

Wrist (Radiocarpal) Joint

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Type of joint:

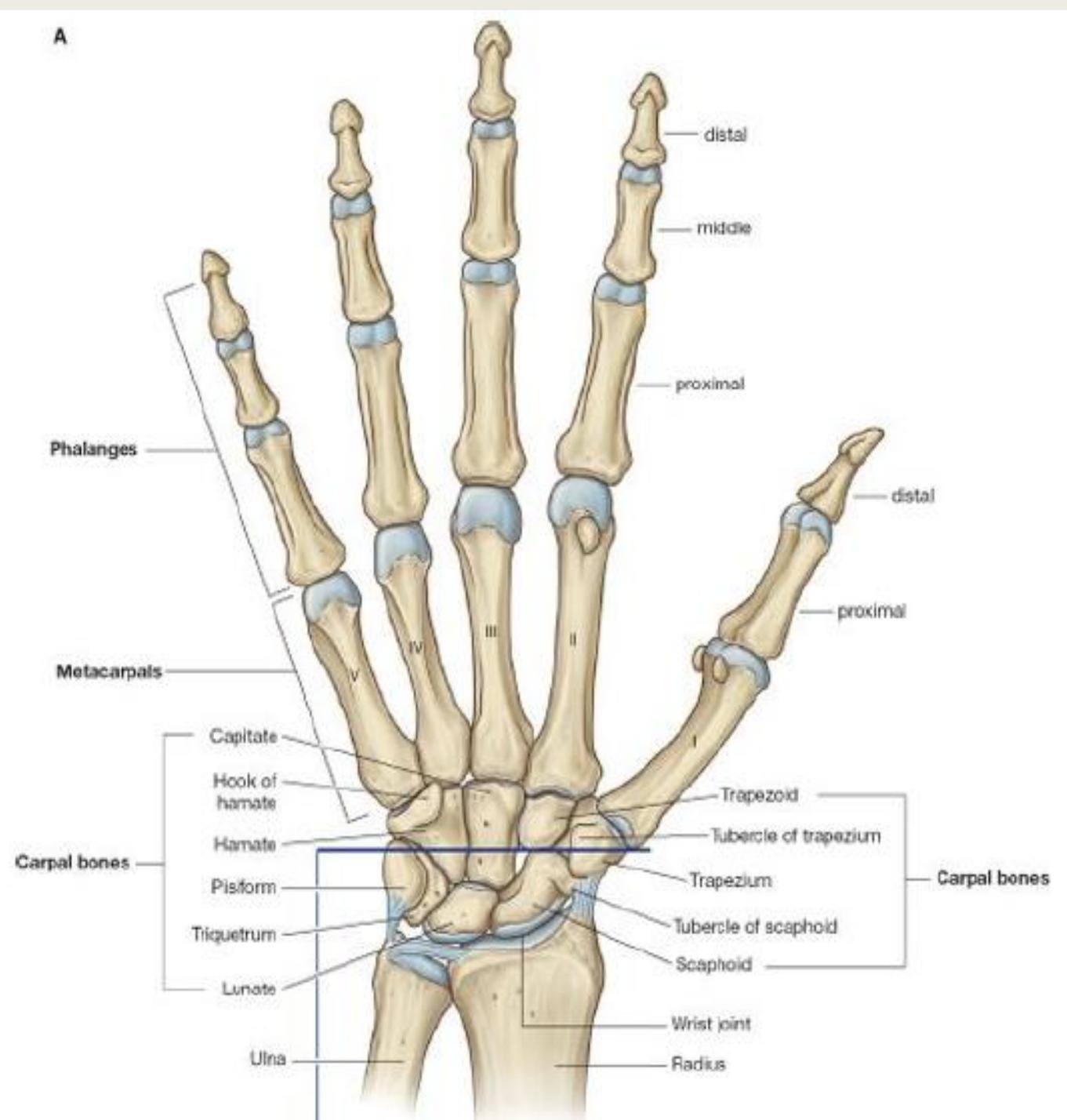
Synovial; Biaxial; Ellipsoid.

Articular surfaces:

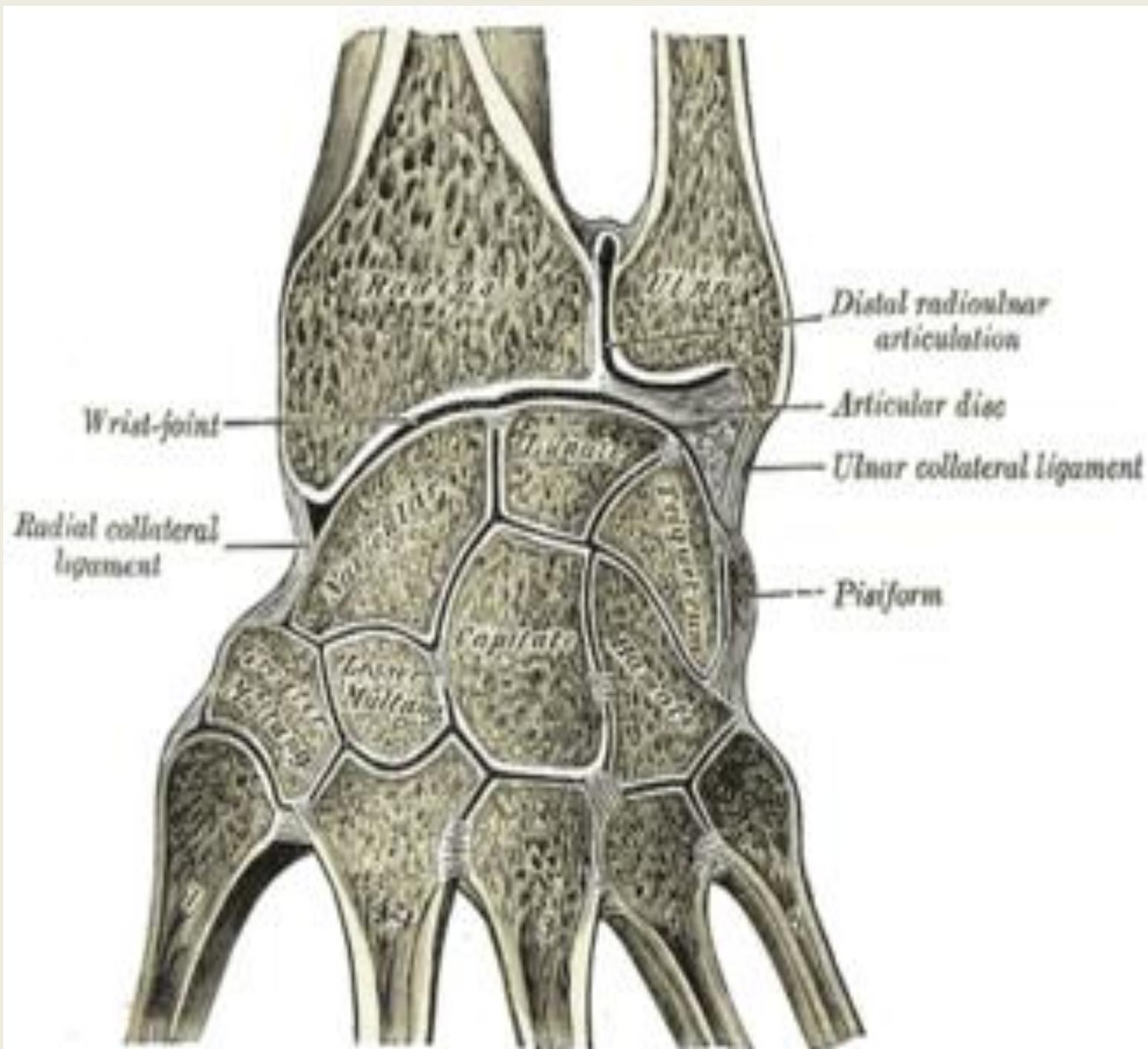
□ **Inferior surface of lower end of radius & the inferior surface of articular disc.**

□ **The articular surface of the proximal row of carpal bone (Scaphoid, Lunate and Triquetral).**

□ **The scaphoid and lunate articulate with the lower end of radius while the triquetral articulates with the articular disc.**



- The articular disc is a •
triangular cartilage that is
attached between the
lower end of radius and
that of ulna.
- The ulna does not share •
in the wrist joint so it is
called a radiocarpal
articulation.



Wrist Joint (Cont'd)

Synovial membrane:

It lines all the structures inside the capsule of the wrist joint EXCEPT the articular surfaces. This synovial membrane **is not continuous** with that of the inferior radioulnar joint.

Ligaments related to wrist joint:

- **Ulnar collateral (medial) ligament:** it extends between the styloid process of ulna and pisiform and triquetral.
- **Radial collateral (lateral) ligament:** it extends between the styloid process of radius and scaphoid bone.
- **Palmar radiocarpal ligament.**
- **Dorsal radiocarpal ligament.**
- **Palmar ulnocarpal ligament.**

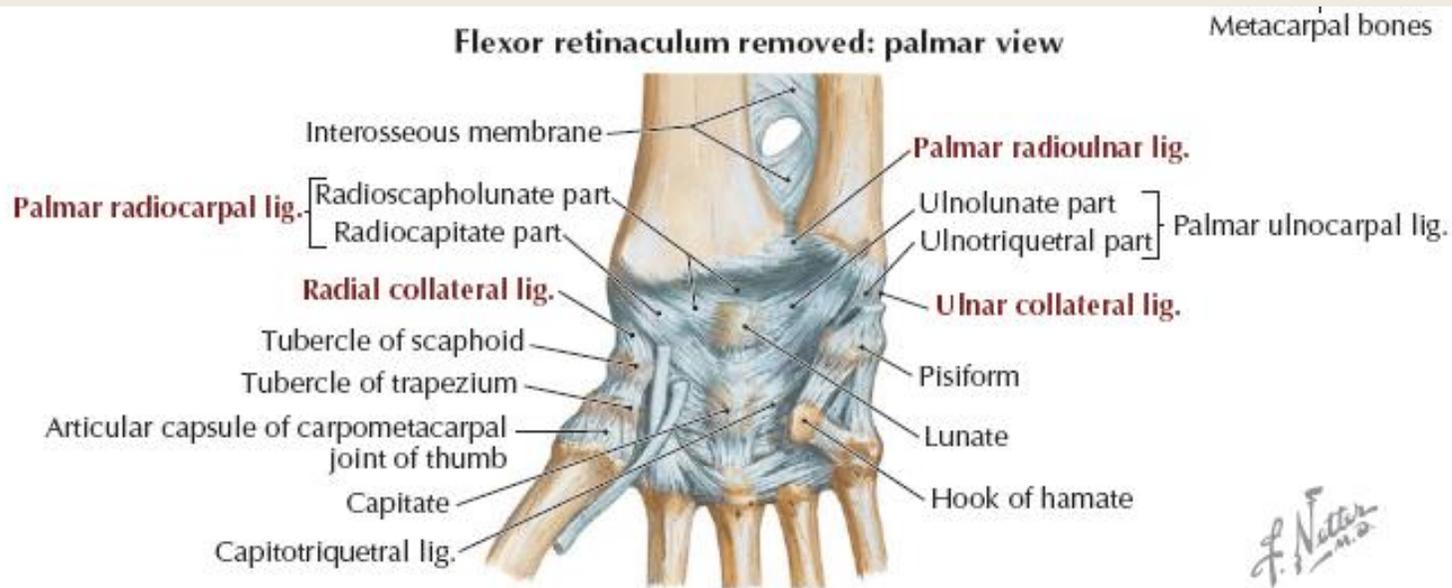
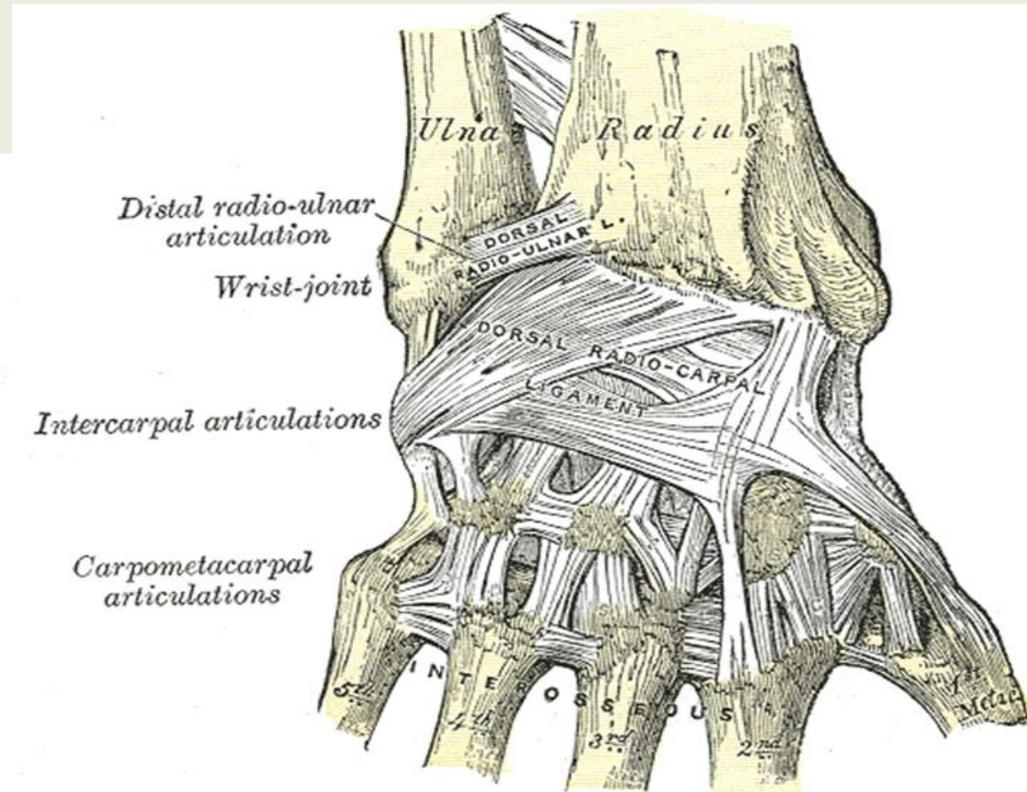


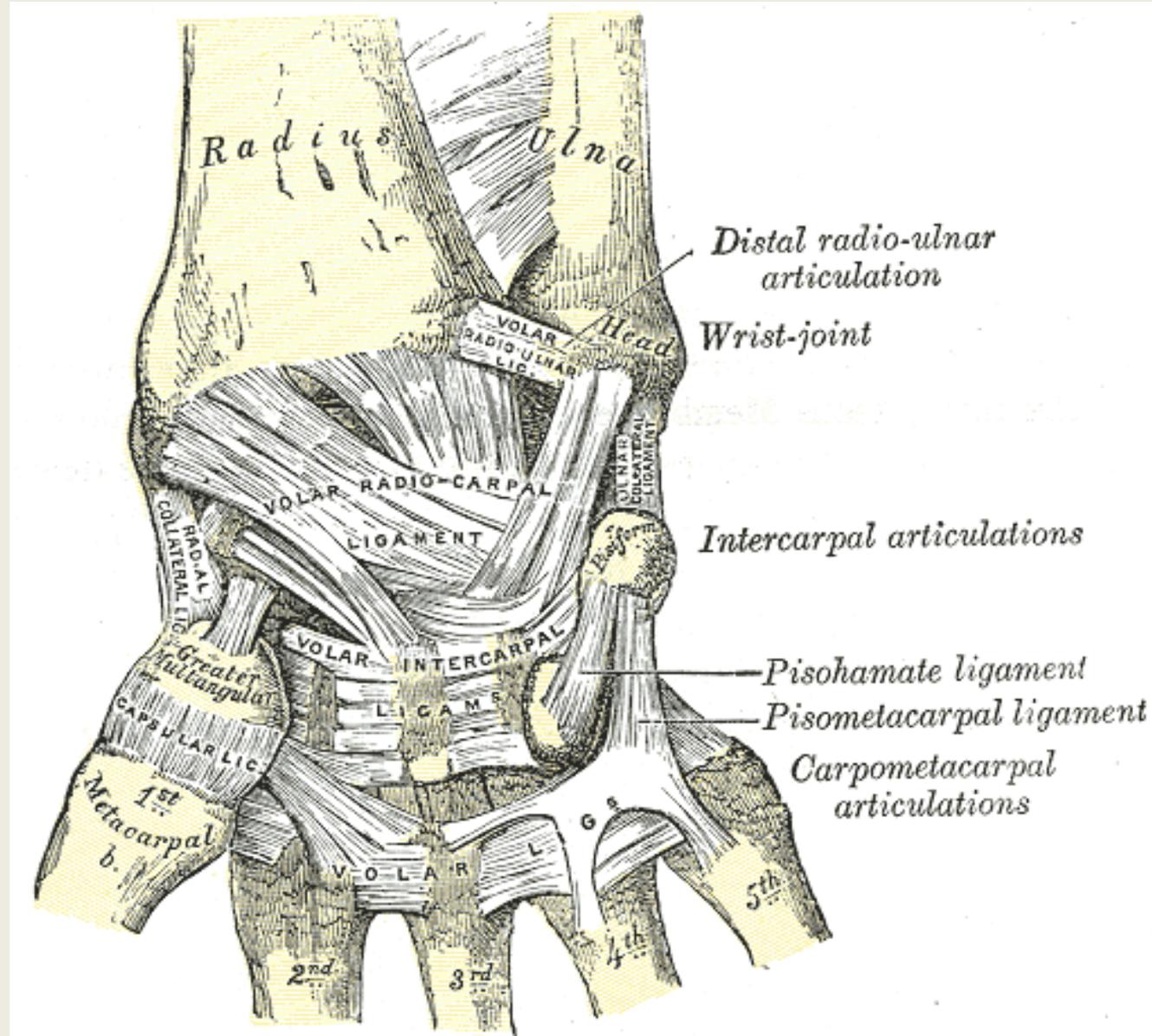
FIGURE 7-24 Wrist Joint Ligaments



ant.(palmar) radiocarpal ligament:

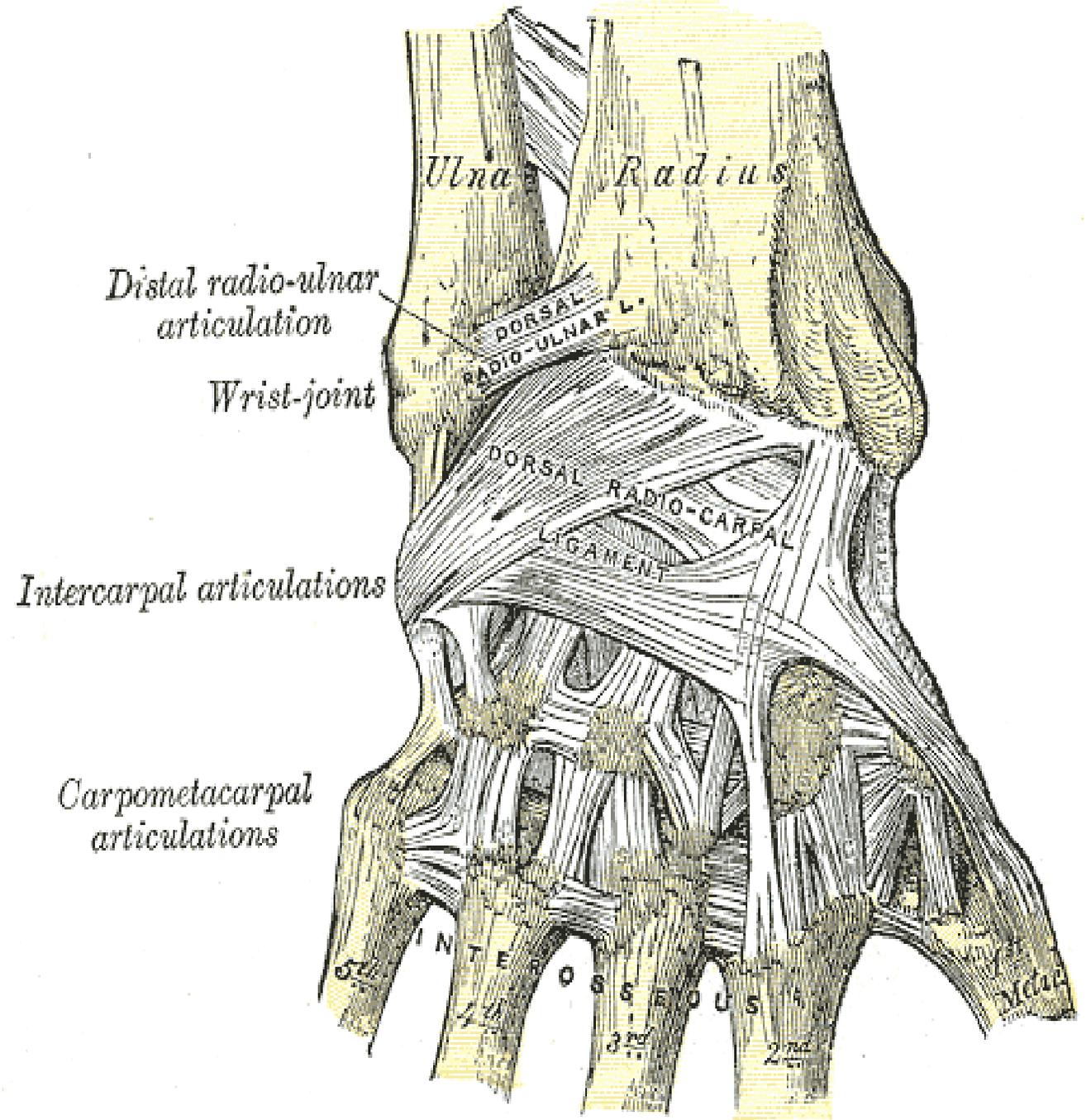
From ant. Margin of lower end of radius to the front of scaphoid, lunate, triquetrum bone

ant.(palmar) ulnocarpal ligament:



Post.(dorsal)radio-carpal lig:

Attached to Post. Margin of lower end of radius to back of scaphoid, lunate and triquetrum (below).



Movements of wrist joint:

The joint is **Biaxial joint**, so it moves around two axes.

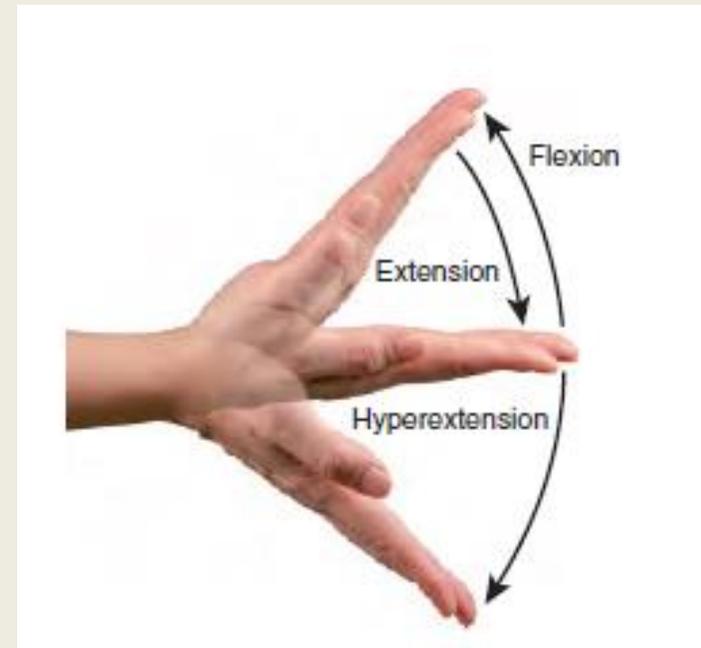
The movements are:

- **Flexion:** done by the **flexor carpi radialis**, **flexor carpi ulnaris** and **Palmaris longus**; these muscles are helped by the flexors of the fingers.

- **Extension:** done by the **extensor carpi radialis longus** and **brevis** and **extensor carpi ulnaris**; these muscles are helped by the extensors of the fingers.

- **Adduction:** done by the **flexor carpi ulnaris** and **extensor carpi ulnaris**.

- **Abduction:** done by the **flexor carpi radialis**, **extensor carpi radialis longus** and **brevis**.



Small joints of the hand

- 1. Intercarpal joints: plane synovial**
- 2. Carpometacarpal joints: plane synovial except 1st carpometacarpal of the thumb is saddle biaxial synovial**
- 3. Metacarpophalangeal: condyloid biaxial synovial**
- 4. Interphalangeal joints: synovial uniaxial hinge**

Metacarpophalangeal and interphalangeal ligaments

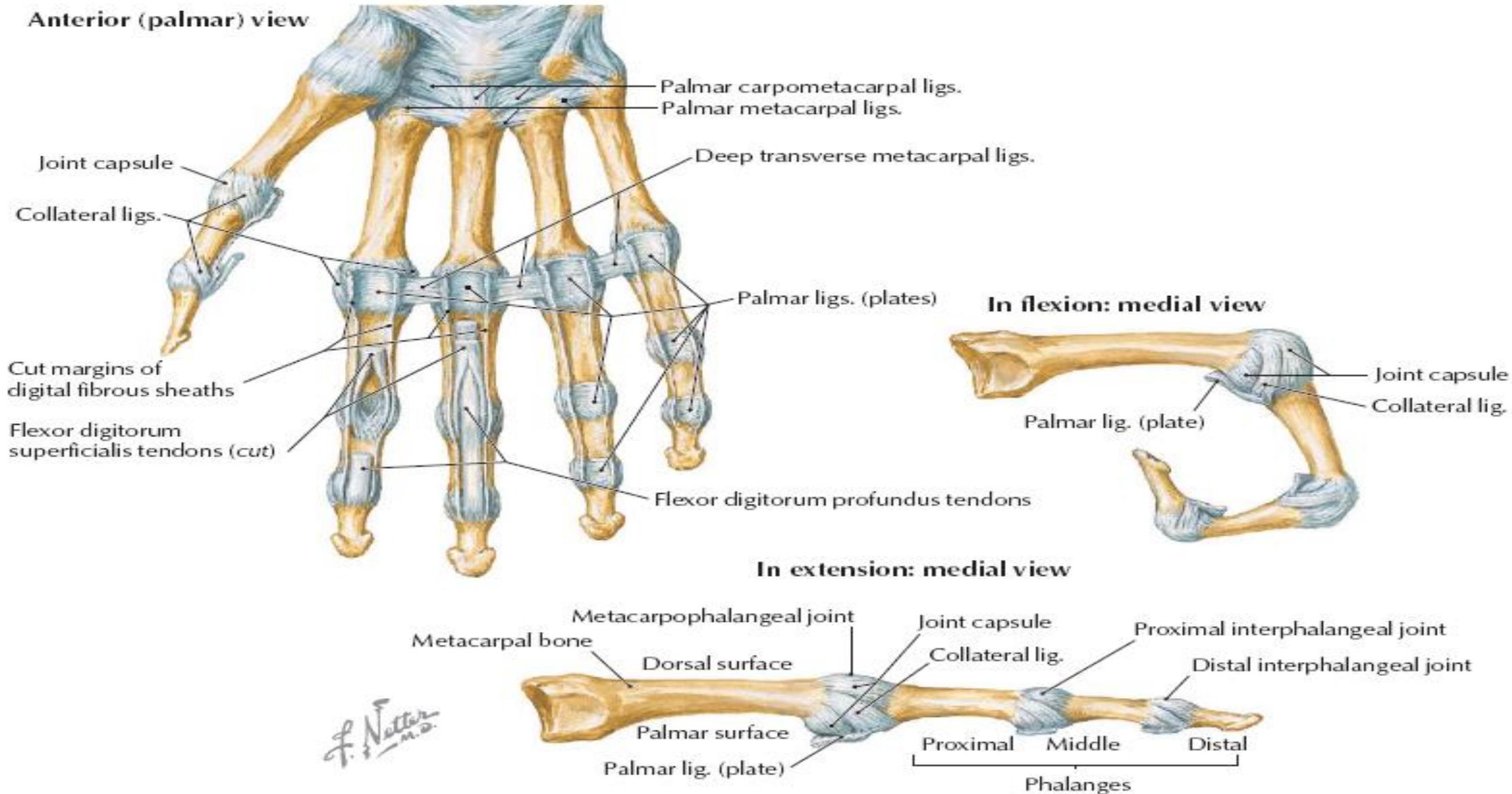


FIGURE 7-26 Finger Joints and Ligaments

Anatomical Snuff Box

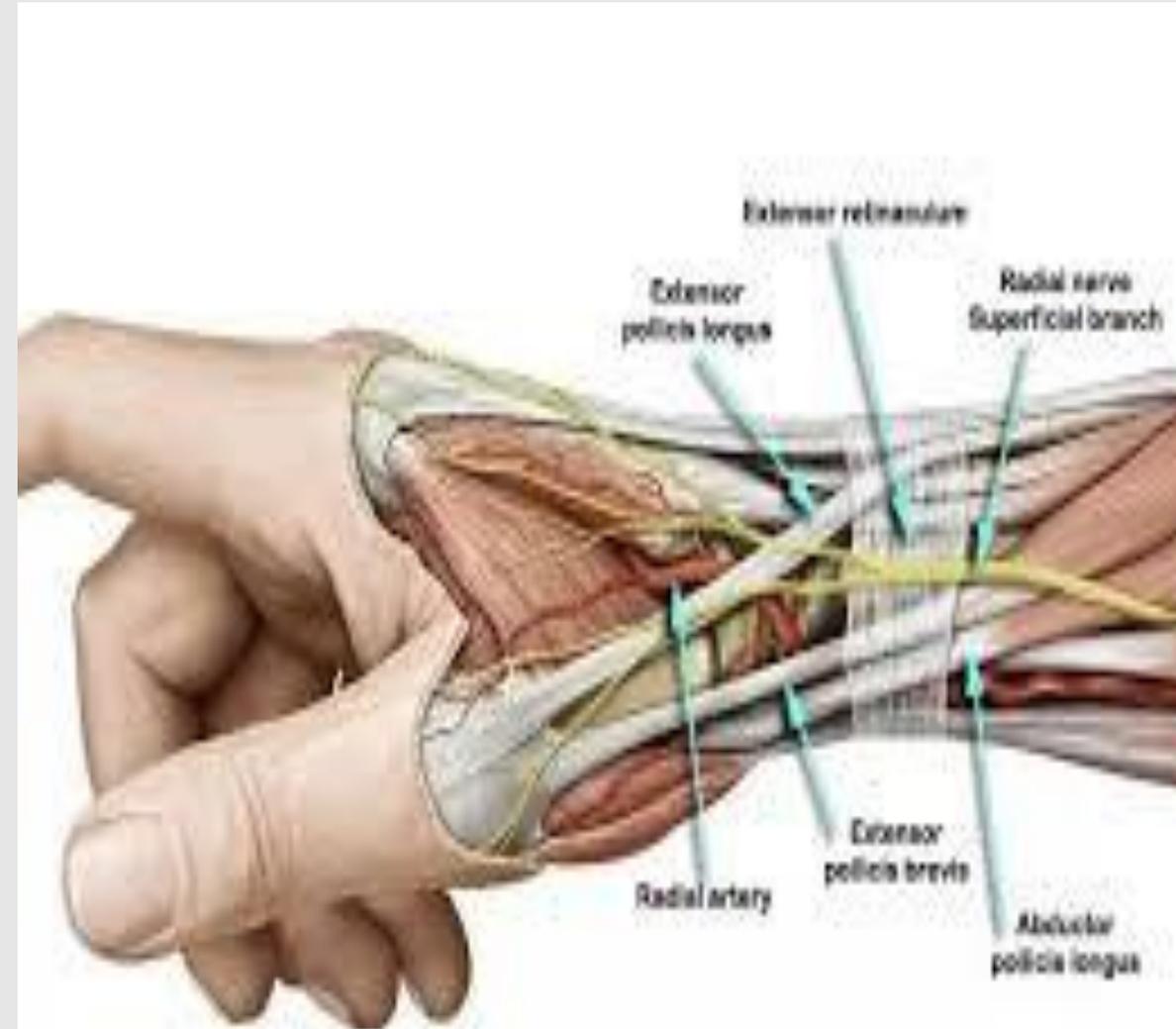
It is a triangular skin depression on the lateral side of the wrist

Boundaries:

medially: the tendon of the extensor pollicis longus.

Laterally: the tendons of the abductor pollicis longus and extensor pollicis brevis.

Its clinical importance lies in the fact that the scaphoid bone is most easily palpated in its floor where the pulsations of the radial artery can be felt.

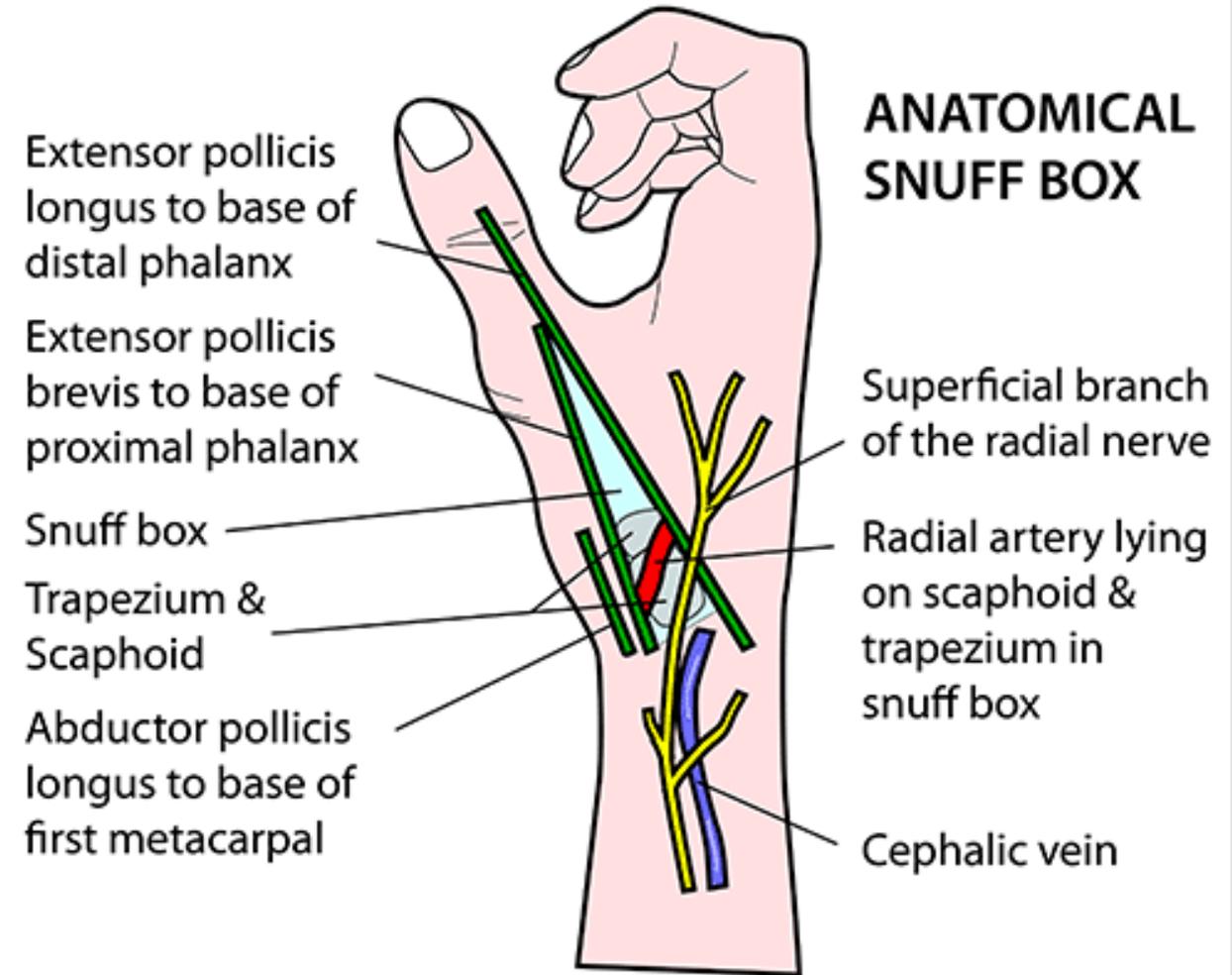


Contents

The main contents of the anatomical snuffbox are

1. the radial artery,
2. the superficial branch of the **radial nerve**,
3. the cephalic vein:
 - The radial pulse can be palpated in some individuals by placing two fingers on the proximal portion of the anatomical snuffbox.
 - Superficial branch of the radial nerve – found in the skin and subcutaneous tissue of the anatomical snuffbox. It innervates the dorsal surface of the lateral three and half digits, and the associated area on the back of the hand.
 - Cephalic vein – arises from the dorsal venous network of the hand and crosses the roof of anatomical snuffbox to travel up the anterolateral aspect of the forearm

SURFACE ANATOMY



Scaphoid Fracture

- **The scaphoid bone of the hand is the most commonly fractured carpal bone – typically by falling on an outstretched hand (FOOSH).**
- **In a fracture of the scaphoid, the characteristic clinical feature is pain and tenderness in the anatomical snuffbox.**
- **The scaphoid is at particular risk of avascular necrosis after fracture because of its so-called ‘retrograde blood supply’ which enters at its distal end. This means that a fracture to the middle (or ‘waist’) of the scaphoid may interrupt the blood supply to the proximal part of the scaphoid bone rendering it avascular.**
- **Patients with a missed scaphoid fracture are likely to develop osteoarthritis of the wrist in later life.**



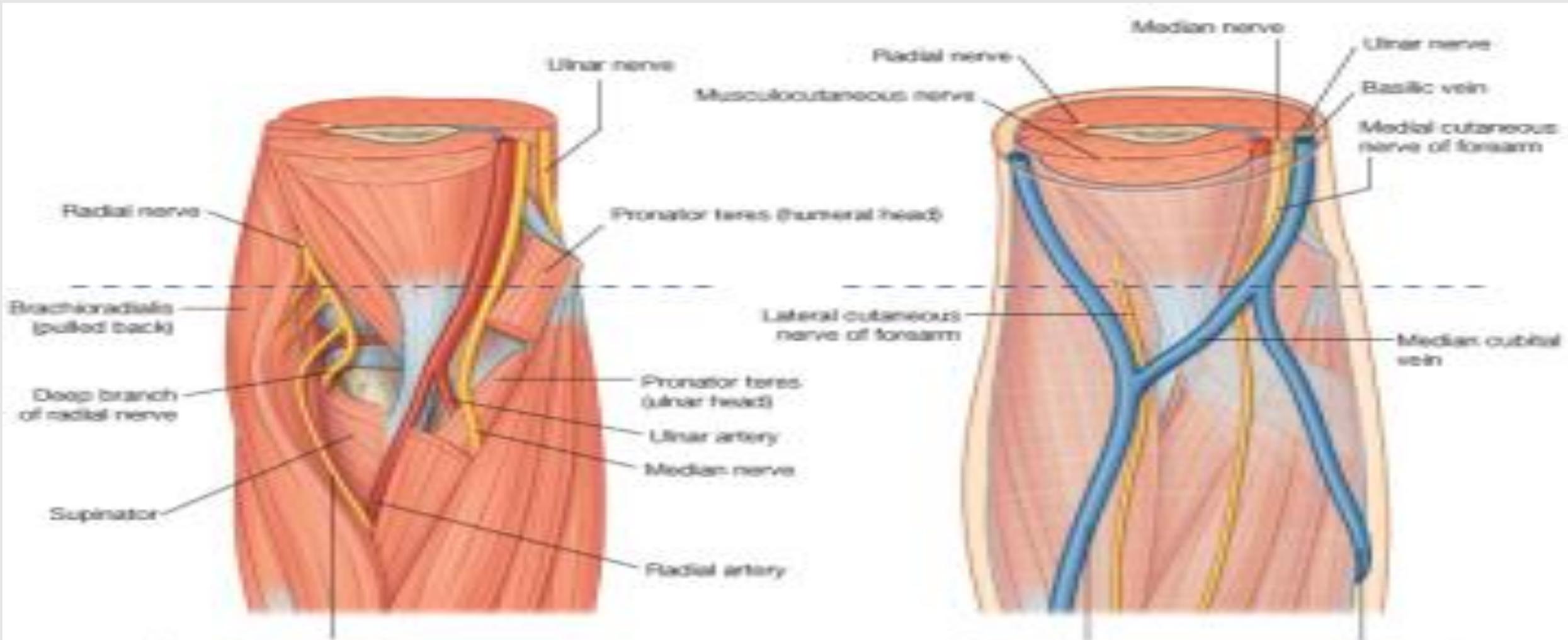
Contents: From lateral to medial

Radial nerve

Biceps tendon.

Brachial artery.

Median nerve.



A 19-year-old man arrives at his campus health clinic complaining of soreness in his right wrist. He explains he landed on an outstretched hand when he was tackled in a rugby match. He indicates that the pain worsens with movement and is minimized by stabilization of the wrist. There are no sensory deficits in his hand nor does he have trouble grasping or holding objects. Pressure applied to the anatomic snuffbox between the extensor pollicis brevis and extensor pollicis longus tendons produces no pain. Radiographic studies show no fractures but reveal an anterior dislocation of a bone in the proximal row of carpal bones. What carpal bone is most likely dislocated in this patient?

- (A) Scaphoid
- (B) Lunate
- (C) Capitate
- (D) Triquetrum
- (E) Trapezium

Physical examination of a 45-year-old man who had been stabbed in the back of the shoulder shows a deep wound penetrating into the quadrangular space of the shoulder, causing bleeding from the severed blood vessels there. Which of the following neural structures is most likely damaged as well?

- (A) Musculocutaneous nerve**
- (B) Lateral cord of the brachial plexus**
- (C) Radial nerve**
- (D) Axillary nerve**
- (E) Medial cutaneous nerve of the arm**

During an attempted suicide, a depressed young woman slashes the front of her wrist with a razor blade. However, she cuts only to the depth of the superficial aspect of the flexor retinaculum before passing out at the sight of her own blood. Which of the following muscle tendons may be severed?

- (A) Flexor digitorum superficialis**
- (B) Brachioradialis**
- (C) Flexor pollicis longus**
- (D) Abductor pollicis longus**
- (E) Palmaris longus**