

Joints and muscles of the hand

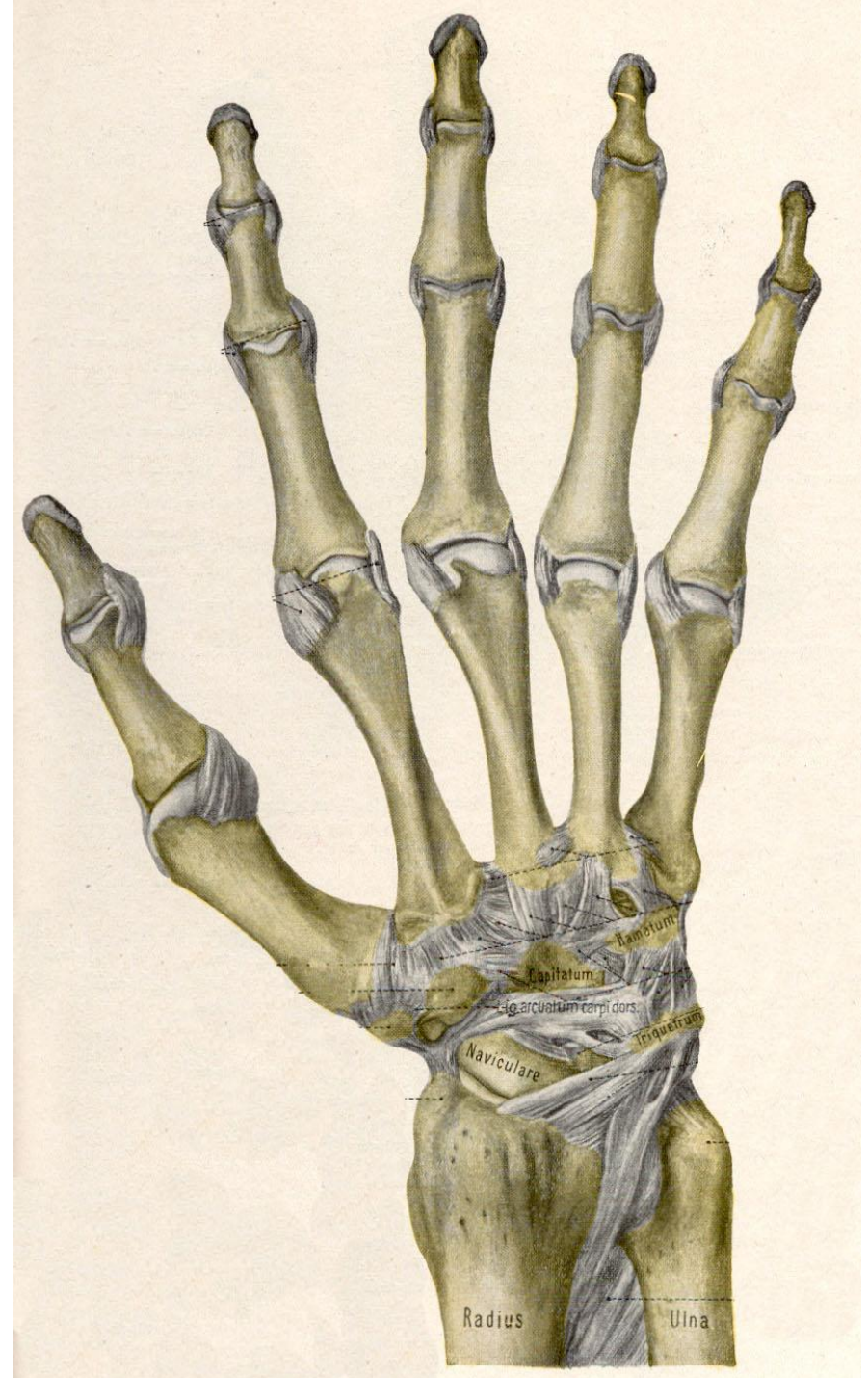
Joints of the hand

interphalangeal joints

metacarpophalangeal joints

carpometacarpal joints

carpal joints

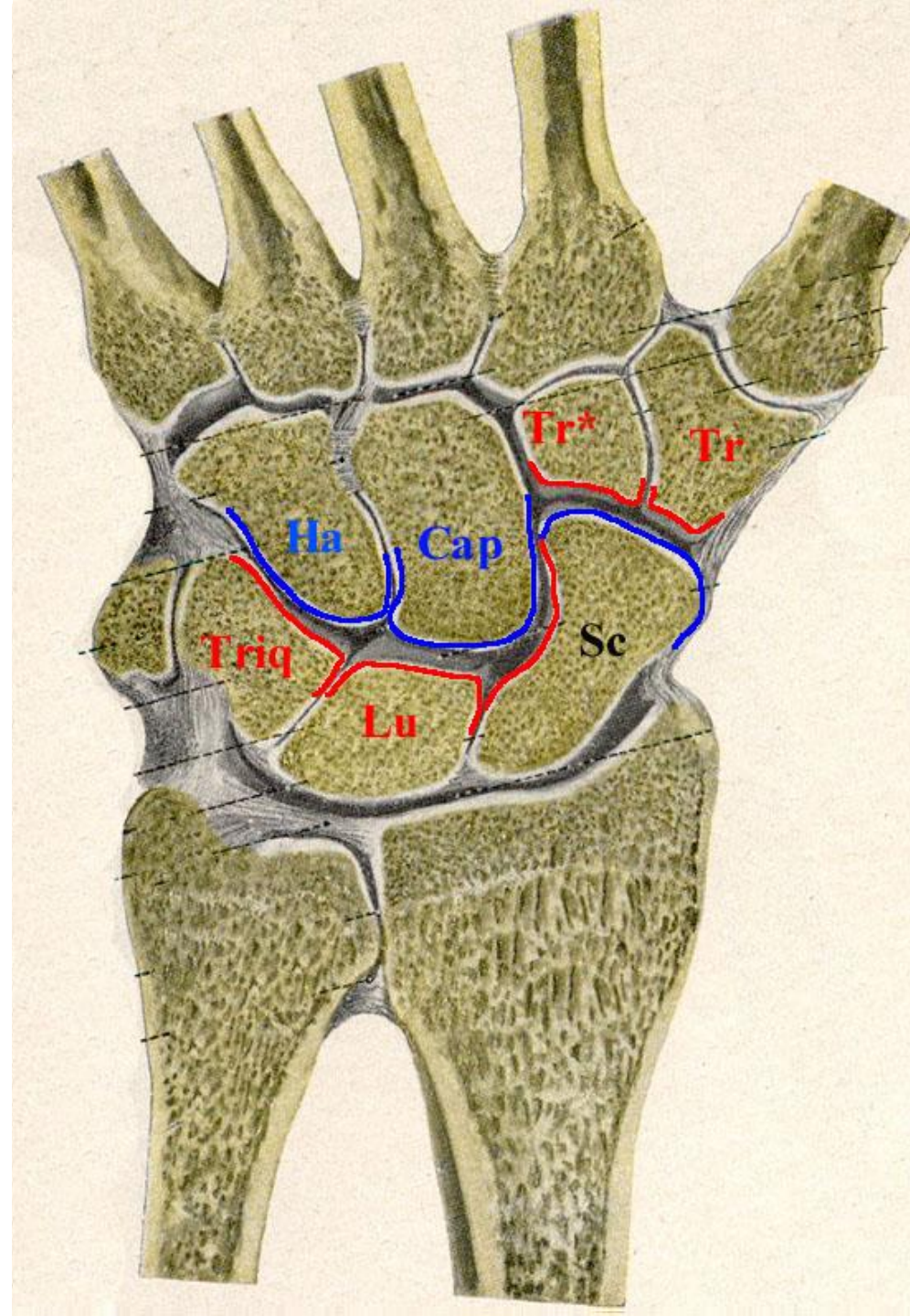


Carpal joints - articulating surfaces

articulatio intercarpea

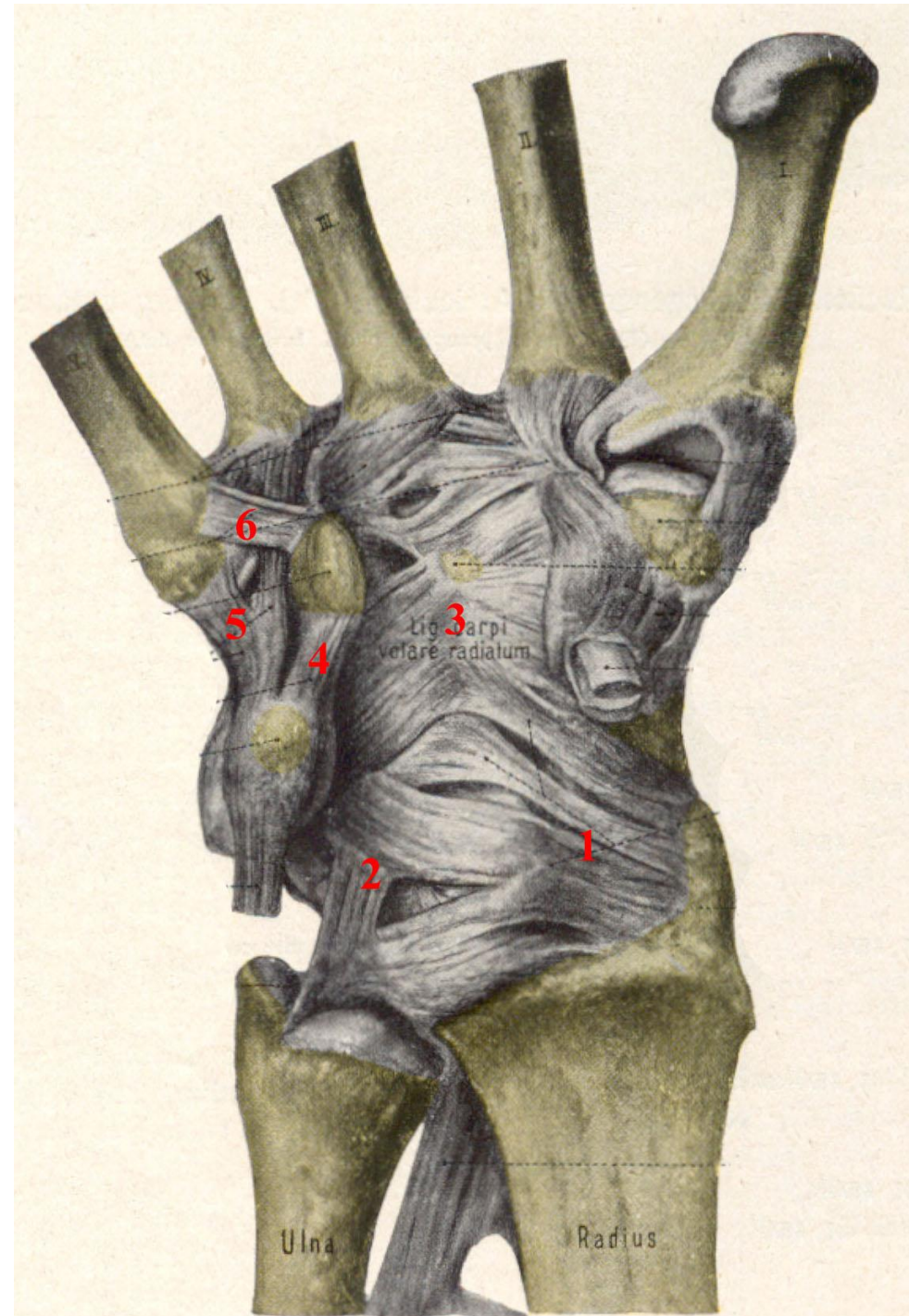
articulatio ossis pisiformis

articulatio radiocarpea



Carpal joints - Capsule and ligaments volar aspect

1. palmar radiocarpal lig.
2. palmare ulnocarpal lig.
3. radiate carpal lig.
4. pisohamate lig.
5. pisometacarpal lig.
6. hamatometacarpal lig.



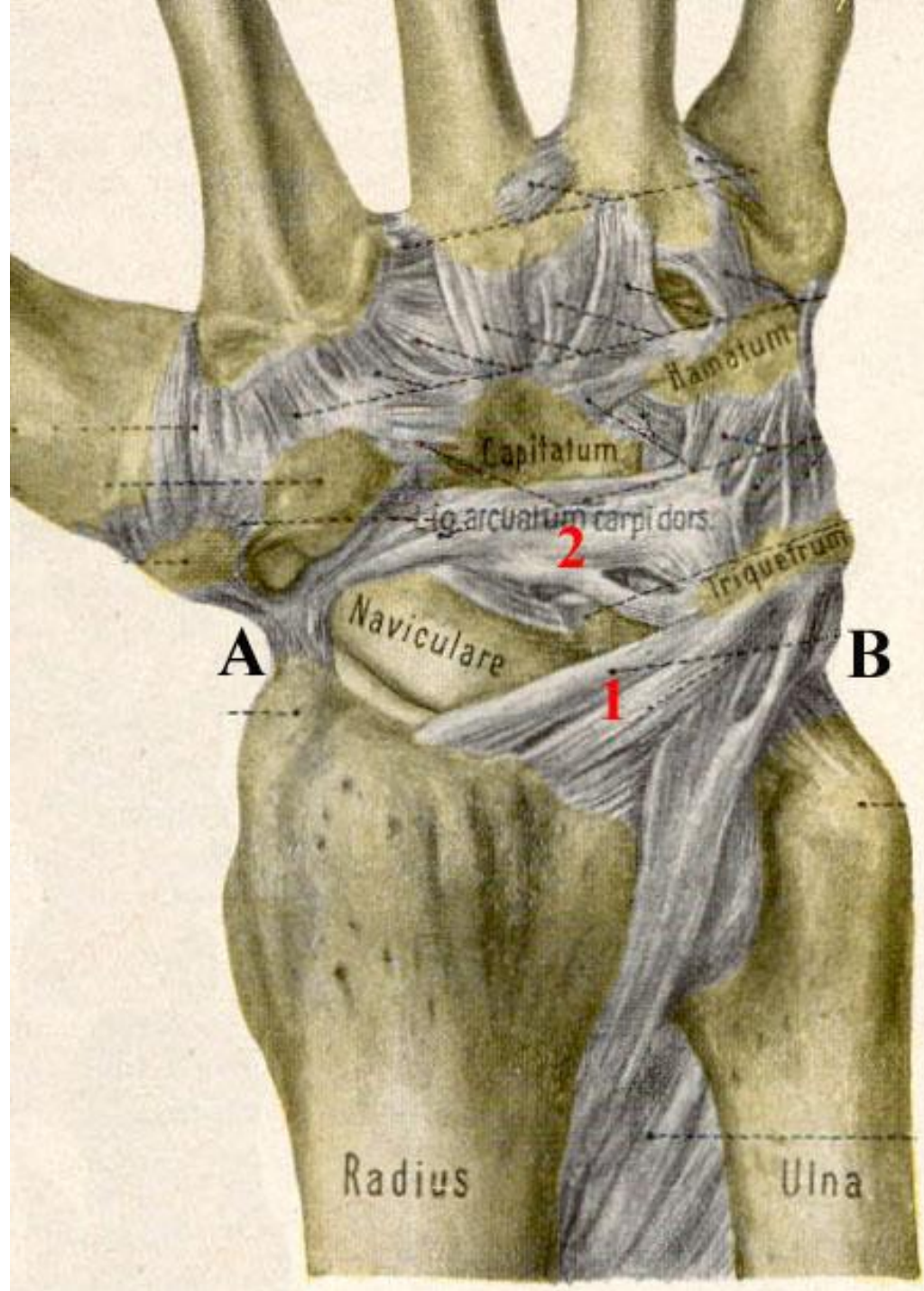
Carpal joints - Capsule and ligaments Dorsal aspect

1. dorsal radiocarpal lig.

2. dorsal arcuate lig.
(lig. arcuatum carpi dorsale)

A. radial collateral carpal lig.

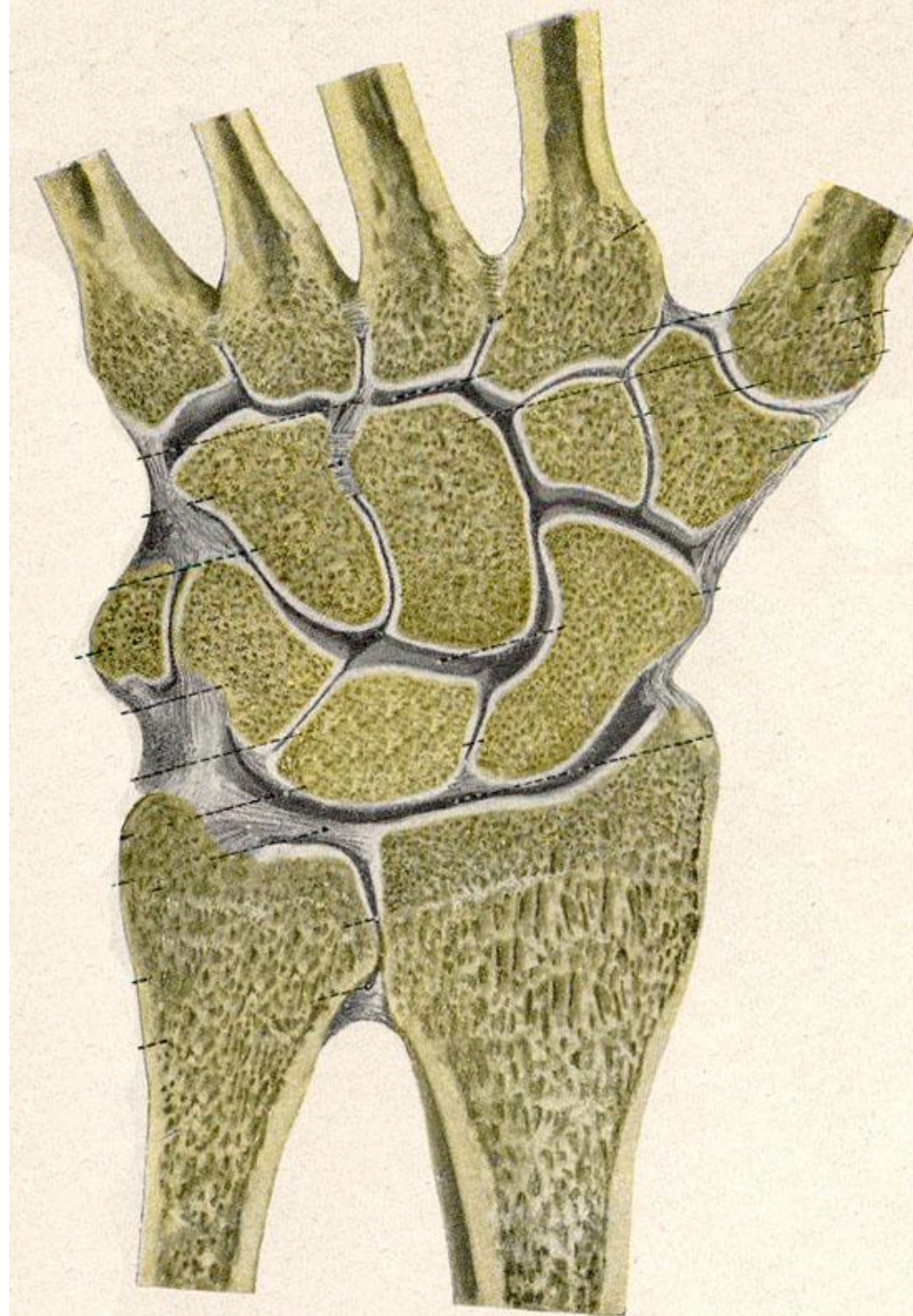
B. Ulnar collateral carpal lig.



Carpal joints- articulating surfaces

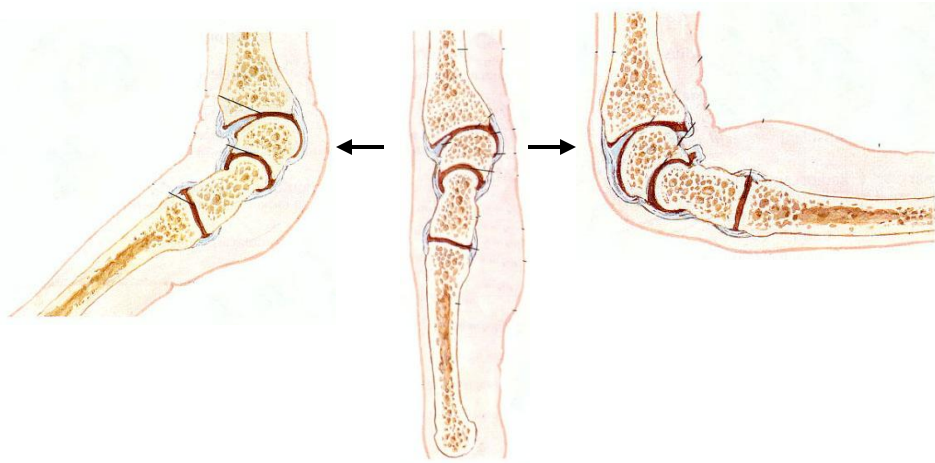
Distal - ellipsoid

Proximal - ellipsoid



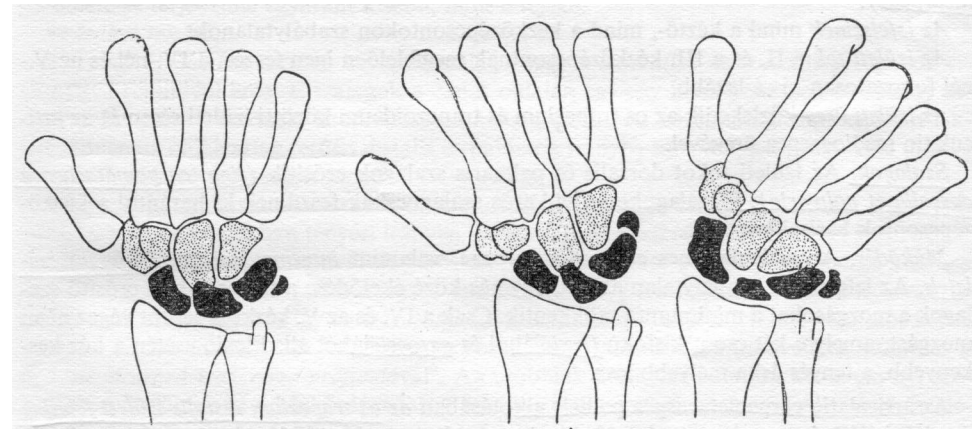
Carpal joints - movements

Dorsal- and palmarflexion



(lateral aspect)

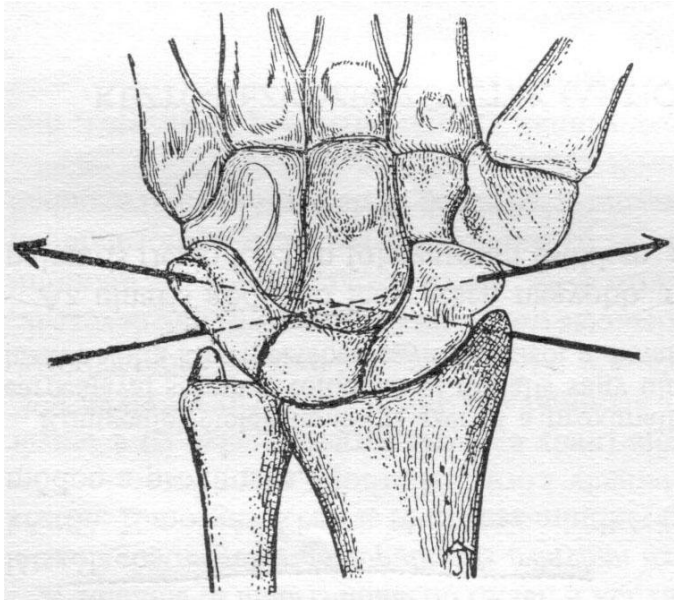
Radial- and ulnar abduction



(right hand, dorsal aspect)

Carpal joints - movements

Palmar- and dorsalflexion

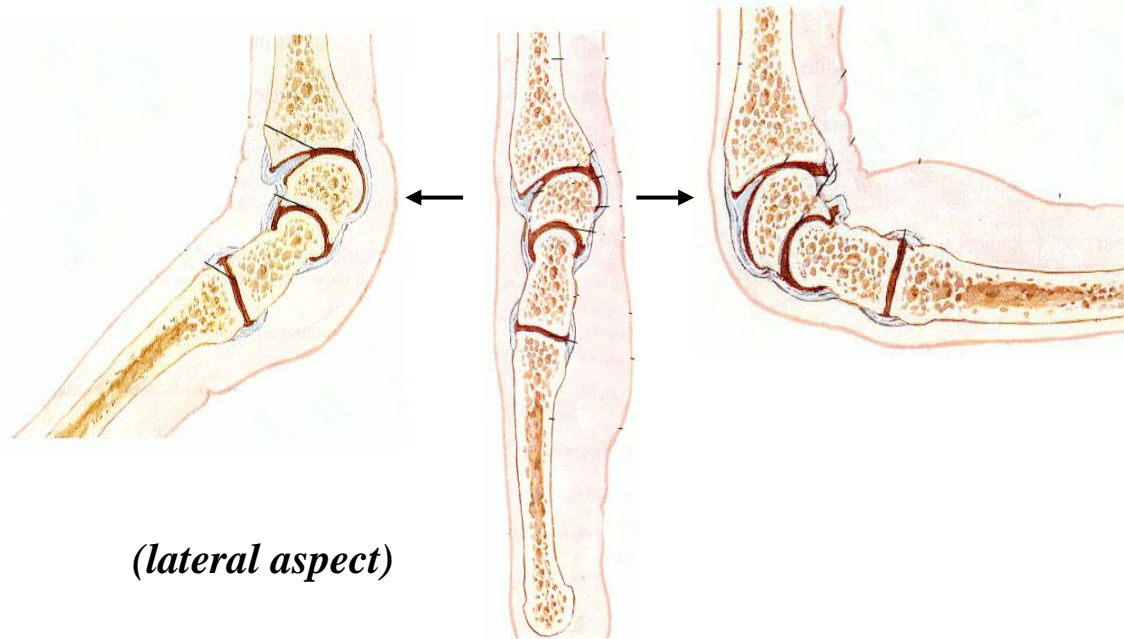


Right hand, volar aspect

**Distal axis -
Dorsalflexion**

**Proximal axis -
Palmarflexion**

transversal axis

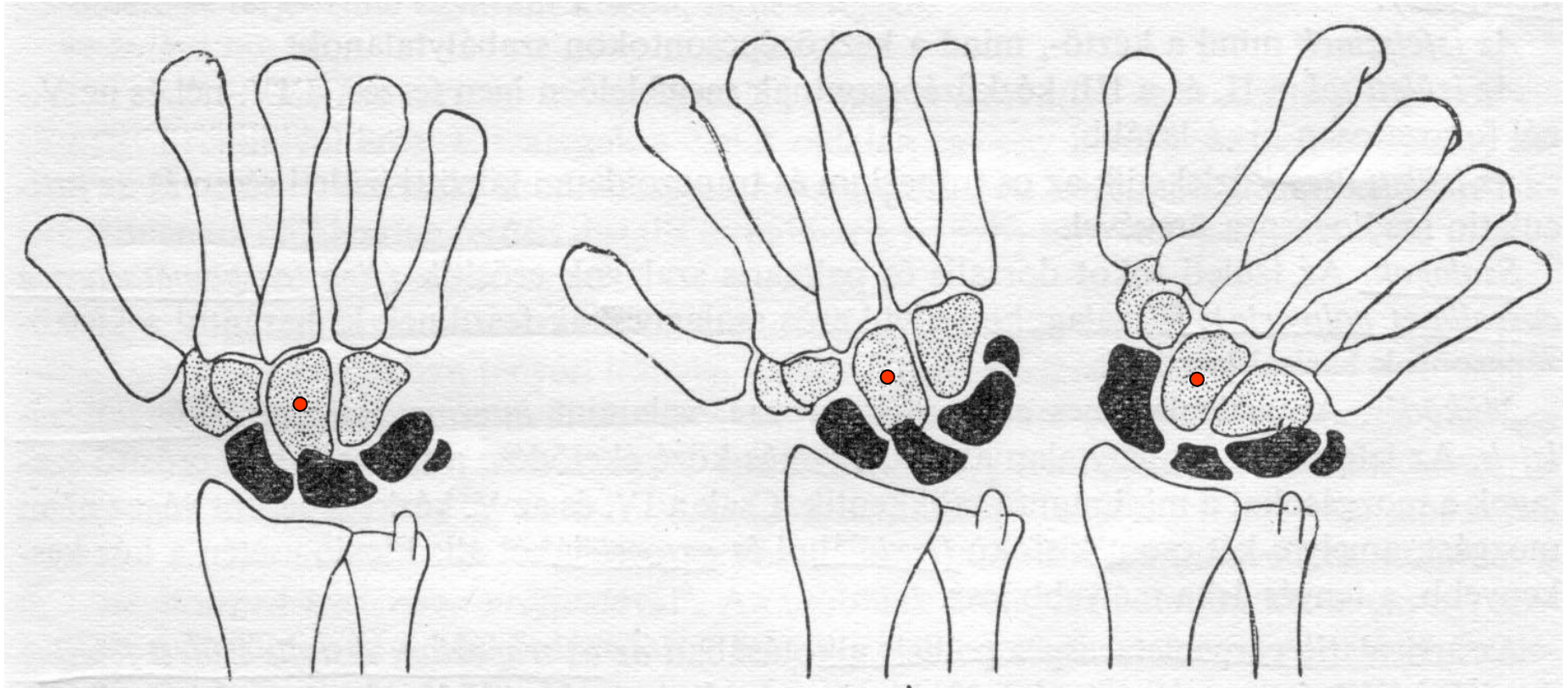


(lateral aspect)

Carpal joints - movements

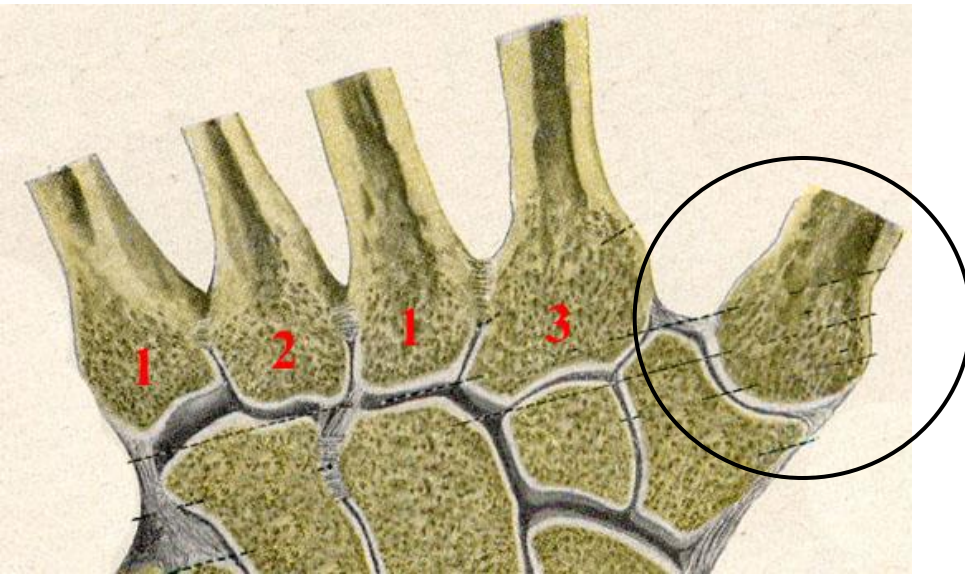
Radial- and ulnar abduction

- axis: dorsopalmar, through the head of capitate
- ulnar abduction > radial abduction
- abduction is limited during palmar flexion



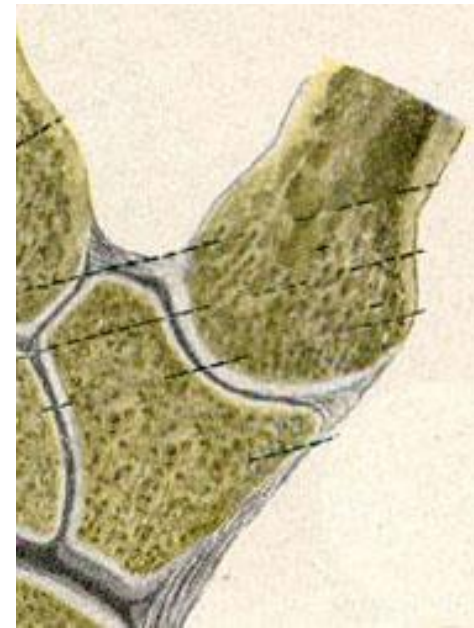
Carpometacarpal joints

Carpometacarpal joints II-V.



- amphiarthroses (IV and V looser)
- palmar, dorsal and interosseal carpometacarpal ligaments

Carpometacarpal joint of the thumb



- saddle joint
- loose capsule, no ligaments
- radioulnar axis: opposition - reposition
- dorsopalmar axis: abduction - adduction

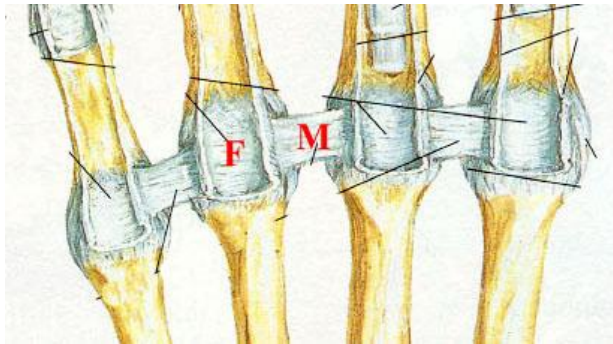
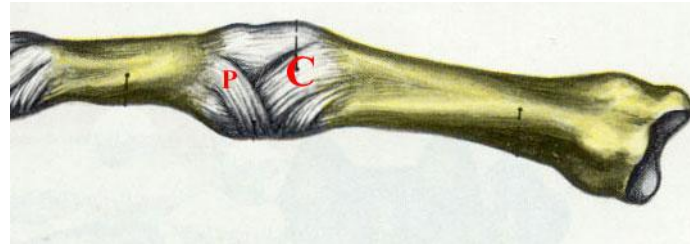
Metacarpophalangeal joints

Metacarpophalangeal joint
of the thumb

- hinge joint

Metacarpophalangeal joints II-V.

- convexity: round, radioulnar cut, wide on palmar side
- concavity: oval, smaller than the head

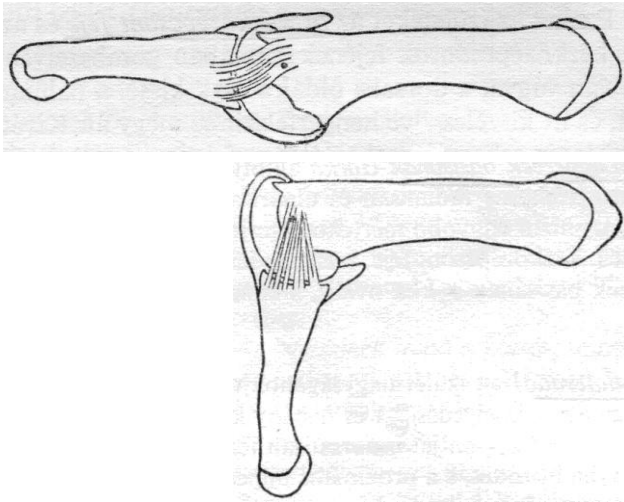


C: collateral ligament P: palmar ligament
M: deep transversal metacarpal ligaments
F: palmar plate (lamina fibrocartilaginea palmaris)

Metacarpophalangeal joints - movements

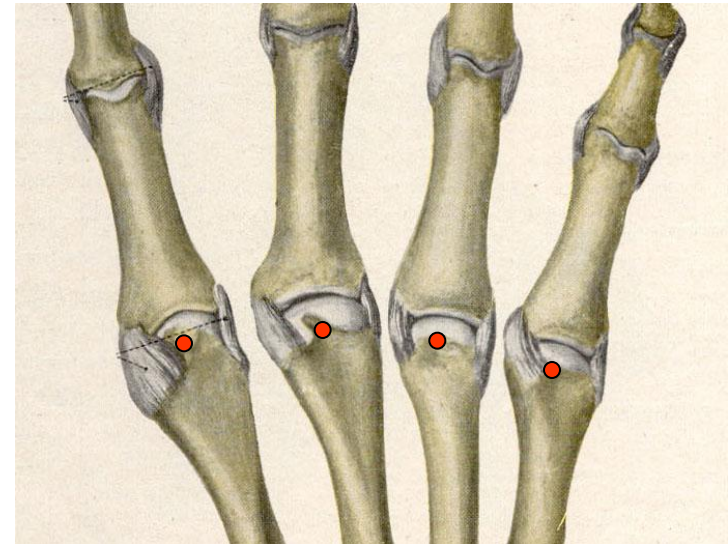
Flexion - Extension

- transversal axis through the head
- hyperextension
- collateral ligaments tense at flexion

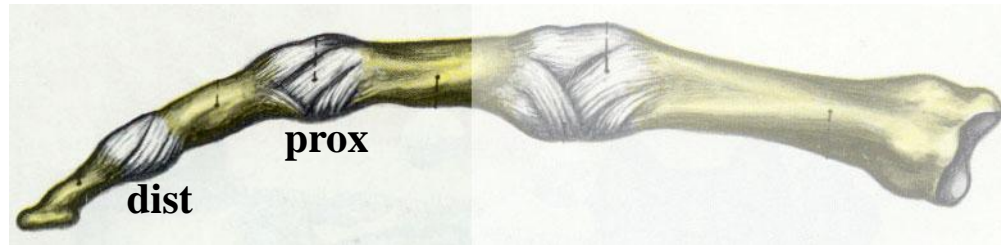


Abduction - Adduction

- dorsopalmar axis through head
- only extension

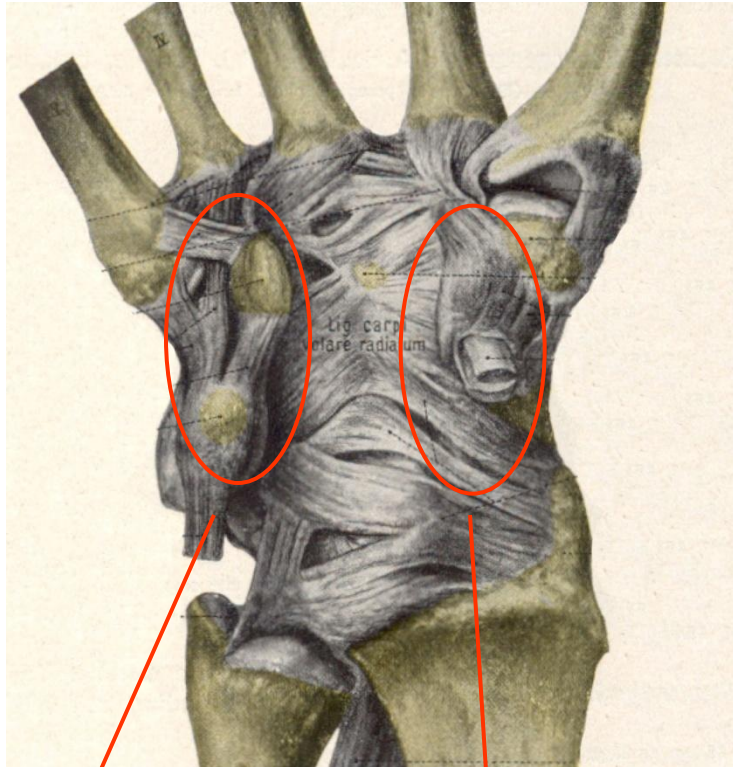


Interphalangeal joints



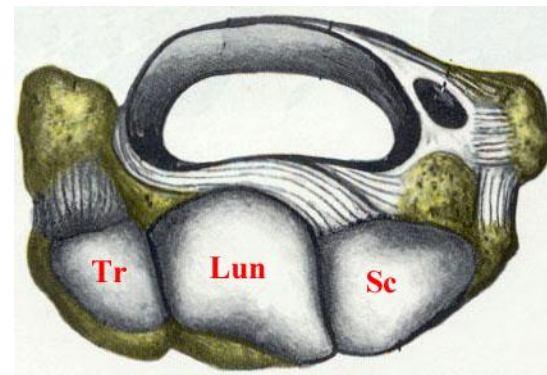
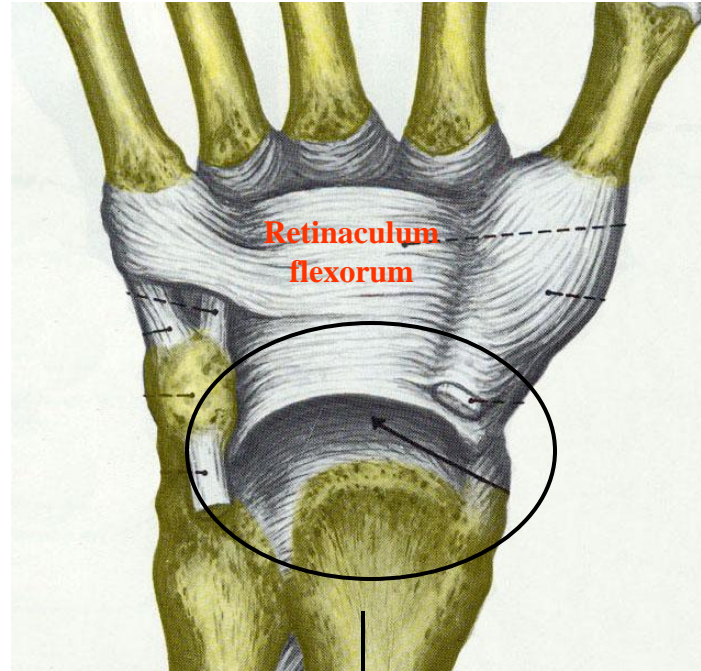
- **ligg. collateralia et palmaria, palmar plate (lamina fibrocartilaginea palmaris)**
- **hinge joints, transversal axis**
- **flexion and extension with tense collateral ligaments**

Carpal canal (carpal tunnel, canalis carpi)



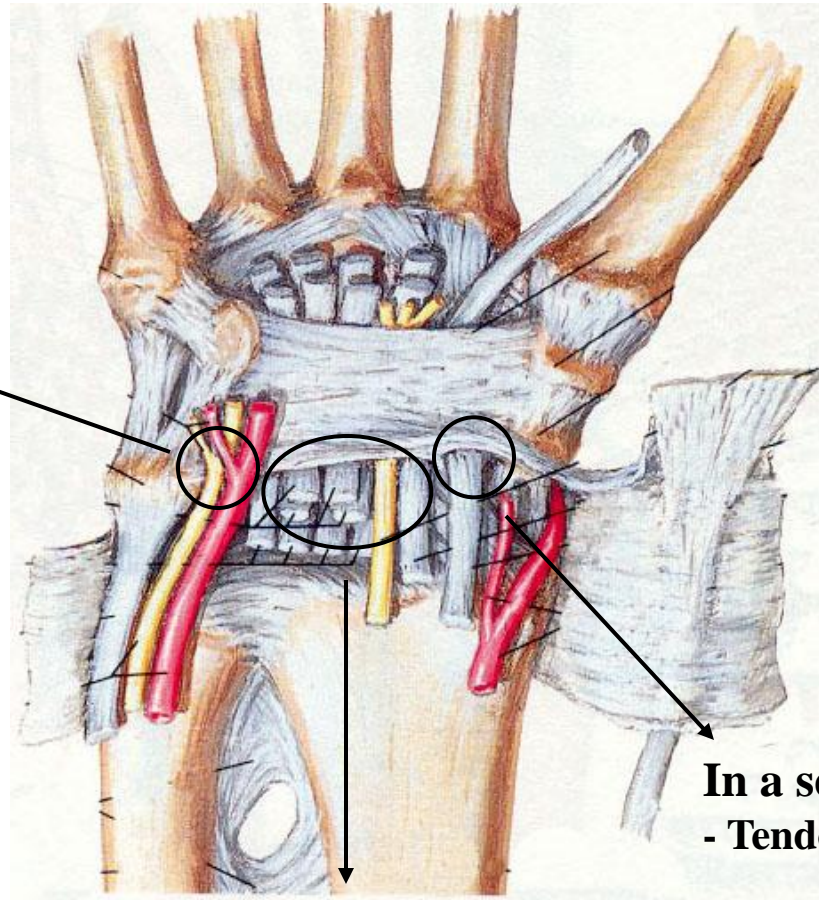
Ulnar carpal eminence
(pisiform bone and hamulus of hamate)

Radial carpal eminence
(tubercles of trapezium and trapezoid bones)



Carpal canal

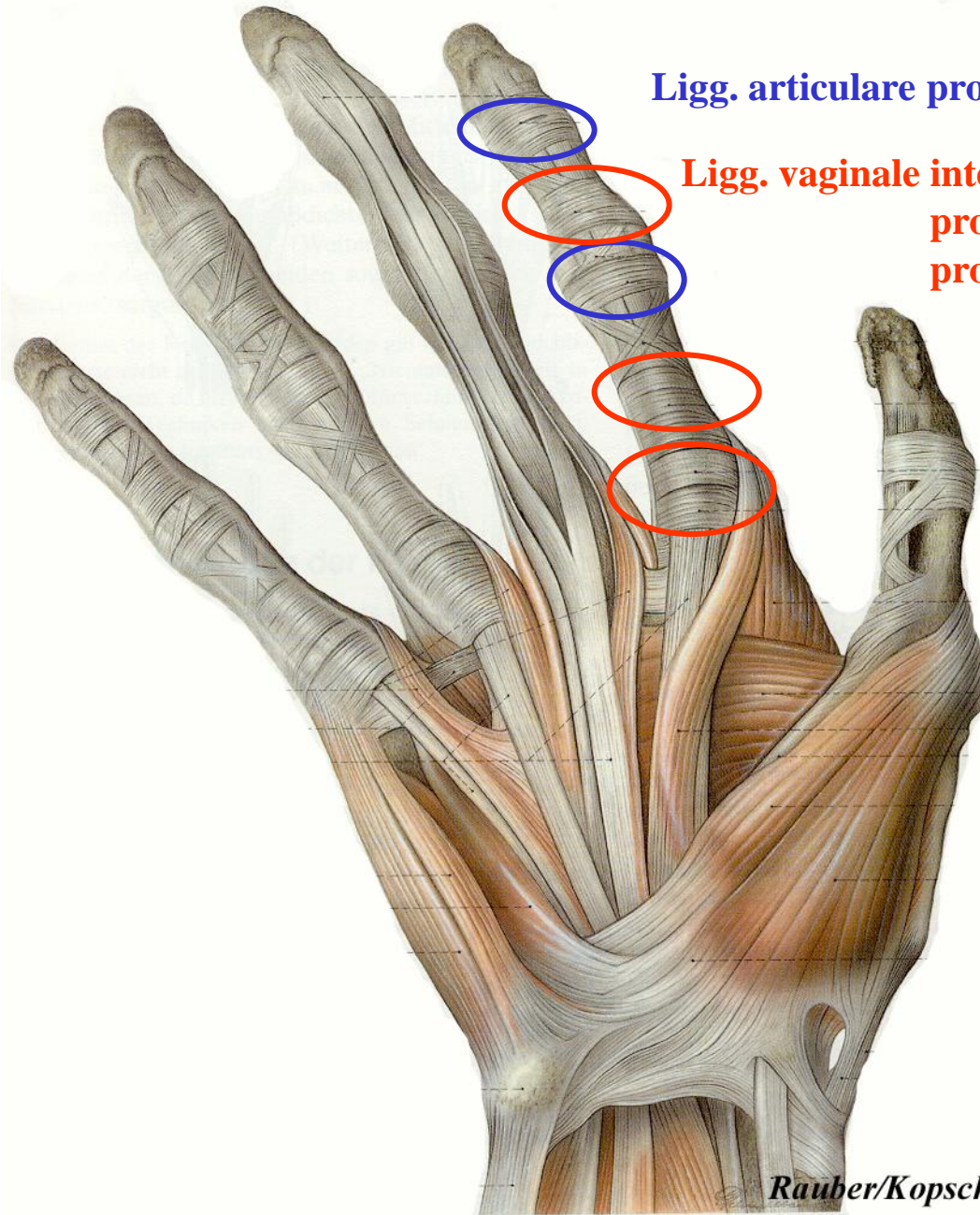
**Between flexor retinaculum
and volar carpal lig.
(Guyon-canal)**
- ulnar artery and nerve



In a separate space
- Tendon of m. flex. carpi radialis

In the tunnel
- Tendons of mm. flexores digitorum
spff. et proff.
- Tendon of m. flex. poll. longus
- Median nerve

Osteofibrous spaces of the fingers

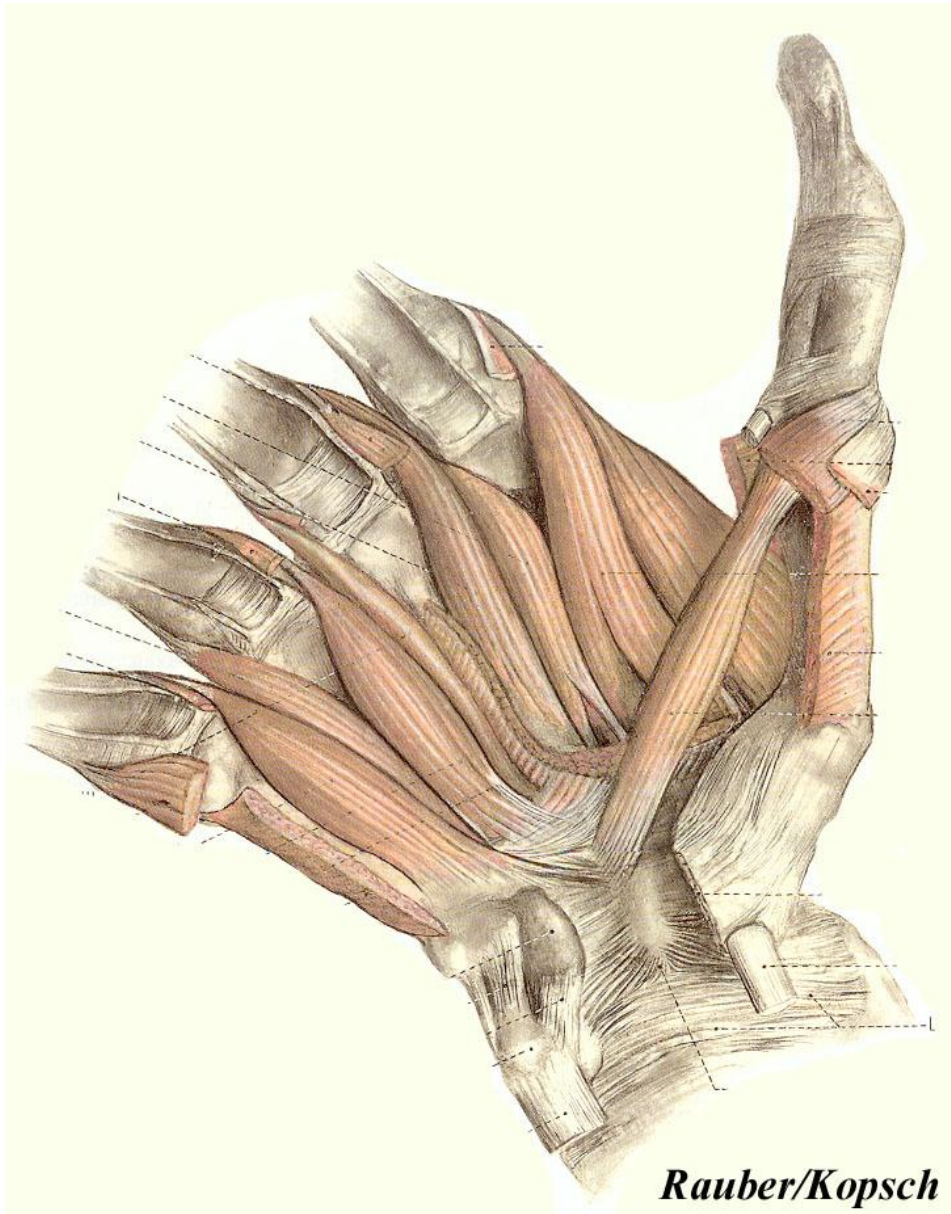


Ligg. articulare prox. et dist.

**Ligg. vaginale intermedium et acc.
proprium prox.
proprium dist.**

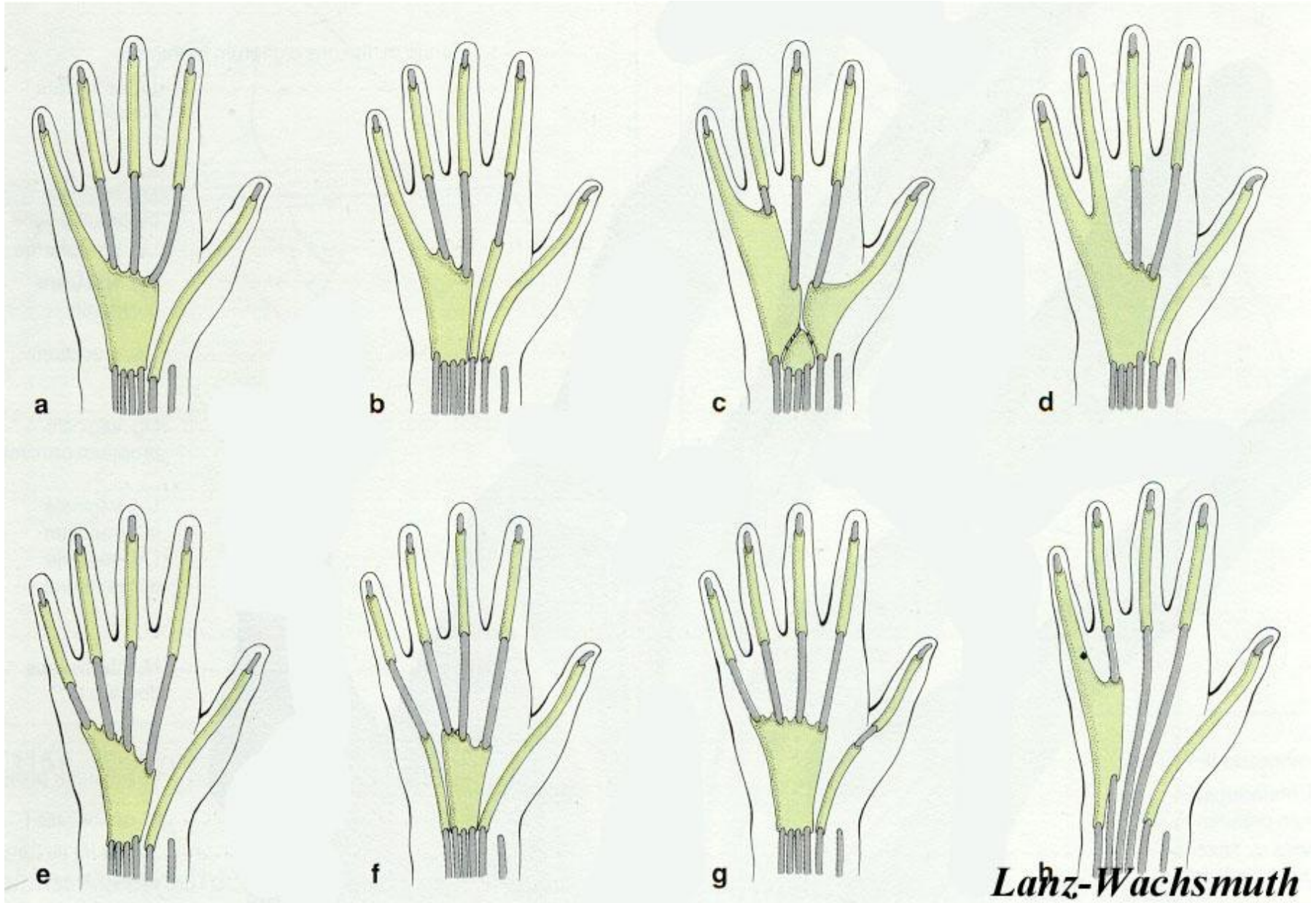
Muscles of the hand

Thenar, Hypothenar and Mesothenar



Tendon sheaths

volar aspect



muscles and tendon sheaths

dorsal aspect

