أهلا وسهلا

الأستاذ الدكتور يوسف حسين

كلية الطب - جامعة مؤتة – الأردن

دكتوراة من جامعة كولونيا المانيا

الواتس (أي استفسار)
00201224904207

Wrist Joint

Type; an ellipsoid synovial joint (biaxial).

Articular surface

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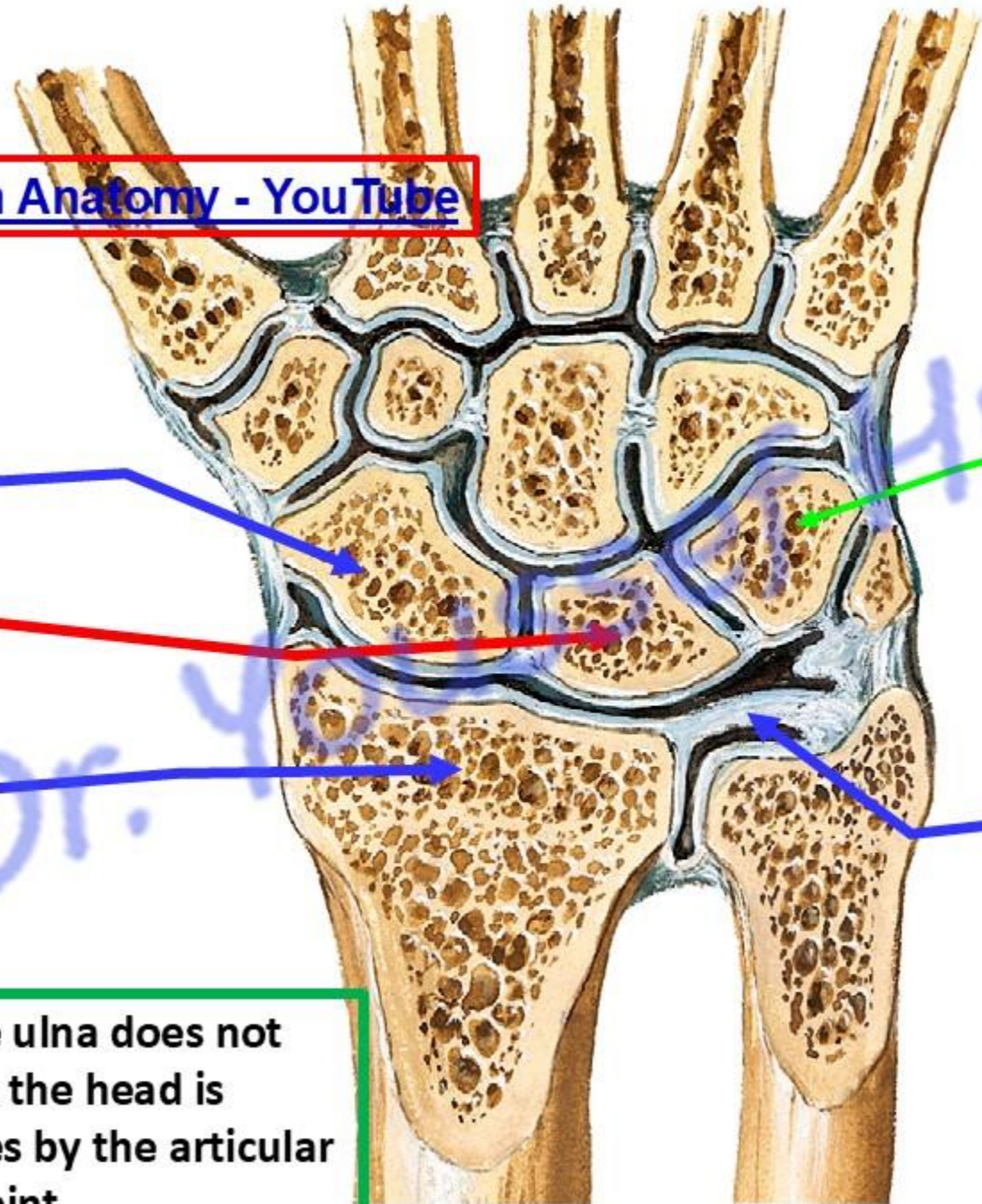


Scaphoid bone

Lunate bone

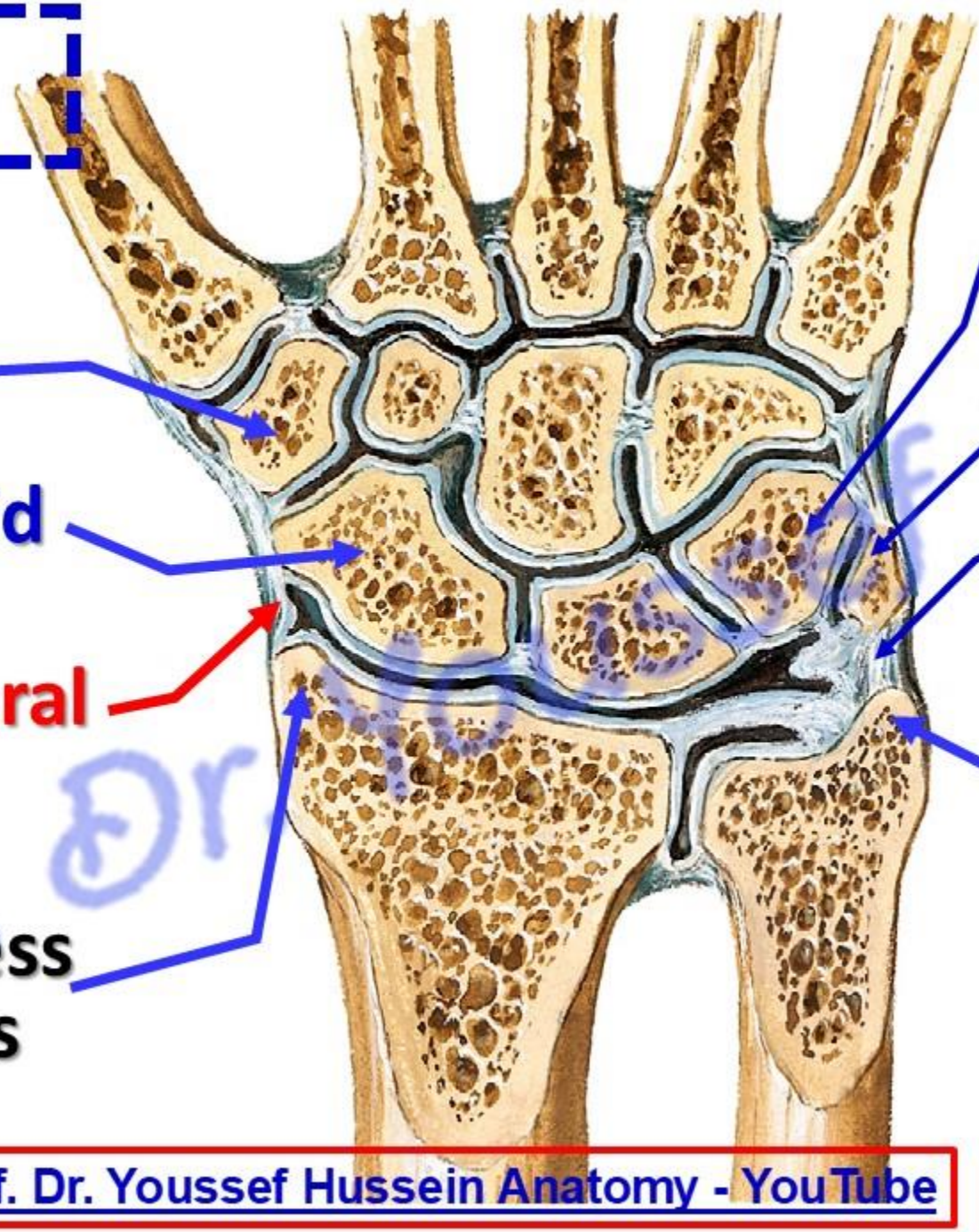
Inferior surface of Distal end of the radius

Triquetral bone

Articular disc of inferior radioulnar joint

N.B. Always remember that the ulna does not share in the wrist joint because the head is separated from the carpal bones by the articular disc of the inferior radioulnar joint.

Ligaments



Triquetral bone

Pisiform bone

Ulnar collateral ligament

Styloid process of ulna

Trapezium

Scaphoid

Radial collateral ligament

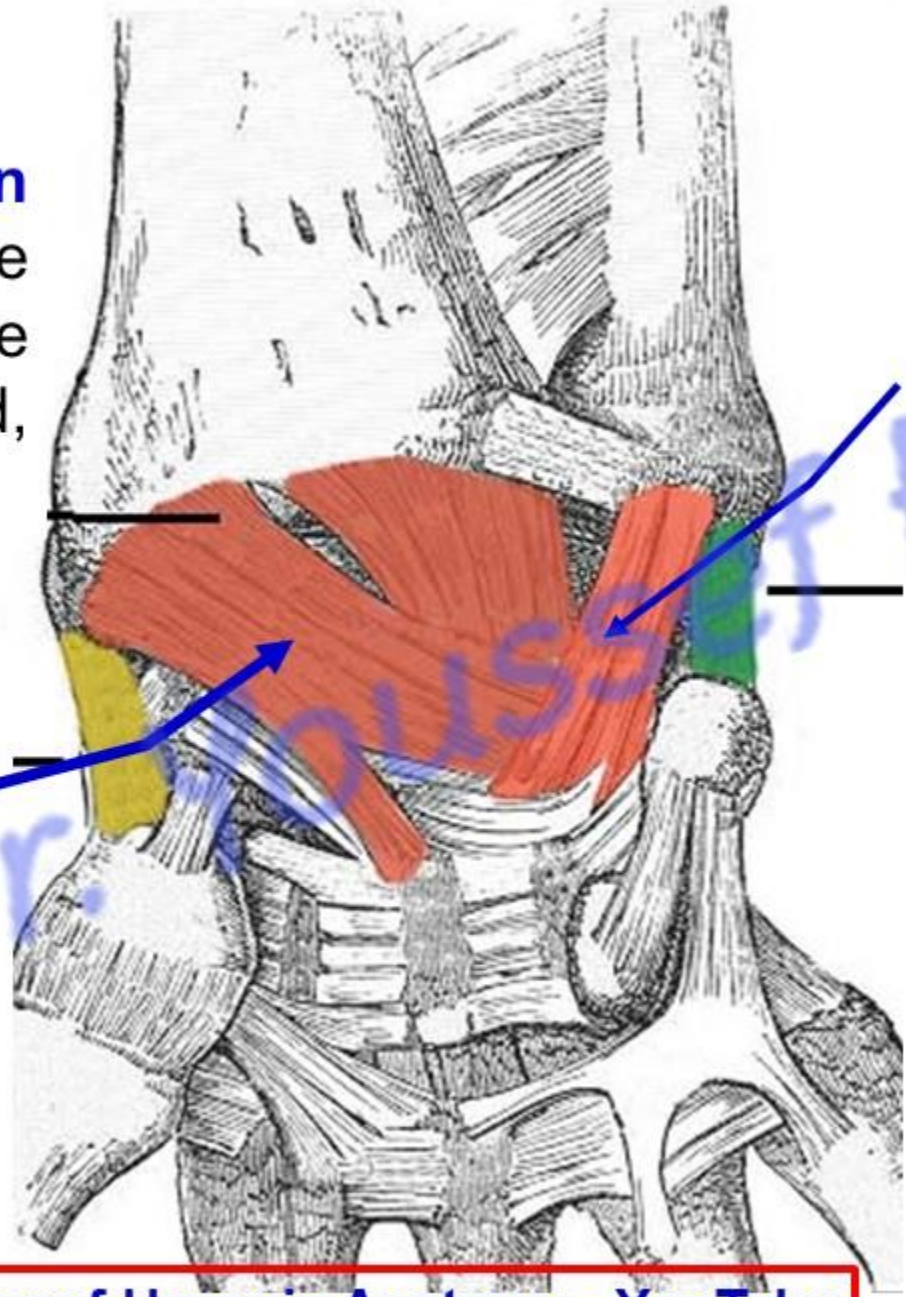
Styloid process of the radius

Dorsal radiocarpal ligament

From the **posterior margin of the distal end** of the radius to the back of the carpal bones (scaphoid, lunate and triquetral).

Palmar radiocarpal ligament

From the **anterior margin of the distal end** of the radius to the front of the carpal bones (scaphoid, lunate and triquetral).



Palmar ulnocarpal ligament

From the **anterior margin of articular disc and styloid process of the ulna** to the **front** of the carpal bones (triquetral).

** **Movements:**

1- Flexion:

- Flexors carpi radialis, flexors carpi ulnaris and palmaris bogus.
- Flexors digitorum superficialis and profundus, flexor pollicis longus.

2- Extension:

- Extensors carpi radialis longus, Extensors carpi radialis brevis, Extensor digitorum, extensor gigiti minimi and Extensor carpi ulnaris.
- Abductor pollicis longus, Extensor pollicis brevis, Extensor pollicis longus, Extensor indicis.

3- Abduction:

- Flexor carpi radialis.
- Extensors carpi radialis longus and brevis.

4- Adduction

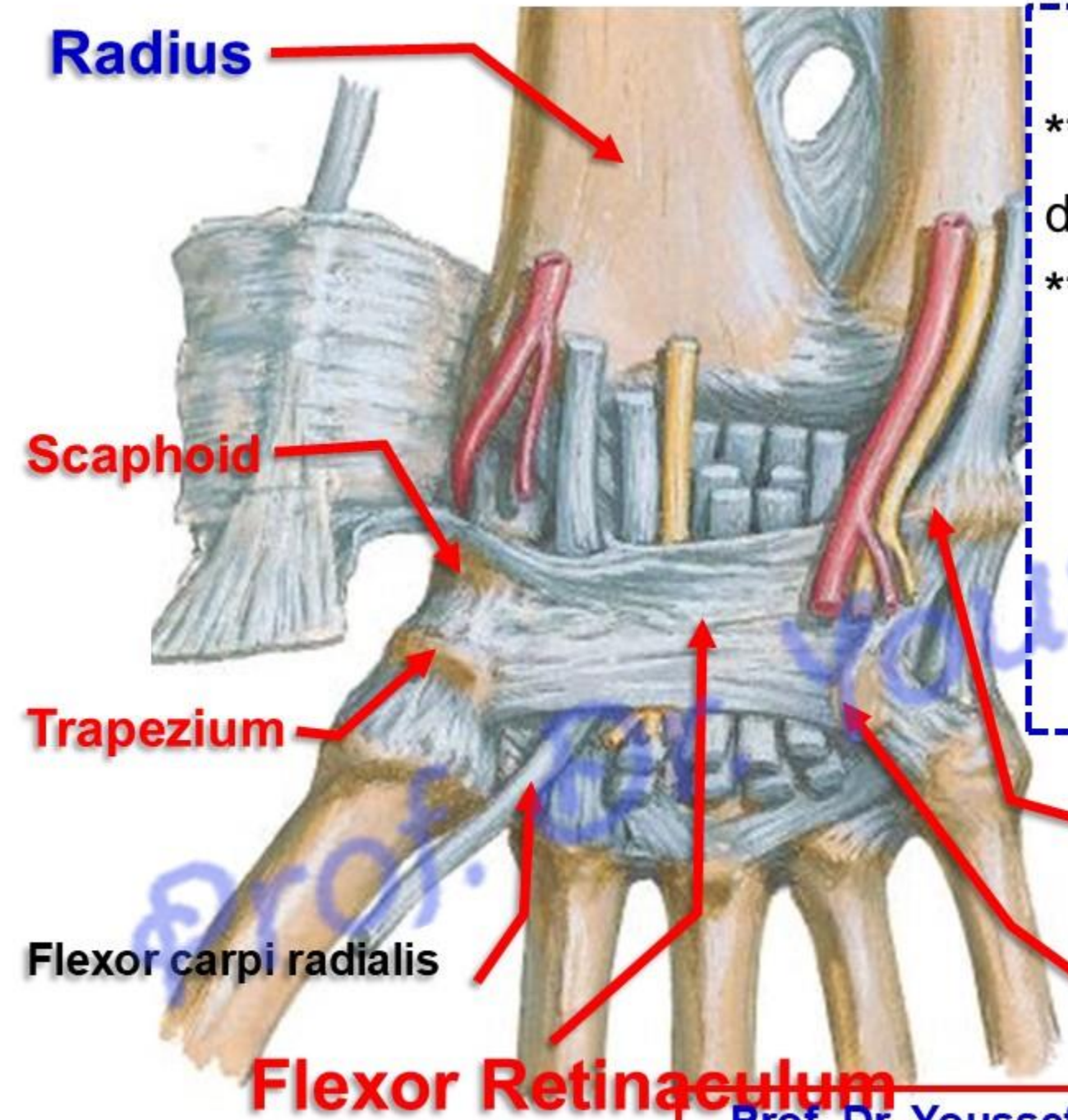
- Flexor carpi ulnaris.
- Extensor carpi ulnaris

5- Circumduction: is a combination of flexion, abduction, extension and adduction done in succession.

Abduction is limited than adduction because the styloid process of the radius is more prominent (lower) than the styloid process of ulna

- **A radial greenstick fracture** occurs when a bone bends instead of breaking completely into separate pieces, by falling on an outstretched hand.
- It looks similar to what happens when you try to break a small, "green" branch on a tree. Most occur in children younger than 10 years of age.

- **The scaphoid bone** of the hand is the most commonly fractured carpal bone, typically by falling on an outstretched hand.
- The characteristic clinical feature is pain and tenderness in the anatomical snuffbox.
- The scaphoid bone is highly susceptible to avascular necrosis following fracture because its blood supply predominantly enters through the distal pole and flows retrogradely, or backward, to the proximal pole
- Patients with a missed scaphoid fracture are likely to develop osteoarthritis of the wrist later on.



❖ Flexor Retinaculum

** It is a thick and strong fibrous band of deep fascia infront of carpal bones.

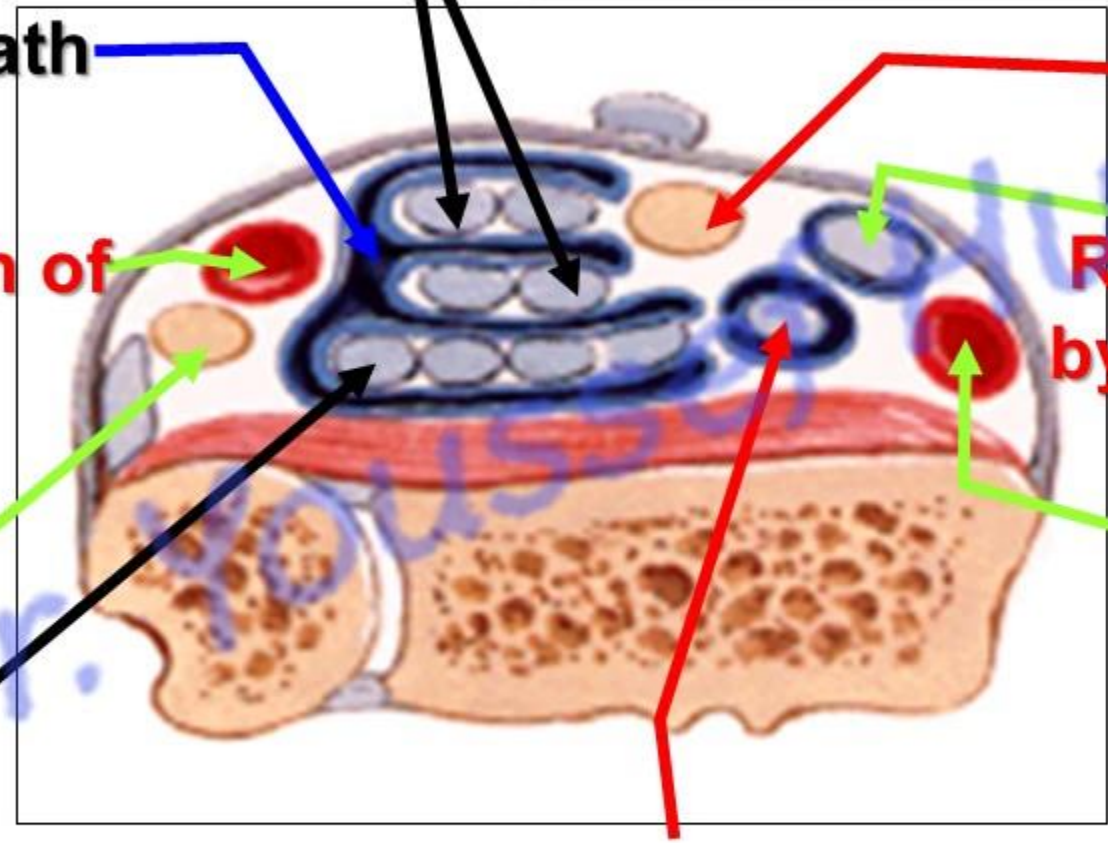
** **Attachments**;

1- Medially: pisiform and hook of hamate.

2- Laterally: scaphoid and trapezium.

- the lateral part of the retinaculum is splitted to from a special compartment for the tendon of **flexor carpi radialis**.

Structures passing deep to Flexor retinaculum



Flexor Digitorum superficialis

Common flexor sheath (Ulnar bursa)

Palmer carpal branch of ulnar artery

Anterior interosseus nerve

Flexor Digitorum Profundus

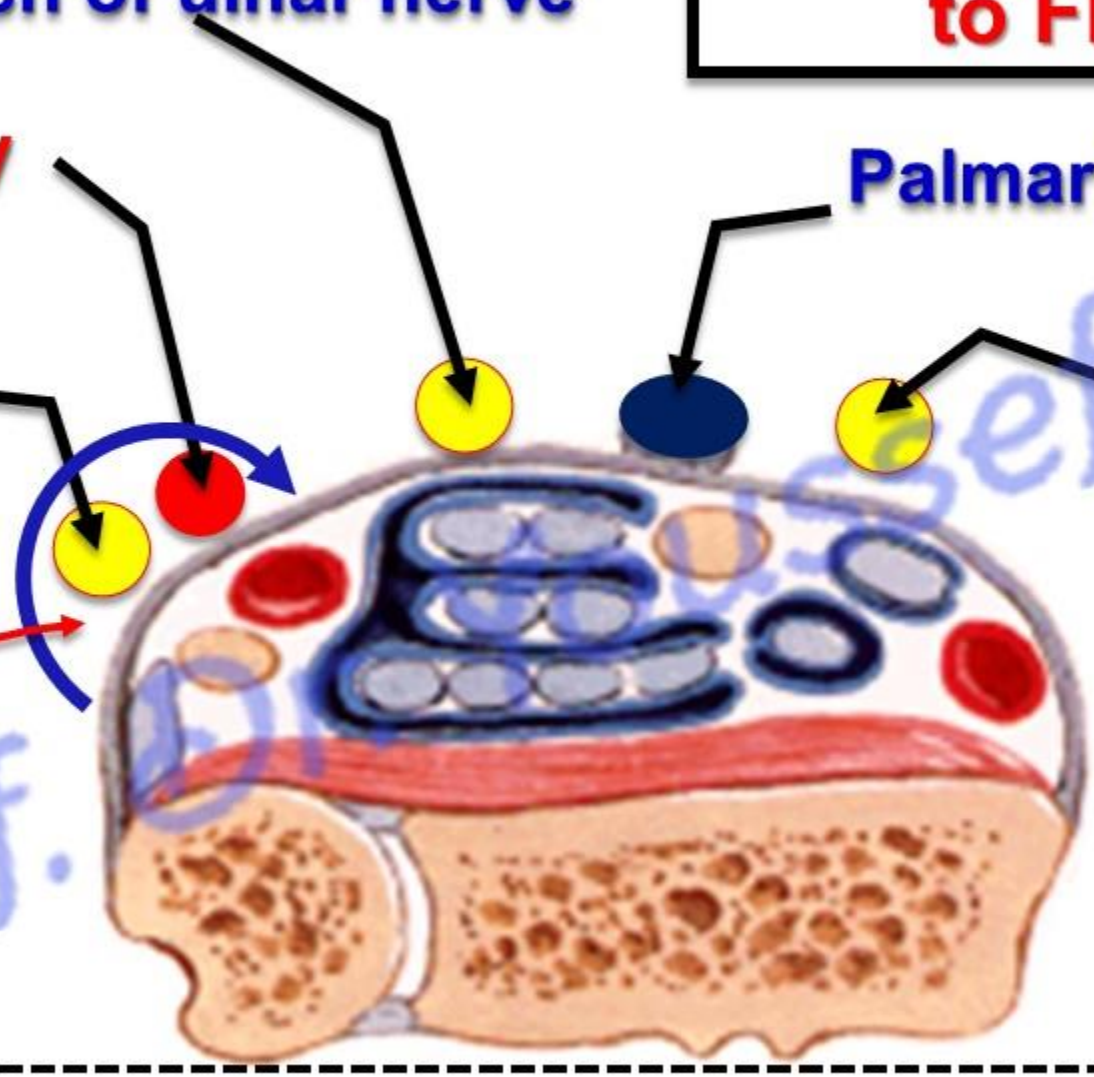
Median nerve

Flexor Carpi Radialis enclosed by synovial sheath

Palmer carpal branch of radial artery

Flexor pollicis longus enclosed by synovial sheath (Radial bursa)

Structures passing superficial to Flexor retinaculum



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- The ulnar canal (canal of Guyon) for passage of ulnar nerve and artery

❖ Synovial Sheaths Of the Flexor Tendons

** **Definition:** They are tubes of synovial membrane surrounding flexor tendons to facilitate the movement.

❖ Common flexor synovial sheath (ulnar bursa)

- It surrounds tendons of flexors digitorum superficialis & profundus.
- **Begins** one inch above flexor retinaculum.
- **Ends** in the middle of the palm. Only its medial part is continuous with the digital synovial sheath of the **little finger** till its distal phalanx.

❖ Synovial sheath of flexor pollicis longus (radial bursa)

- **Begins** one inch above flexor retinaculum extending around the tendon down to its insertion.

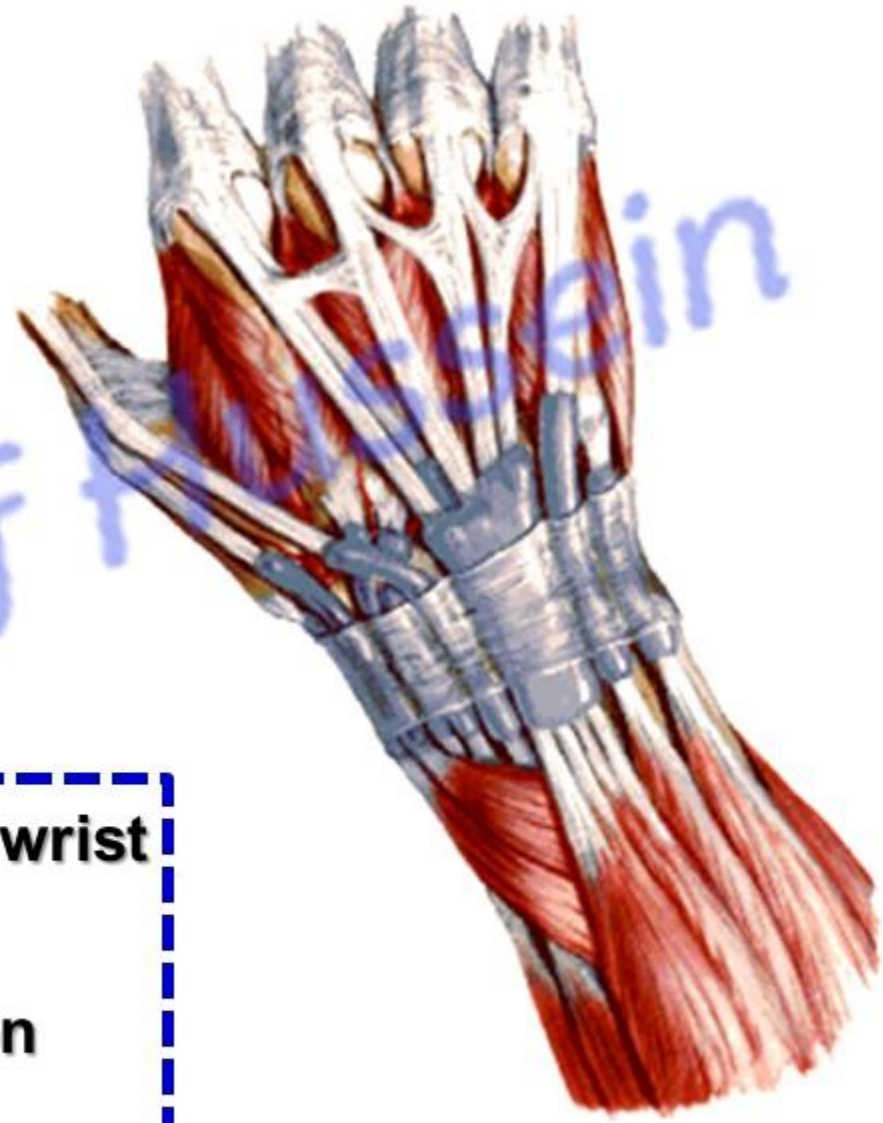
❖ Synovial Sheaths of the Digits

- Flexor tendons are surrounded by synovial sheaths in each finger.
- Sheath of little finger is continuous with common flexor synovial sheath.
- The sheath of the index, middle and ring fingers do not communicate with the common flexor synovial sheath.

CARPAL TUNNEL

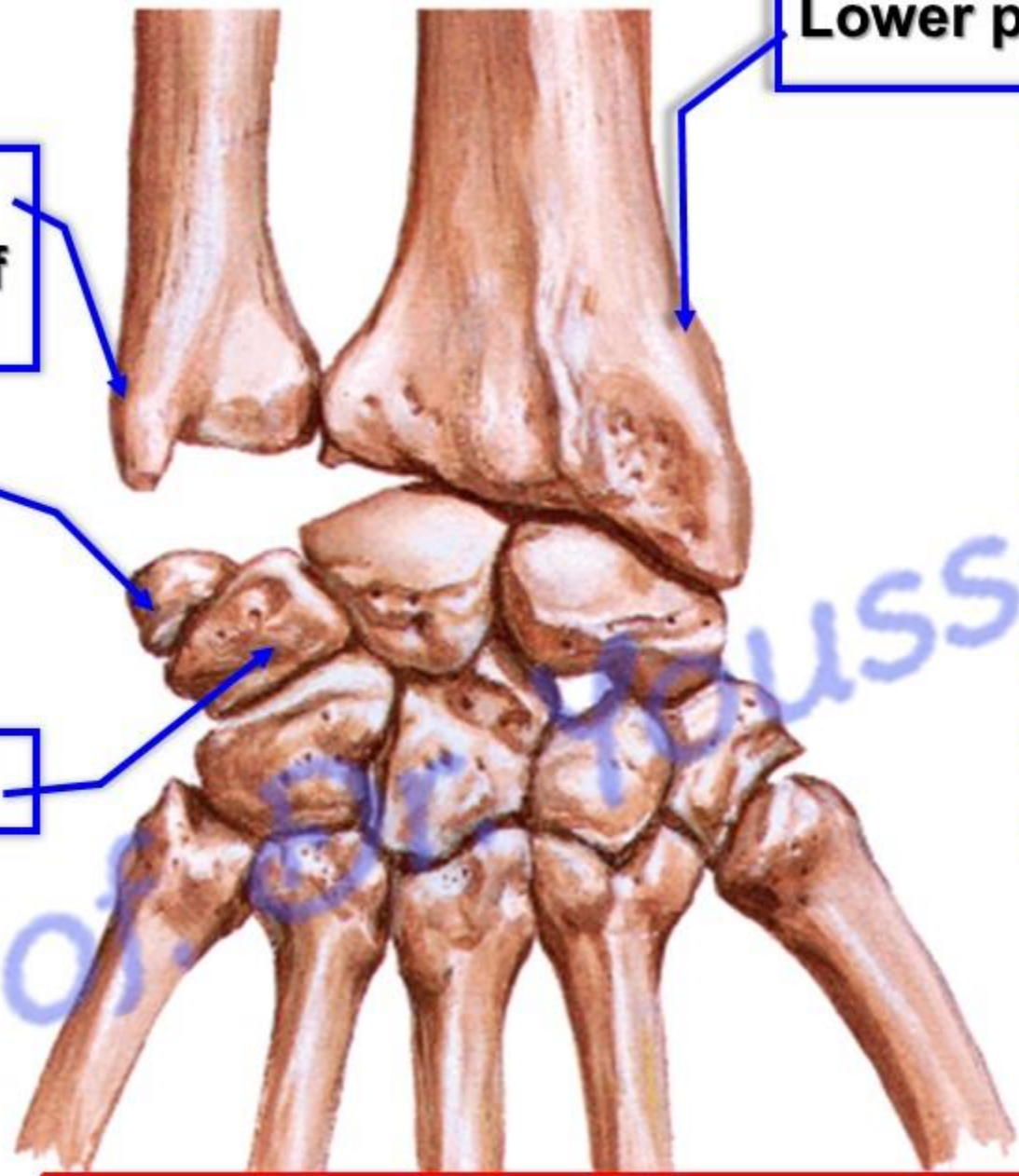
- **Carpal Tunnel:** is a tunnel formed between the carpal bone concavity and flexor retinaculum.
- **Contains**: Tendons of flexor muscles and Median nerve
  - **Carpal tunnel syndrome**
    - Compression of Median nerve in the tunnel
    - **Causes**
    - Inflammation of tendons → swelling
    - Arthritis → fibrosis of the ligament
    - Pregnancy → edema
    - **Symptoms**
    - **Numbness, tingling, burning and pain** of the palmar aspect of the **lateral three and half fingers** and their nail beds.
    - **Wasting of the thenar muscles except adductor pollicis** and weakness of thumb movement (Difficult to perform fine movement as buttoning the clothes)
    - Night time symptoms is very common
- **NB;** Lateral 2/3 of the palm of the hand is escaped because the palmar cutaneous branch of the median nerve passes superficial .

Extensor Retinaculum



** Thickened band of deep fascia on the back of the wrist and carpal bones.

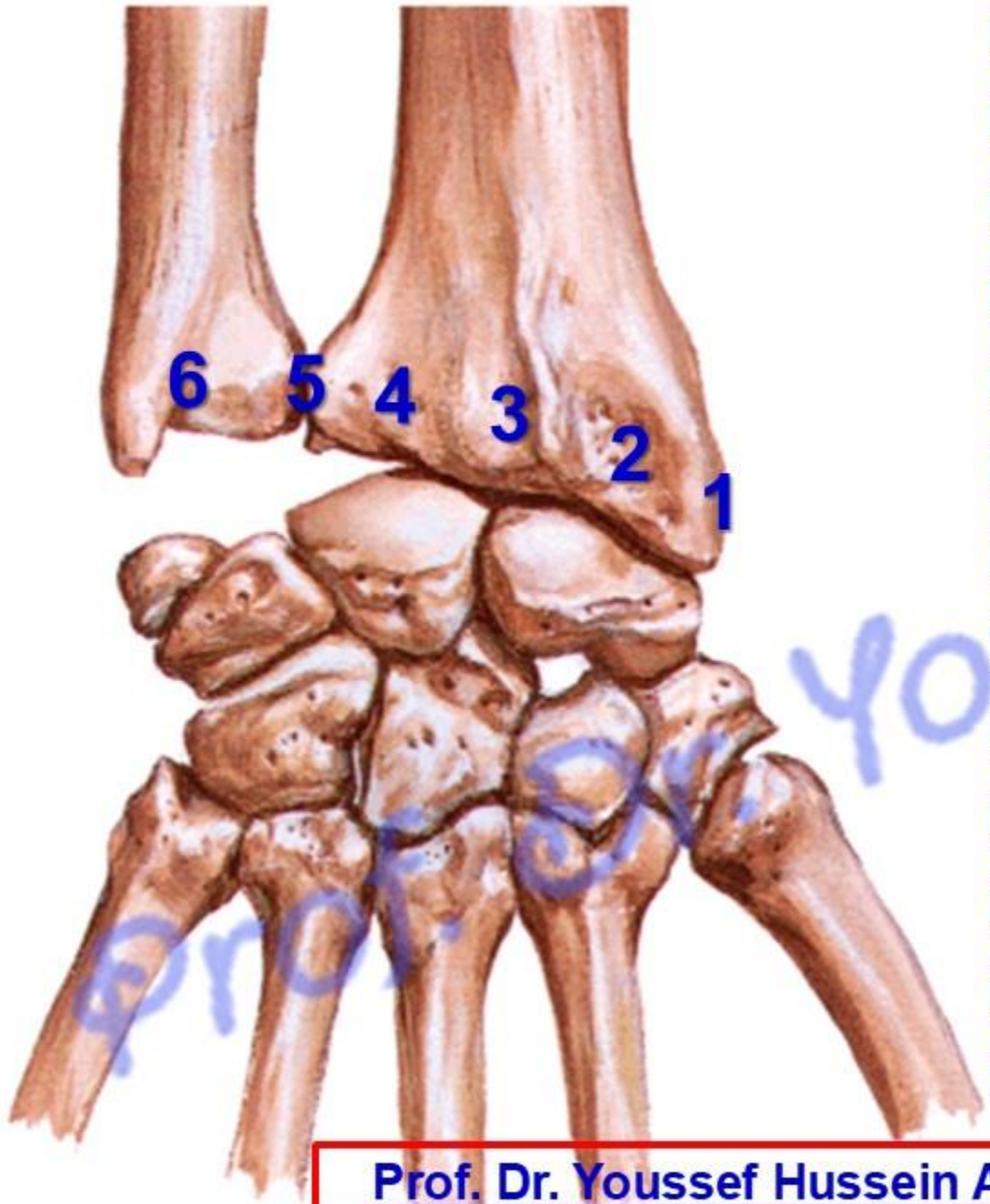
** Function: it keeps the extensor tendons in position during the actions of different muscles.



** Attachments of Extensor Retinaculum

1- **Laterally**, to the lower part of the anterior border of the radius.

2- **Medially**, to the styloid process of ulna, triquetral, and pisiform.



❖ **5 septa spring from deep surface of the retinaculum to distal ends of radius and ulna forming 6 compartments.**

1- Groove on the lateral side of the styloid process of the radius.

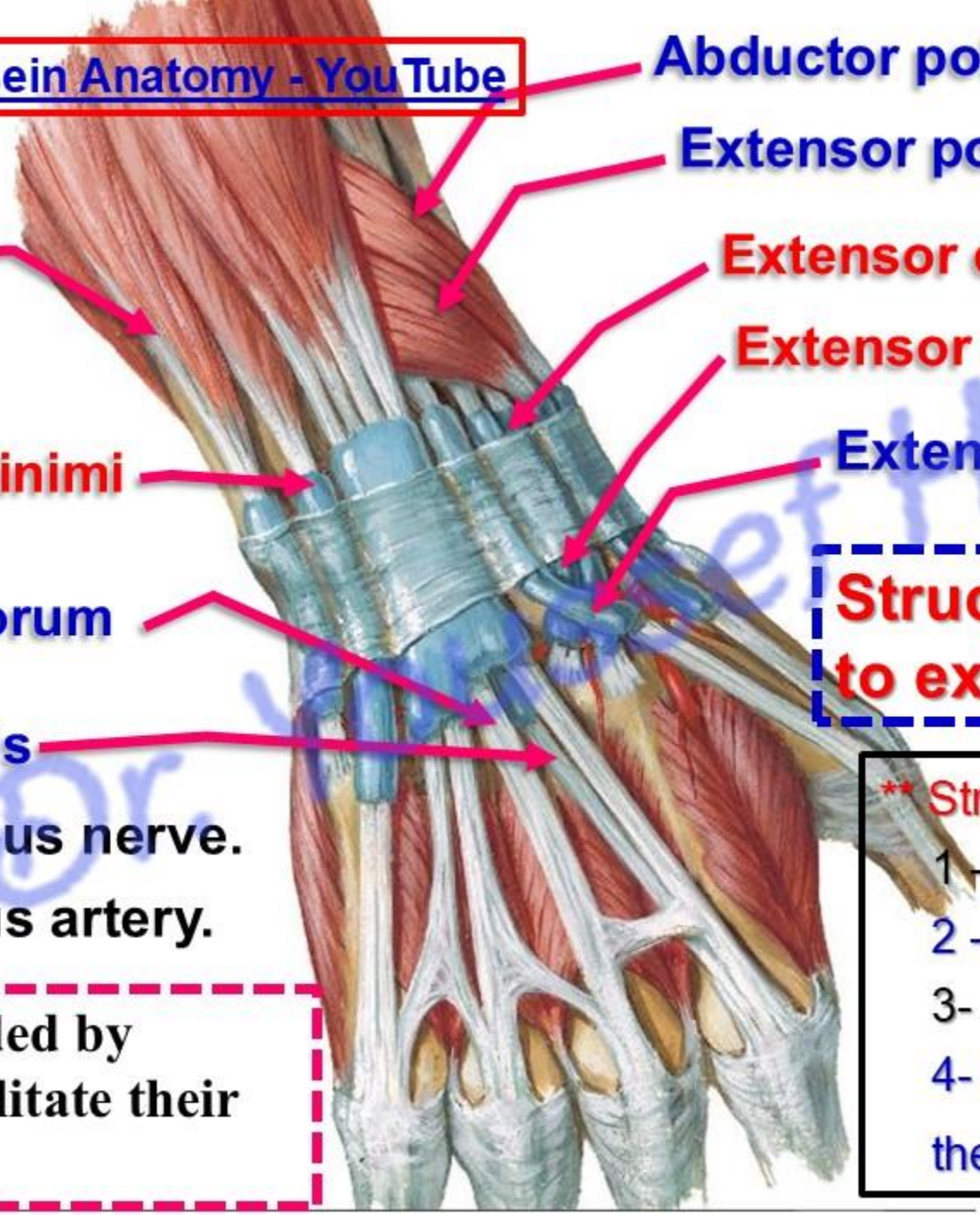
2- On the back of styloid process of radius.

3- Narrow oblique groove medial to the dorsal tubercle of the radius.

4- Wide shallow groove on the back the radius

5- Between the radius and head of the ulna.

6- Wide shallow groove on back of ulna.



1 Abductor pollicis longus

Extensor pollicis brevis

2 Extensor carpi radialis longus

Extensor carpi radialis brevis

3 Extensor pollicis longus

4 Extensor digitorum

Extensor indicis

5 Extensor digiti minimi

6 Extensor carpi ulnaris

Posterior intorosseous nerve.

Anterior interosseous artery.

Structures passing deep to extensor retinaculum

** Structures passing superficial

1 - Cephalic vein.

2 - Basilic vein.

3- Radial nerve.

4- Dorsal cutaneous branch of the ulnar nerve.

- Tendons are surrounded by **synovial sheaths** to facilitate their movements

Anatomical snuff box

** **Definition:** depression on lateral side of wrist which is easily seen when thumb is abducted and extended.

** **Boundaries**;

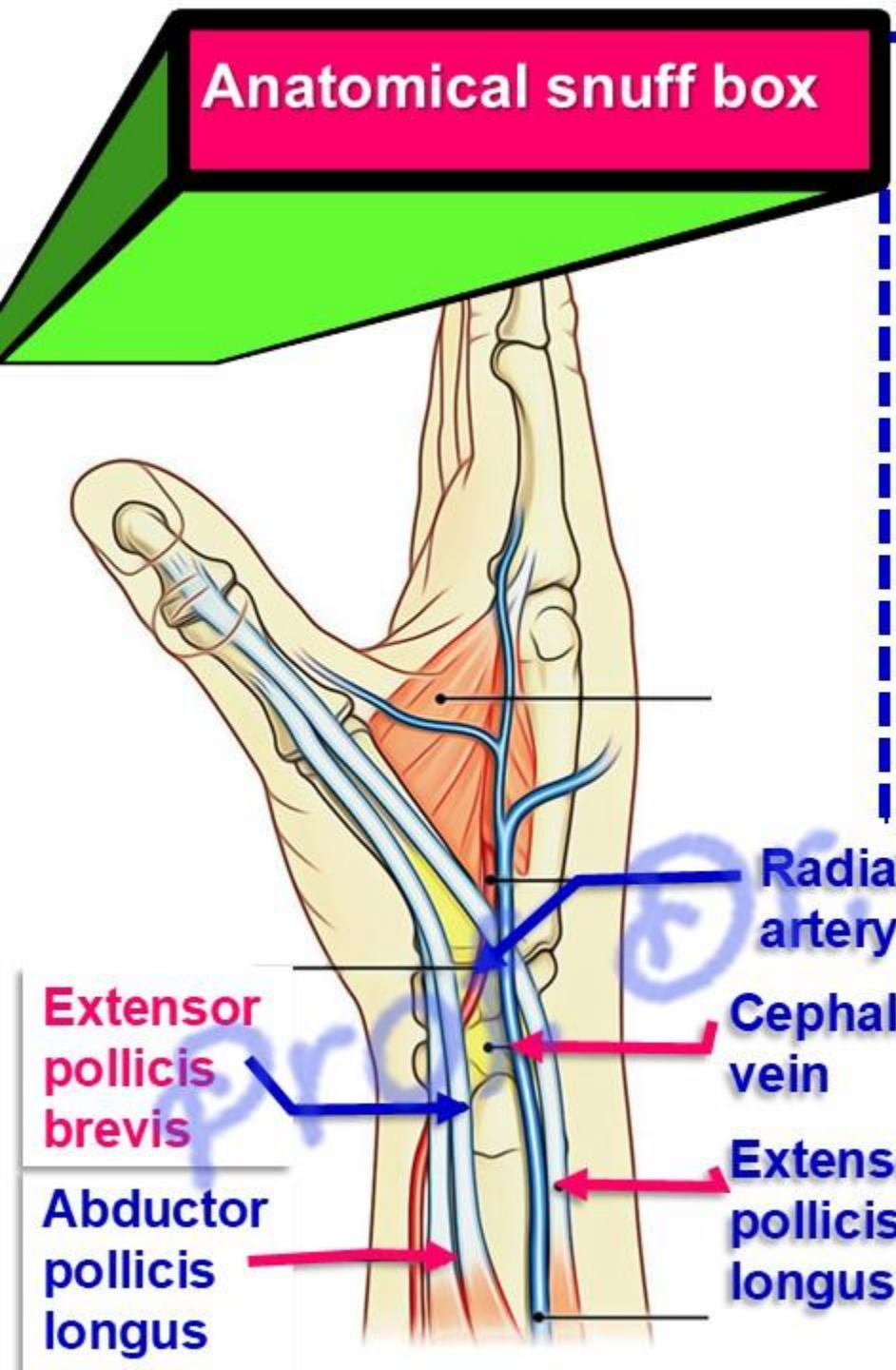
1- Lateral: abductor pollicis longus & extensor pollicis brevis (The first).

2- Medial: extensor pollicis longus (The third).

** **Floor;** extensor carpi radialis longus , brevis (The second) Scaphoid (proximal) and Trapezium (distal).

** **Contents**;

1- Cephalic **Vein**. 2- Radial **Artery**. 3- Radial **Nerve**.



https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd_cn0PQ

Thank you

Questions

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