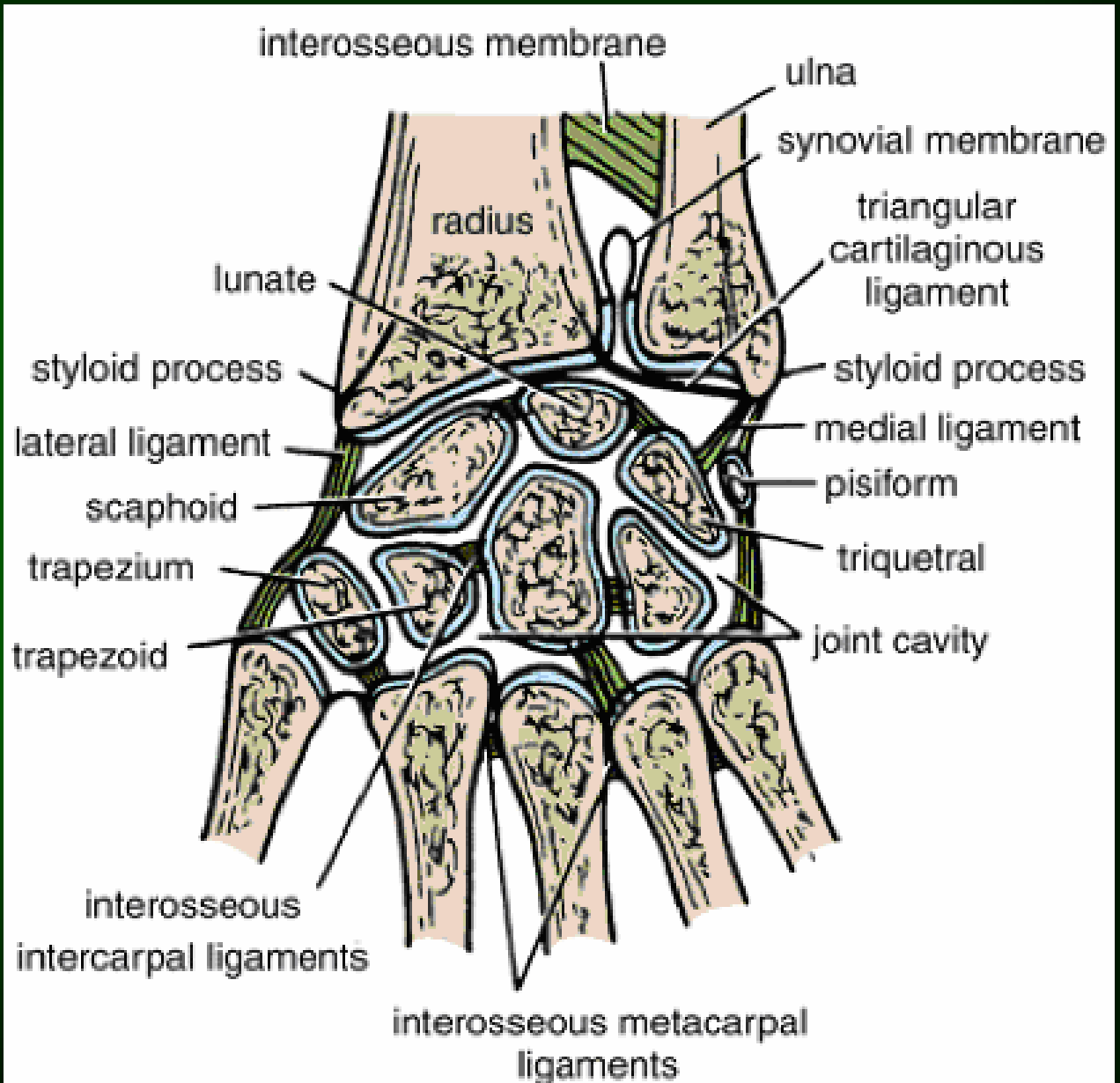
Supination

Pronation

The inferior end of the radius moves around the relatively fixed end of the ulna during supination and pronation of the hand. The two bones are firmly united distally by the articular disc—referred to clinically as the "triangular ligament" of the distal radioulnar joint. It has a broad attachment to the radius but a narrow attachment to the styloid process of the ulna, which serves as the pivot point for the rotary movement.

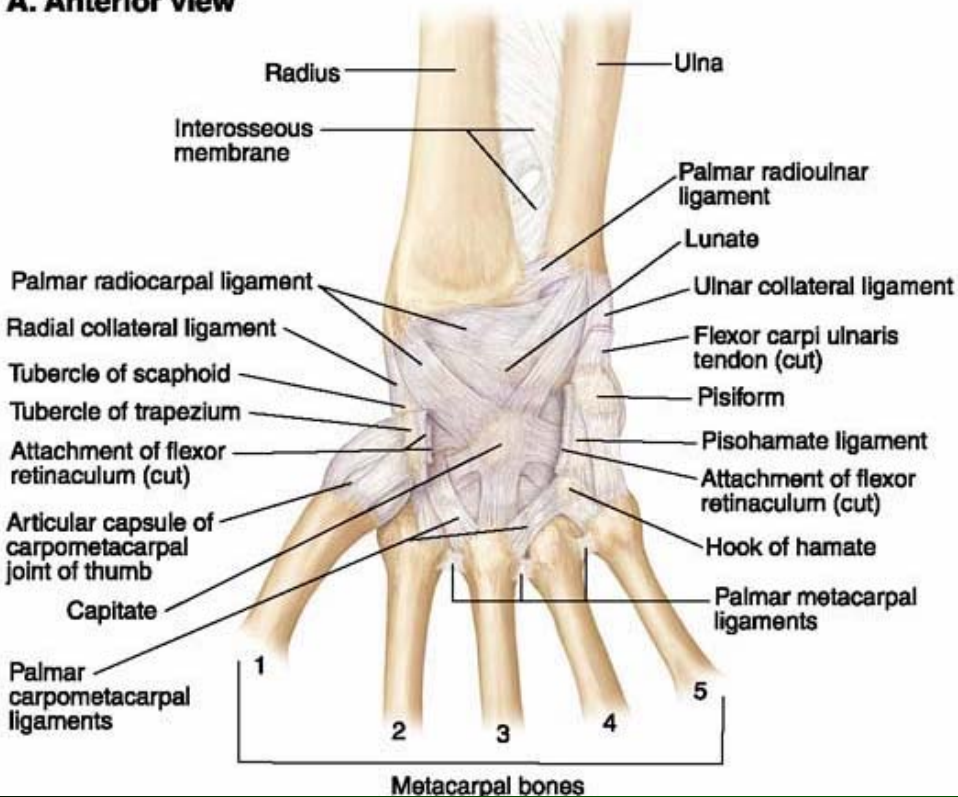
Wrist Joint (Radiocarpal Joint)

Articulation: Distal end of the radius and the articular disc above and the scaphoid, lunate, and triquetral bones below. The proximal articular surface forms an ellipsoid concave surface, which is adapted to the distal ellipsoid convex surface.

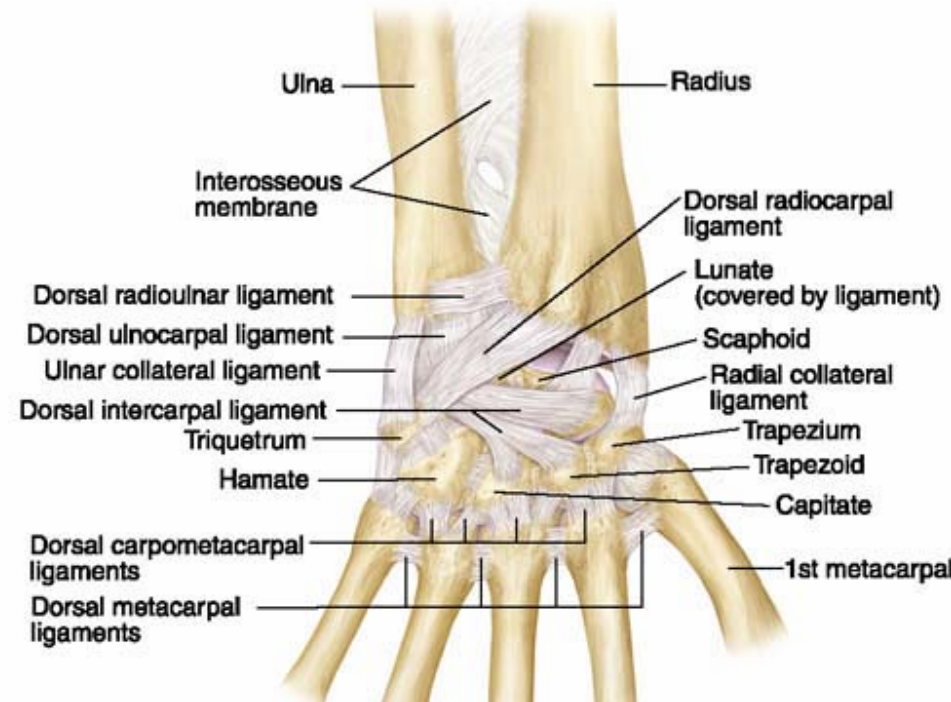


Ligaments of the Wrist Joint

A. Anterior view



B. Posterior view



Type: Synovial ellipsoid joint

Capsule: The capsule encloses the joint and is attached above to the distal ends of the radius and ulna and below to the proximal row of carpal bones.

Ligaments: *Anterior & posterior ligaments* strengthen the capsule. The **medial ligament** is attached to the styloid process of the ulna and to the triquetral bone. *The lateral ligament* is attached to the styloid process of the radius and to the scaphoid bone.

Synovial membrane: This lines the capsule and is attached to the margins of the articular surfaces. The joint cavity does not communicate with that of the distal radioulnar joint or with the joint cavities of the intercarpal joints.

Nerve supply: Anterior interosseous nerve and the deep branch of the radial nerve

Thank You

