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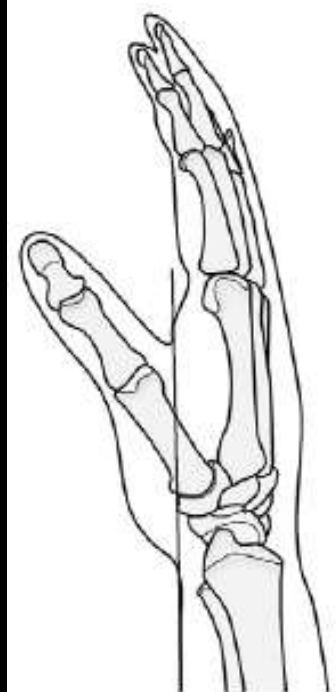
# **Wrist Joint MRI**

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**Ass. Professor of Radiology**  
**Sohag University**

# Anatomy

**Coronal**

Figure 7.3.1



Flexor pollicis brevis m  
Opponens pollicis m  
Abductor pollicis brevis m

Flexor carpi radialis t

Median n

Flexor digitorum superficialis m



Abductor digiti minimi m  
Palmaris brevis m

Ulnar a, deep palmar branch

Flexor digiti minimi brevis m

Ulnar n

Pisiform

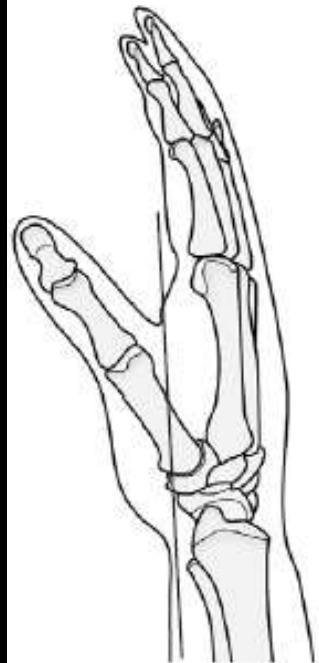
Ulnar a

Palmaris longus t

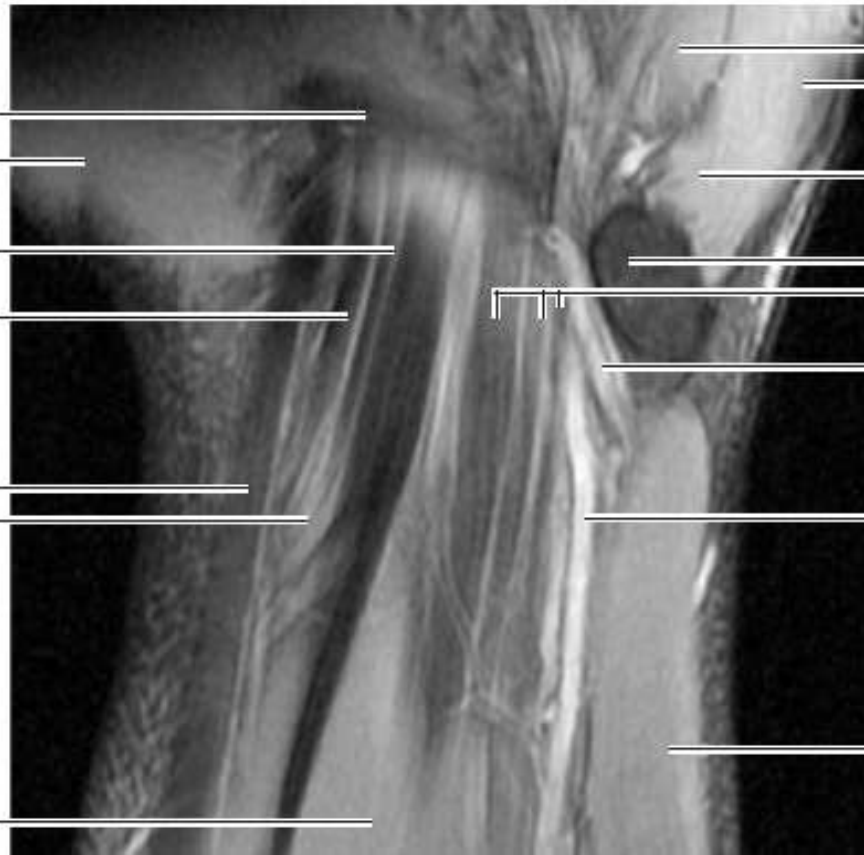
Flexor carpi ulnaris m



Figure 7.3.2



- Flexor retinaculum
- Abductor pollicis brevis m
- Flexor digitorum profundus t
- Flexor pollicis longus t
- Flexor carpi radialis t
- Median n
- Flexor digitorum superficialis m



- Opponens digiti minimi m
- Abductor digiti minimi m
- Flexor digiti minimi brevis m
- Pisiform
- Flexor digitorum superficialis t
- Ulnar n
- Ulnar a
- Flexor carpi ulnaris m

Figure 7.3.3

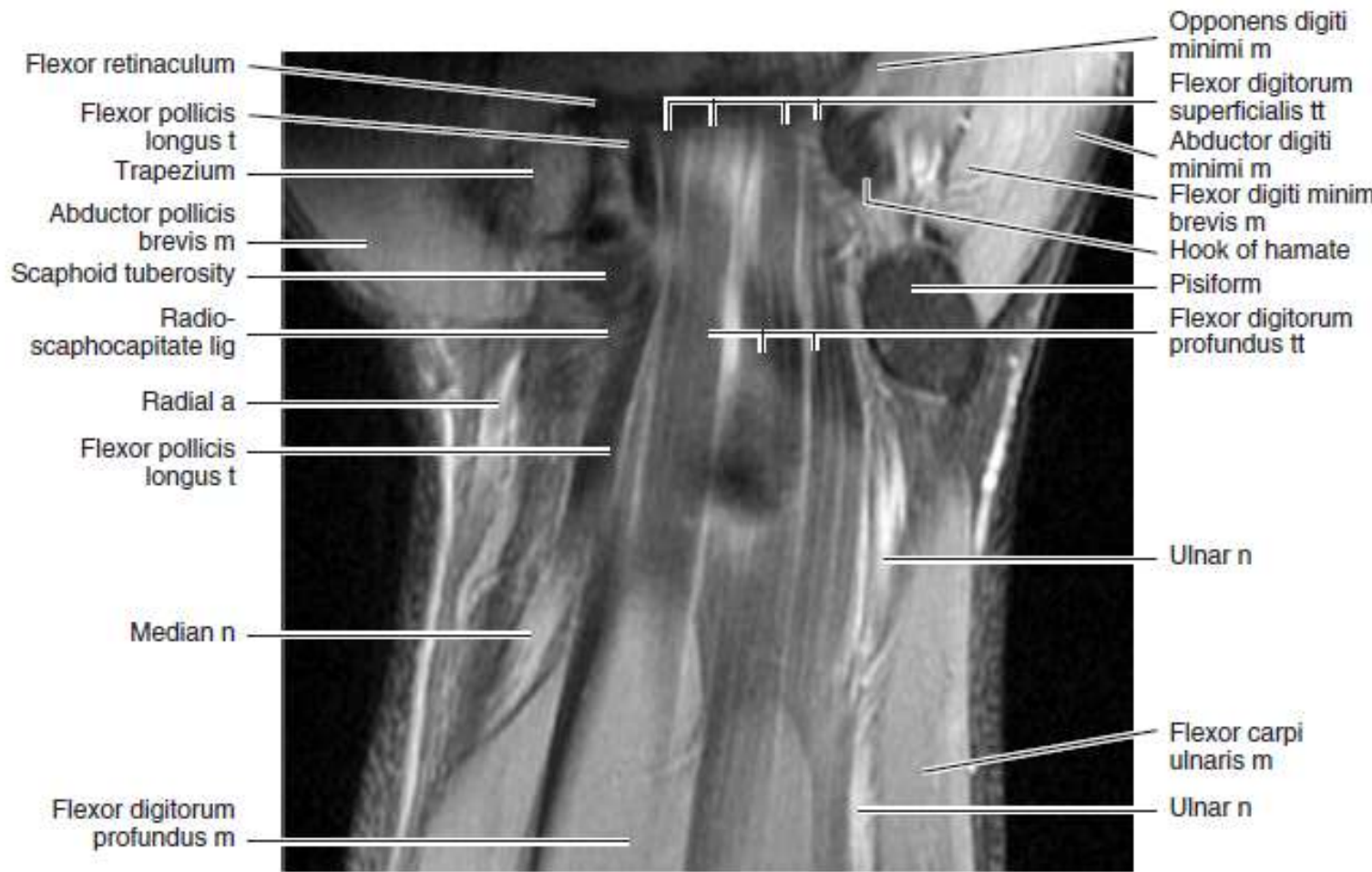
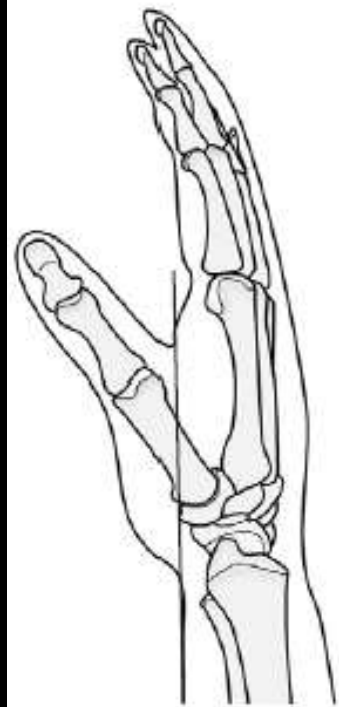


Figure 7.3.4

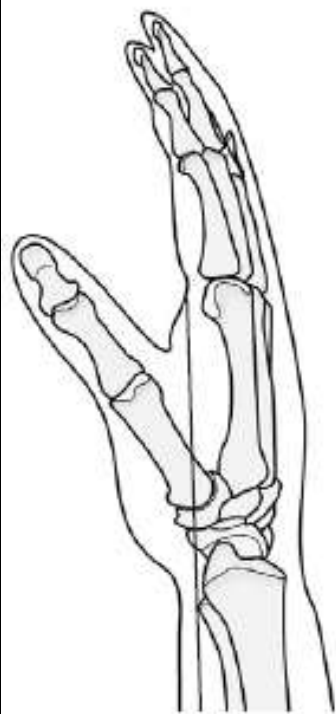




Figure 7.3.5

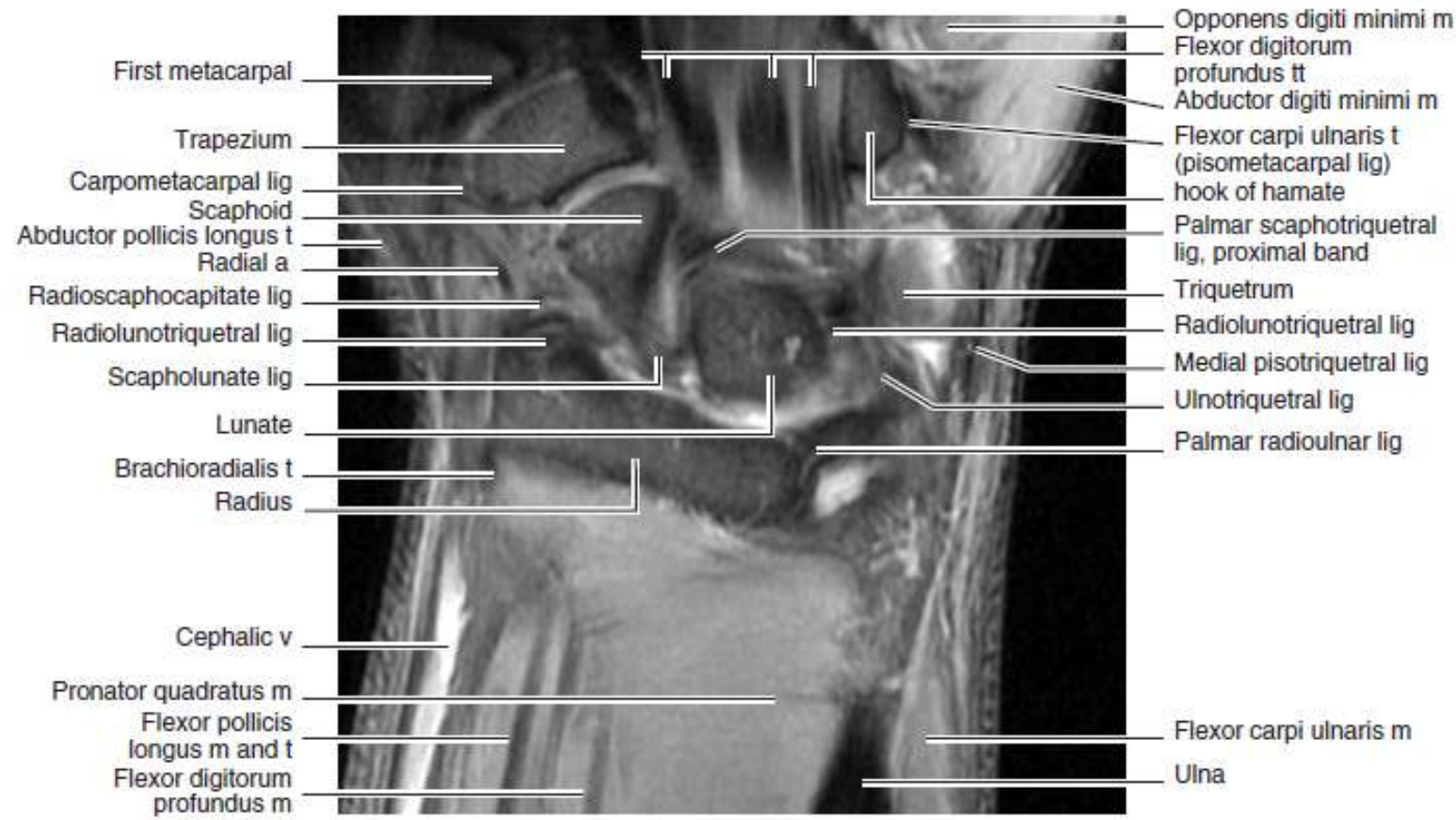
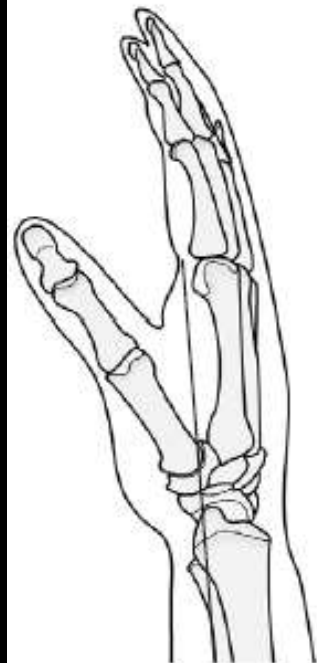


Figure 7.3.6

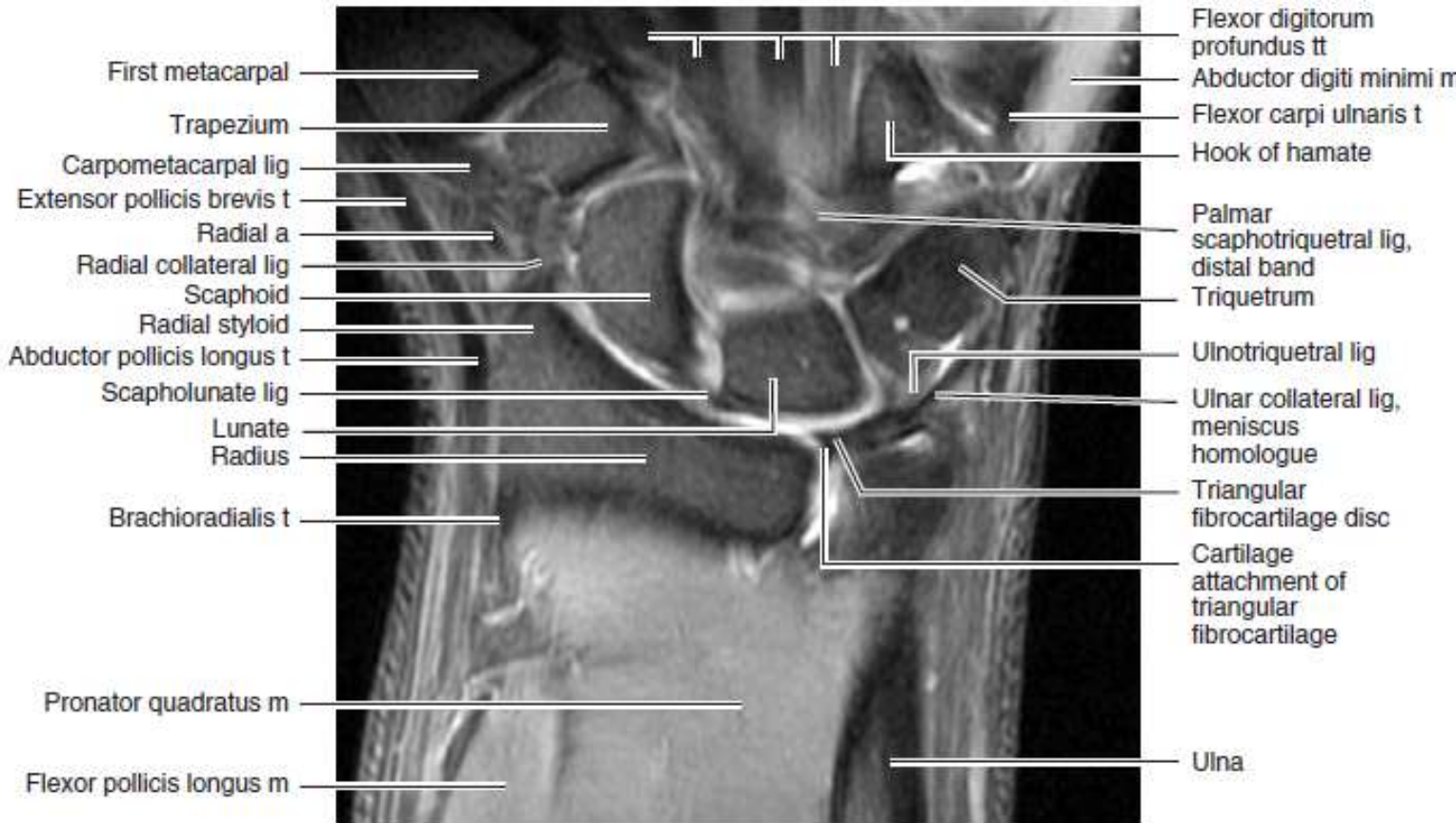
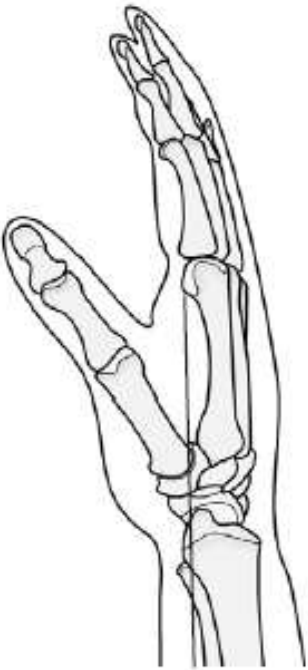


Figure 7.3.7

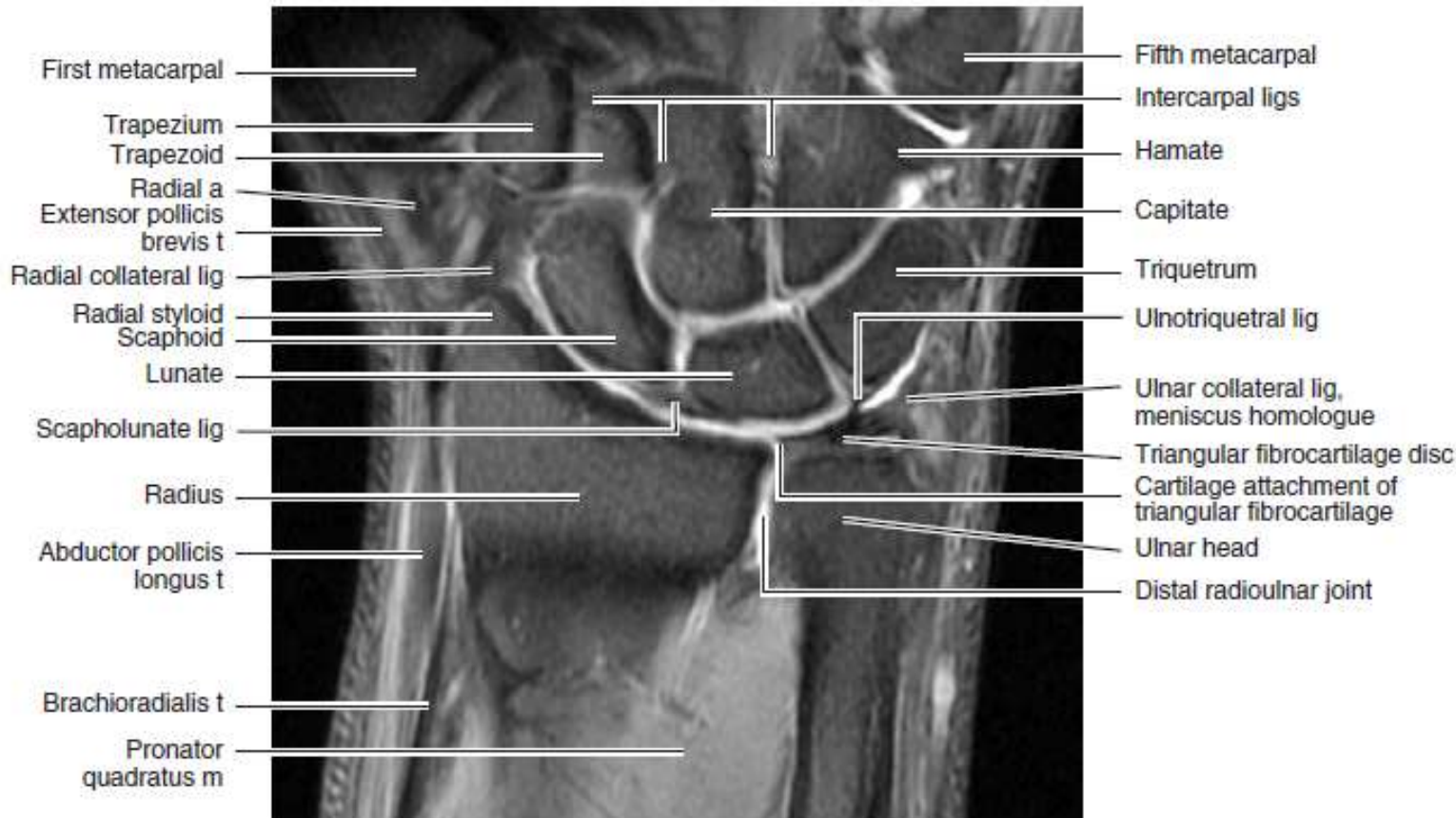
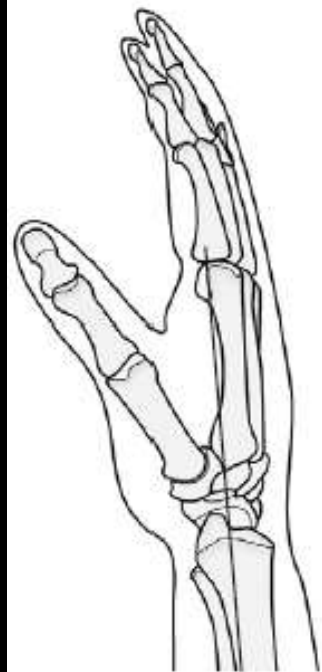


Figure 7.3.8

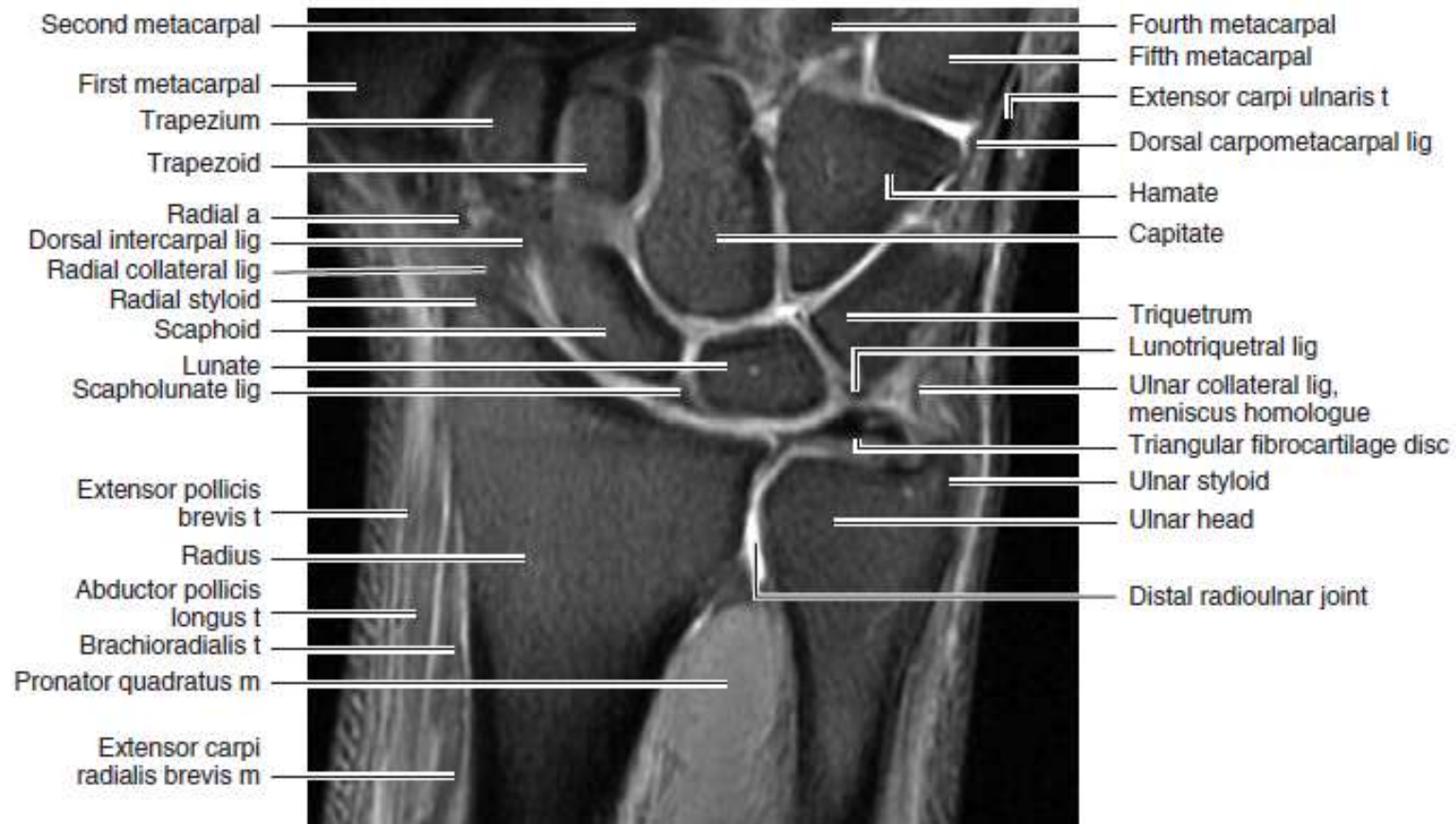
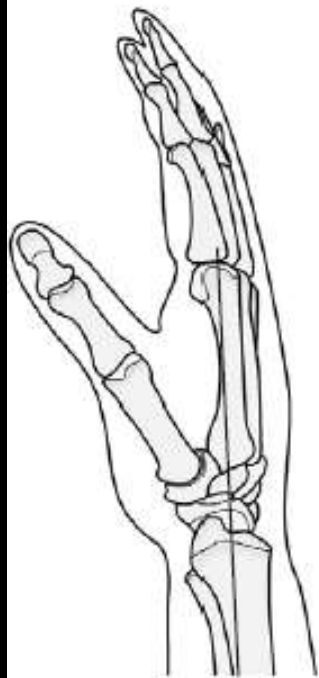




Figure 7.3.9

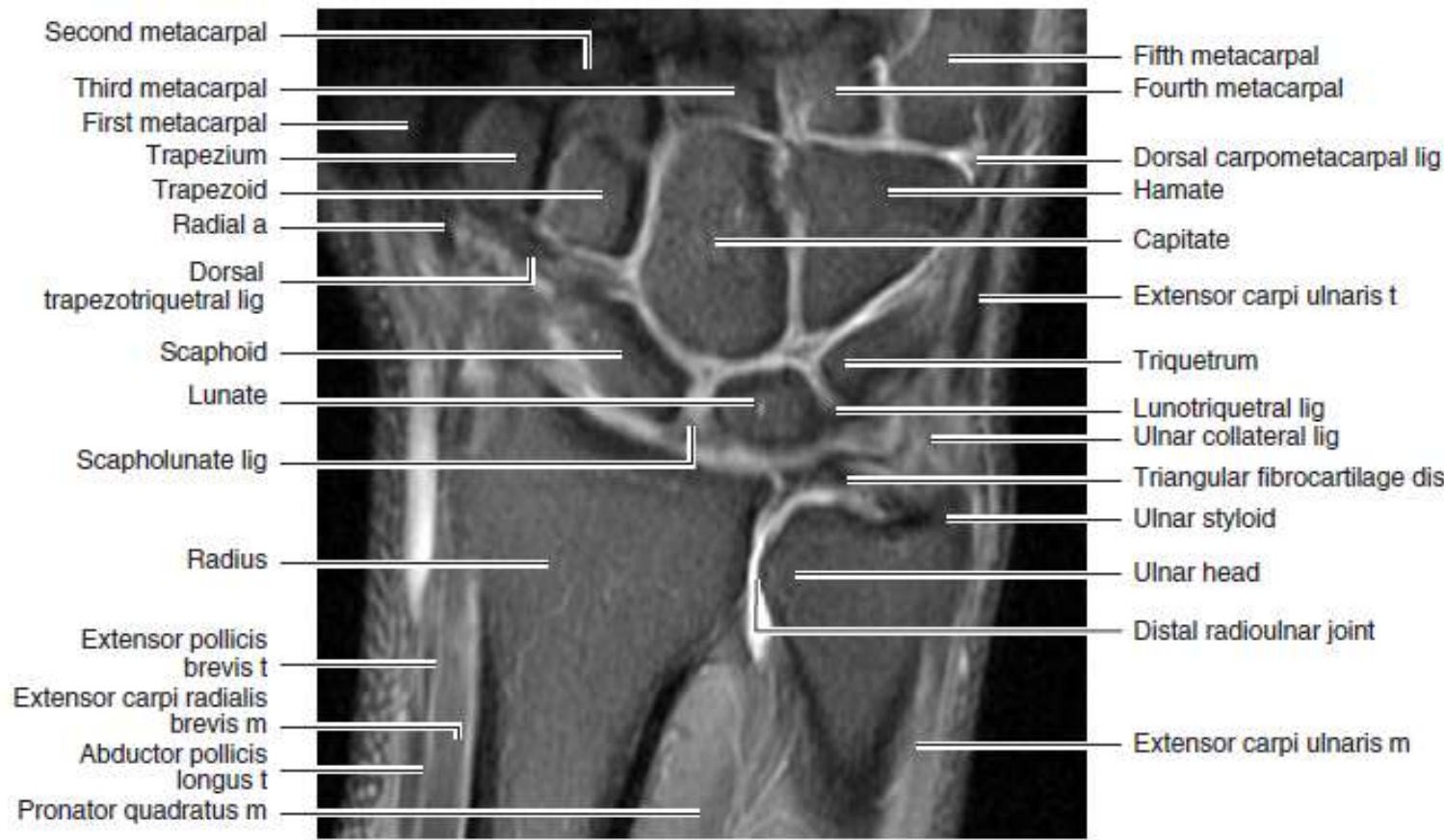
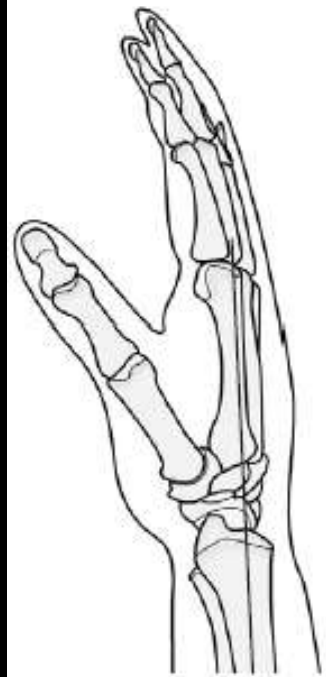




Figure 7.3.10

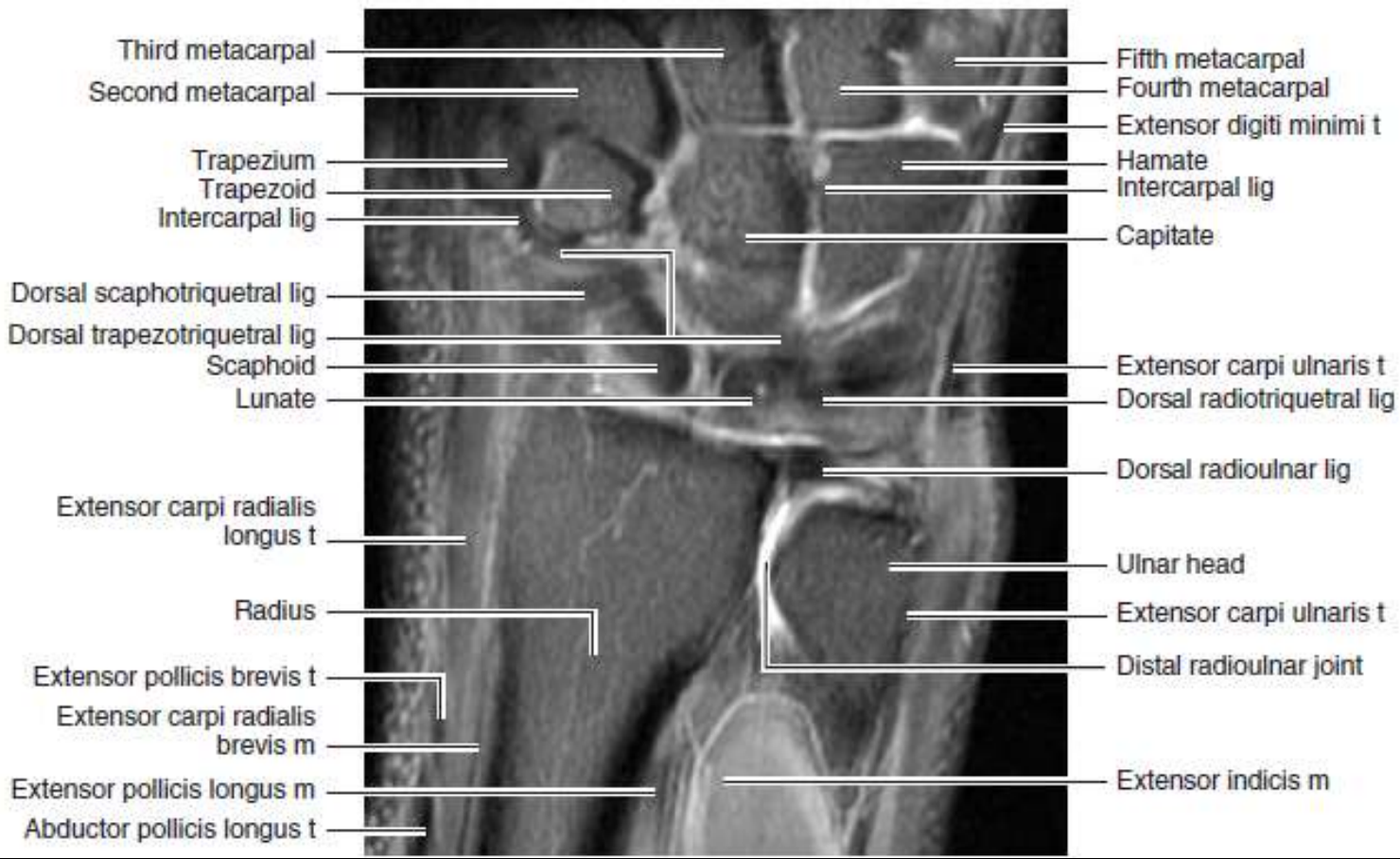
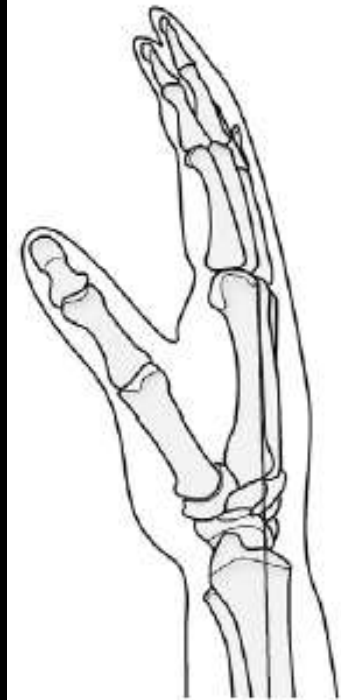


Figure 7.3.11

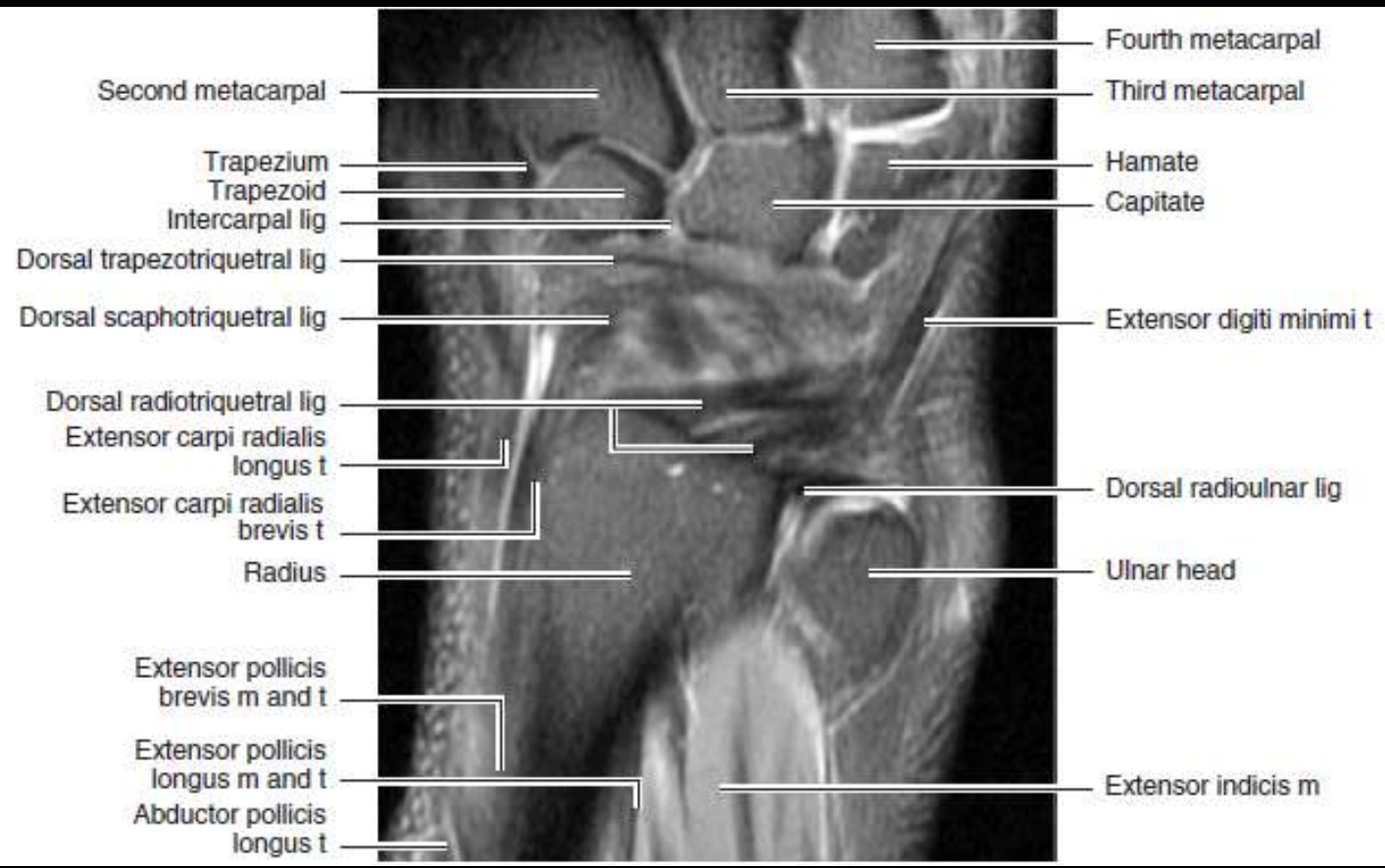
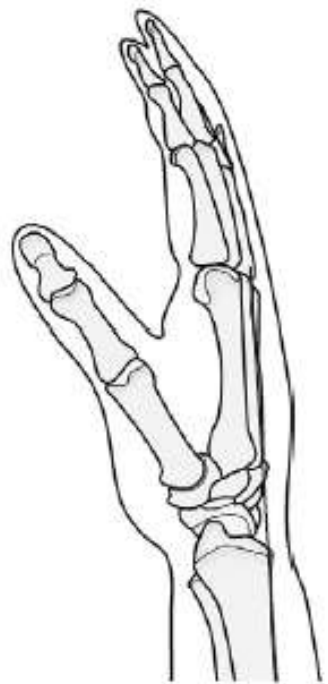


Figure 7.3.12

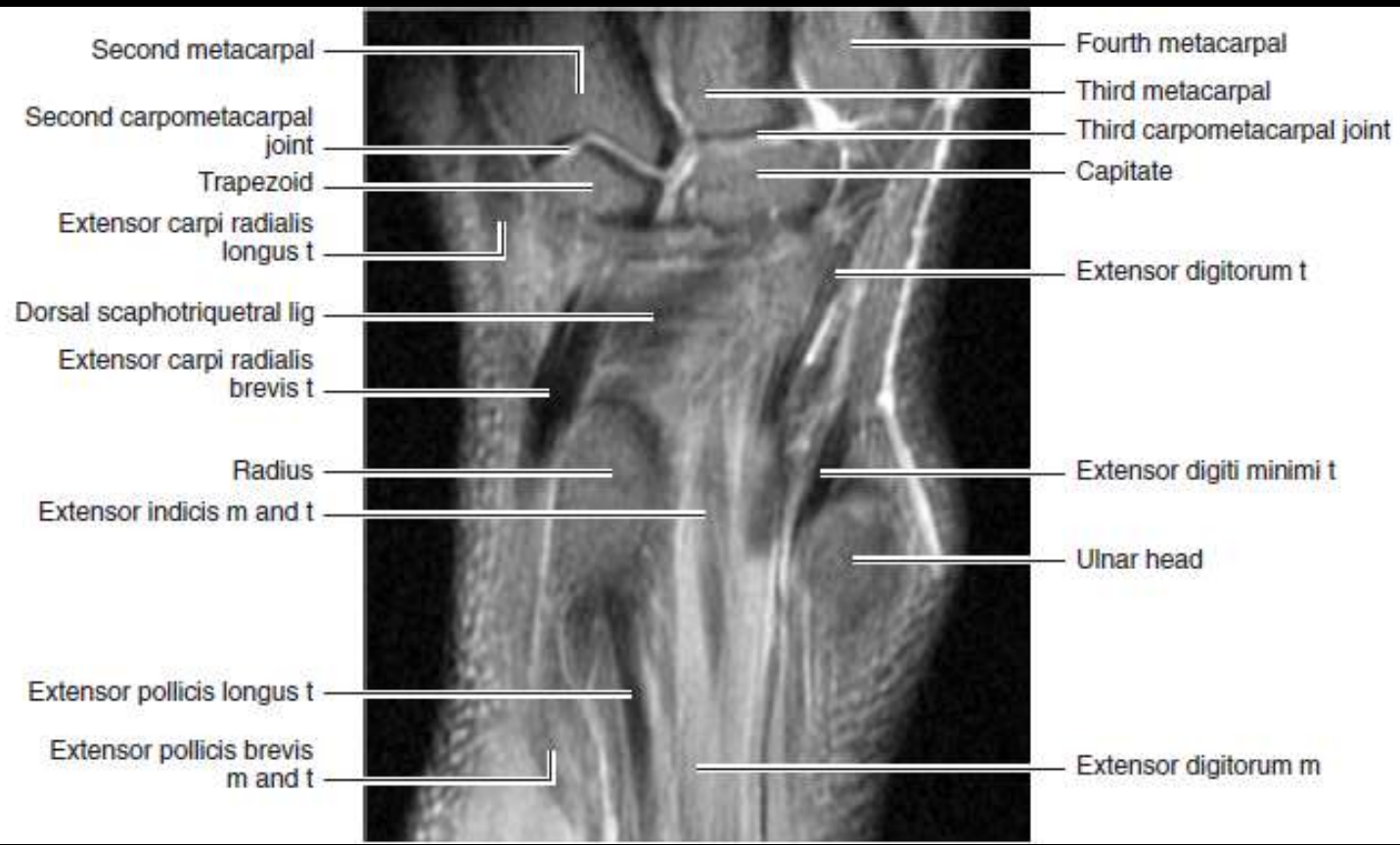
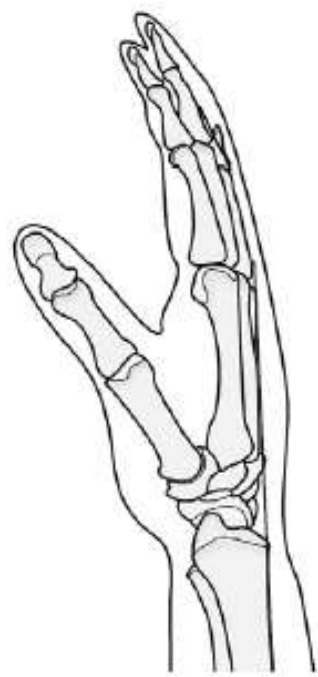
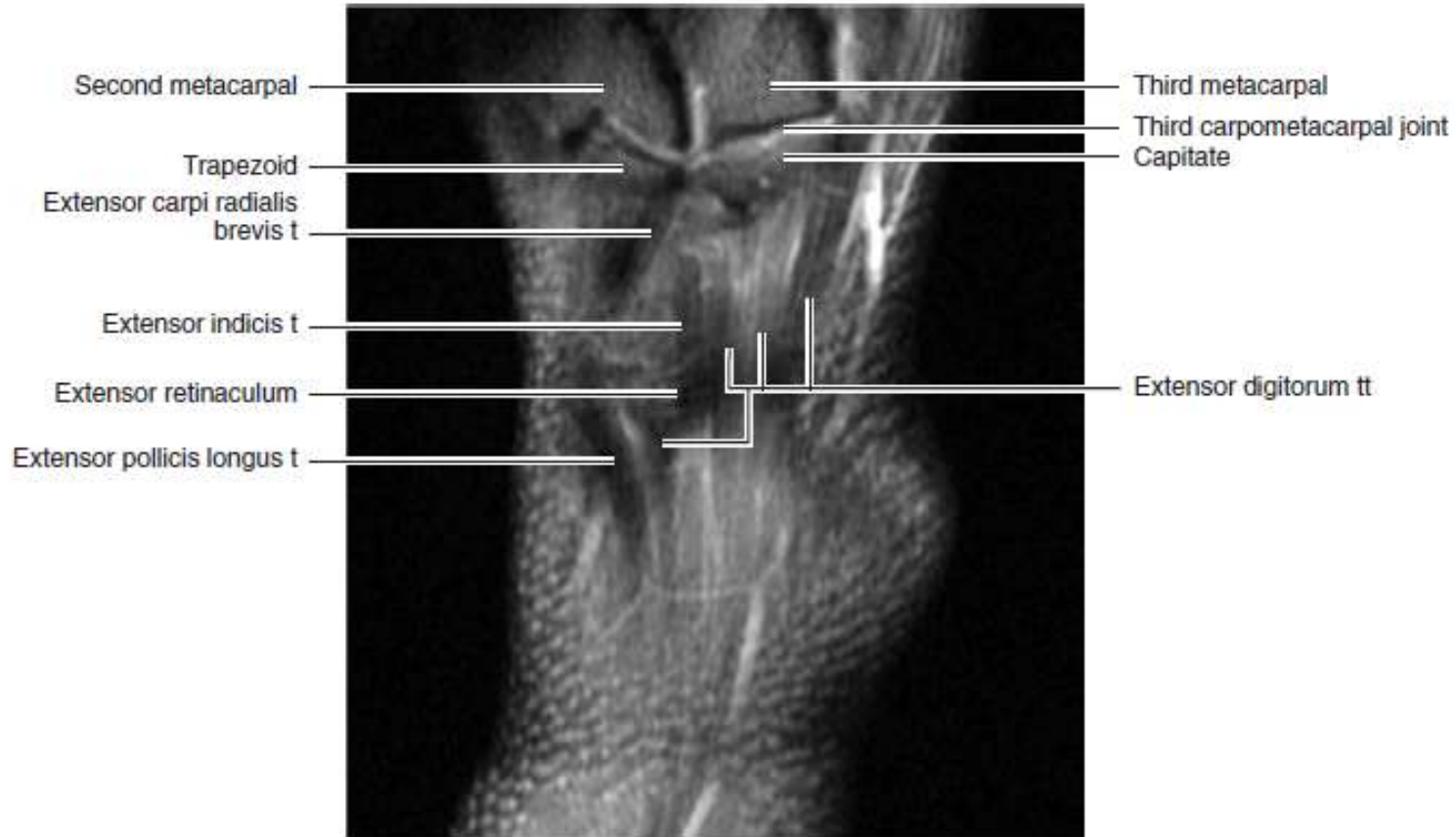
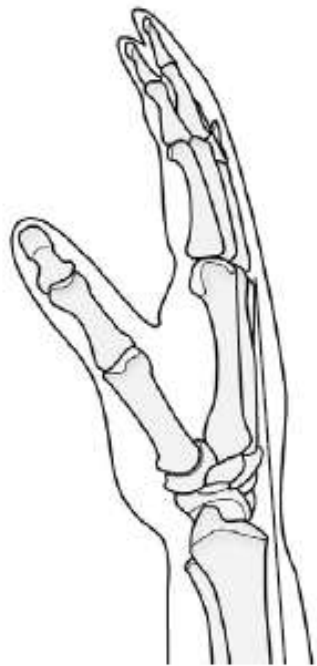


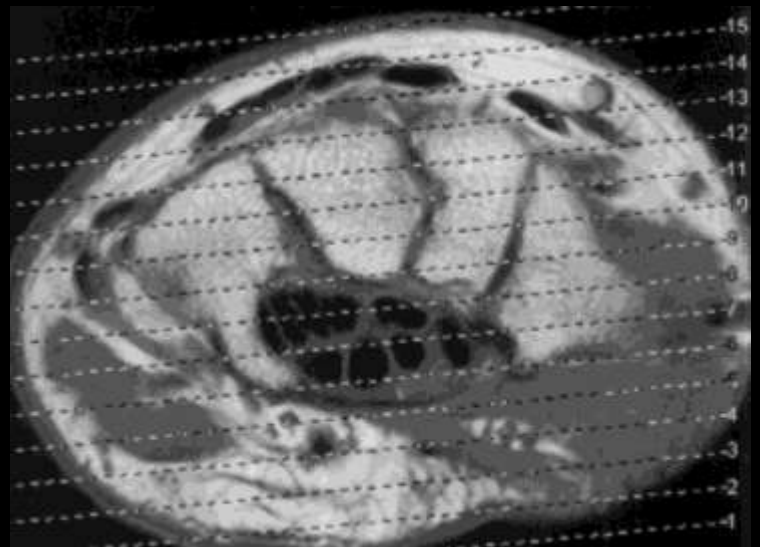
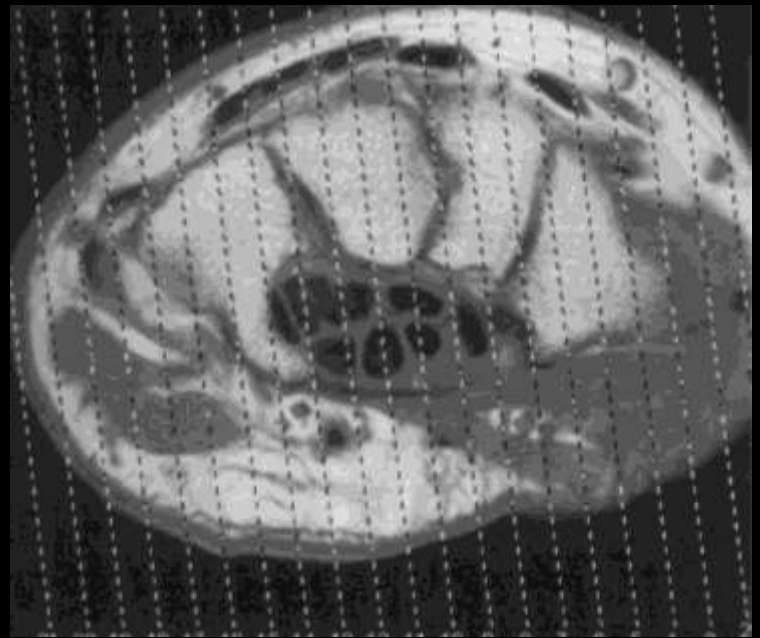
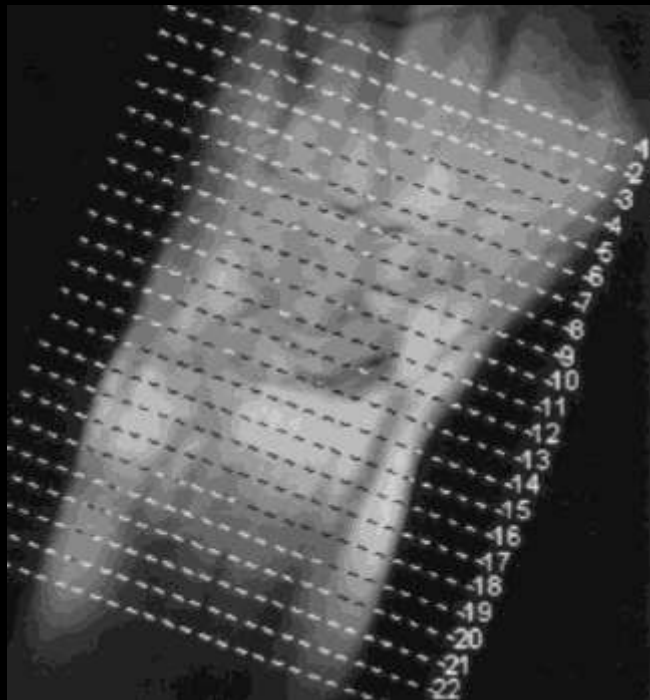
Figure 7.3.13



## Examination technique

- Small field of view (FOV) 8-12 cm.





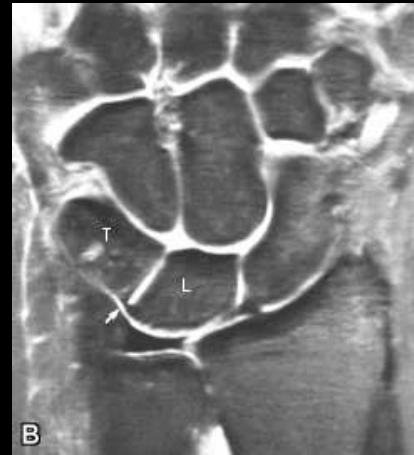
# Pulse sequences



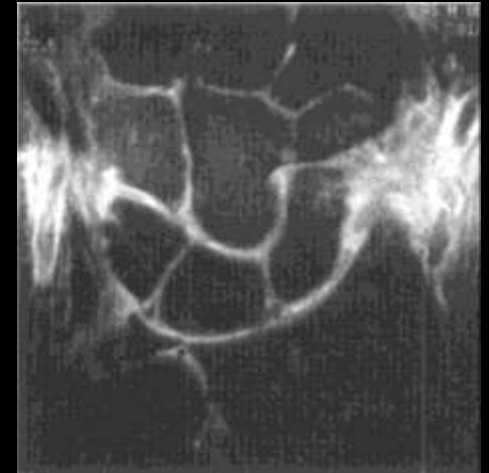
**T1/ PD**



**Gradient**



**FS T2**



**STIR**

## Wrist Structures to Evaluate in Different Planes

### Coronal

- Osseous structures
- Scapho-lunate ligament
- Luno-triquetral ligament
- Triangular fibrocartilage
- Dorsal and volar radioulnar ligaments
- Extrinsic ligaments of the carpus
- Ulnar collateral ligament of thumb

### Axial

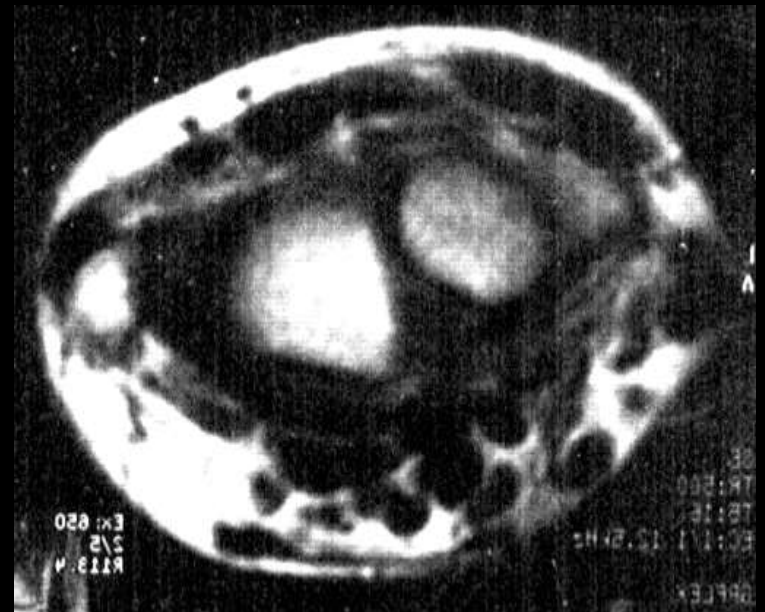
- Tendons
- Median nerve
- Ulnar nerve
- Carpal tunnel
- Guyon's canal (ulnar tunnel)
- Distal radioulnar joint

### Sagittal

- Carpal alignment
- PISO-triquetral synovial cyst

## Axial Images

- Distal radio-ulnar joint.
- TFC.
- Carpal tunnel & contents.
- Ulnar N. & A.
- Flexor and extensor tendons



## Sagittal Images

- TFC.
- Tendons of fingers





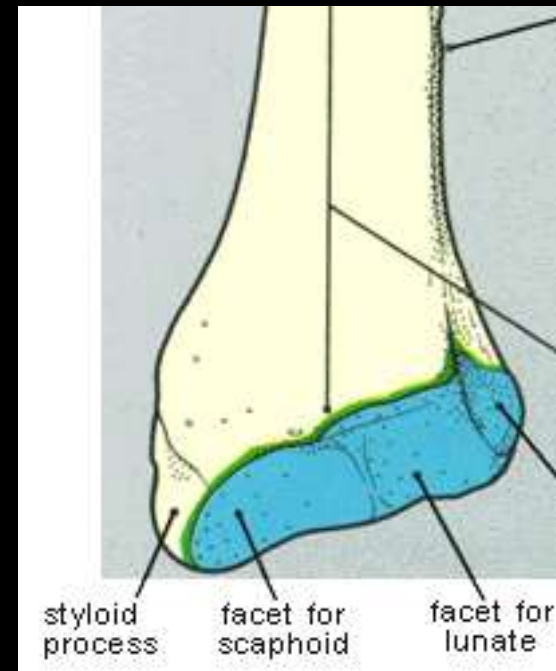
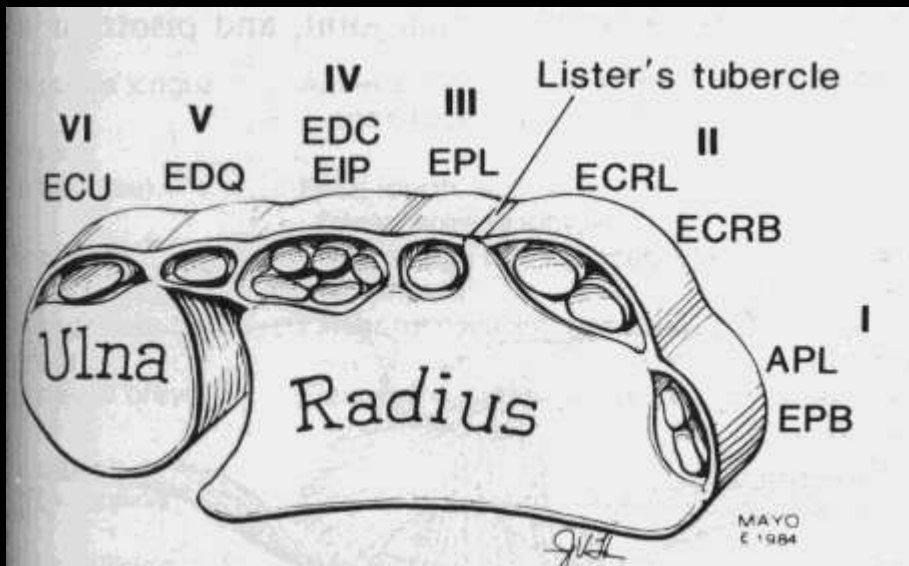
## Coronal Images

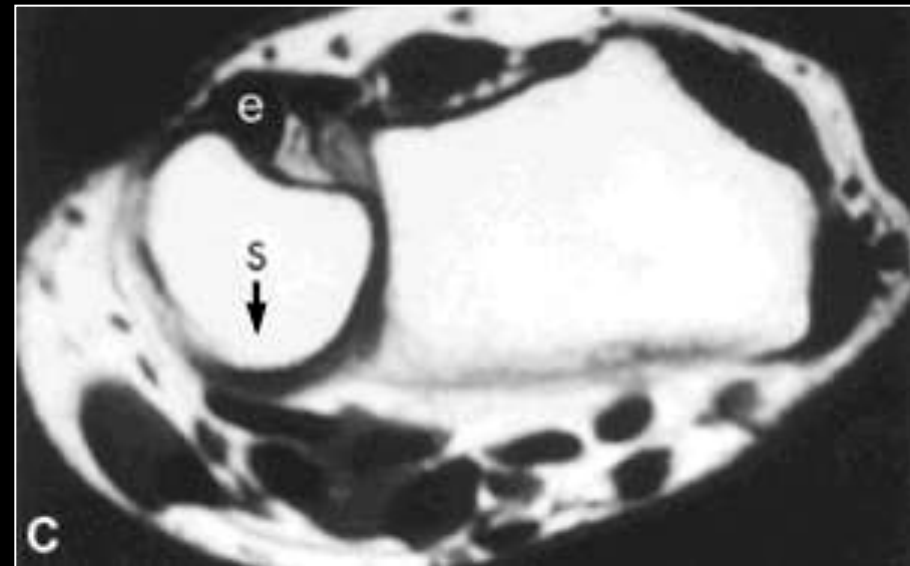
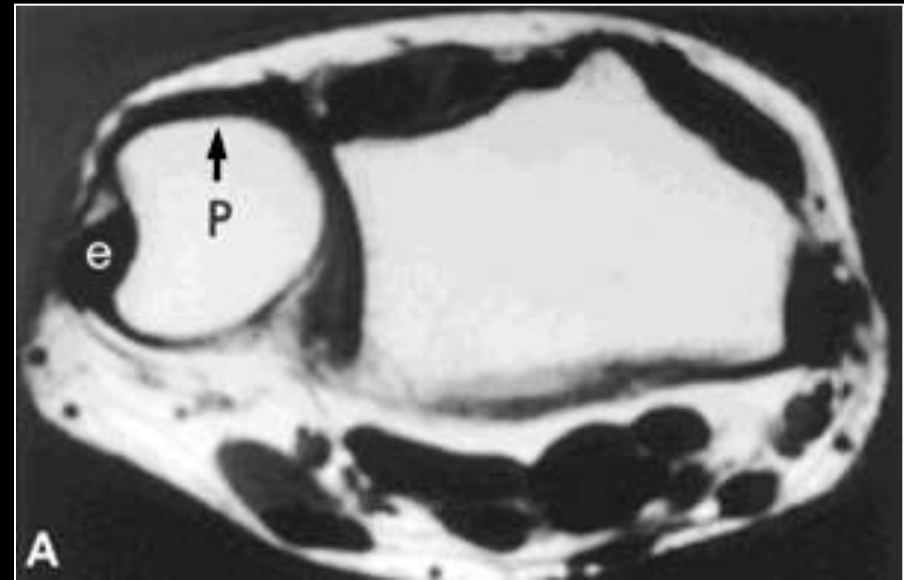
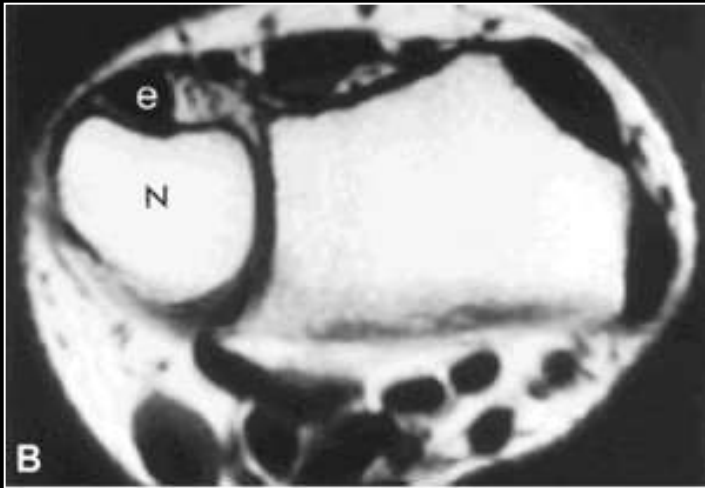
- TFC.
- Ulnar variance.
- Scapho-lunate & luno-triquetral ligaments.
- Fractures & AVN of carpal bones.
- Arthropathies.



## Distal radio-ulnar Joint

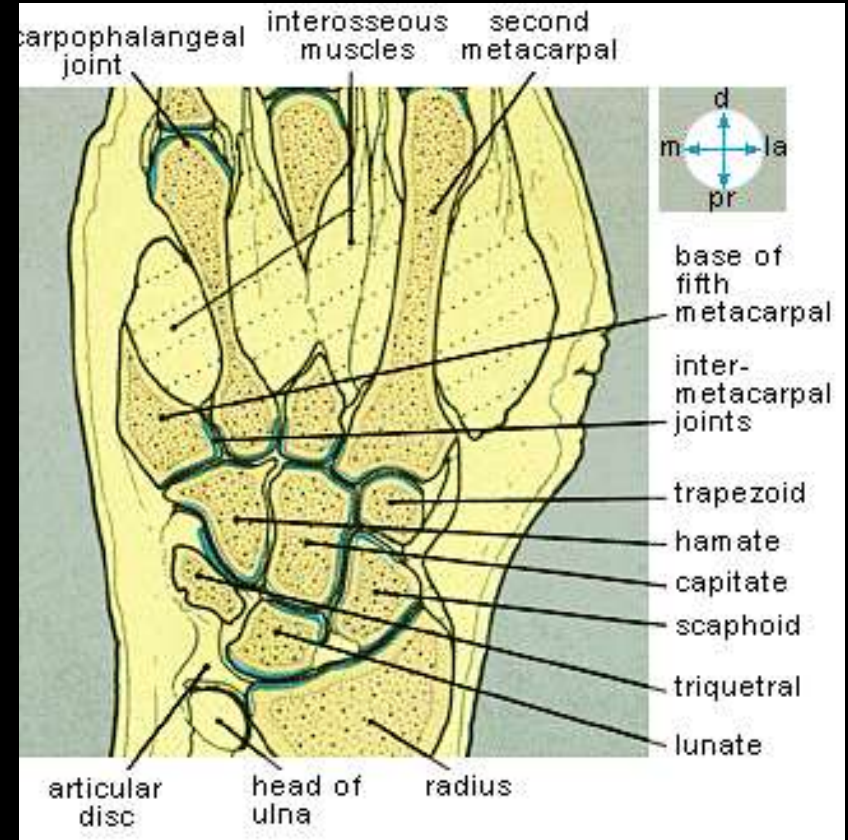
- The radius has two articular fossae [Scaphoid, lunate].
- The radial segmoid notch -- articulates with ulna.
- Lister's tubercle on dorsal surface of the radius



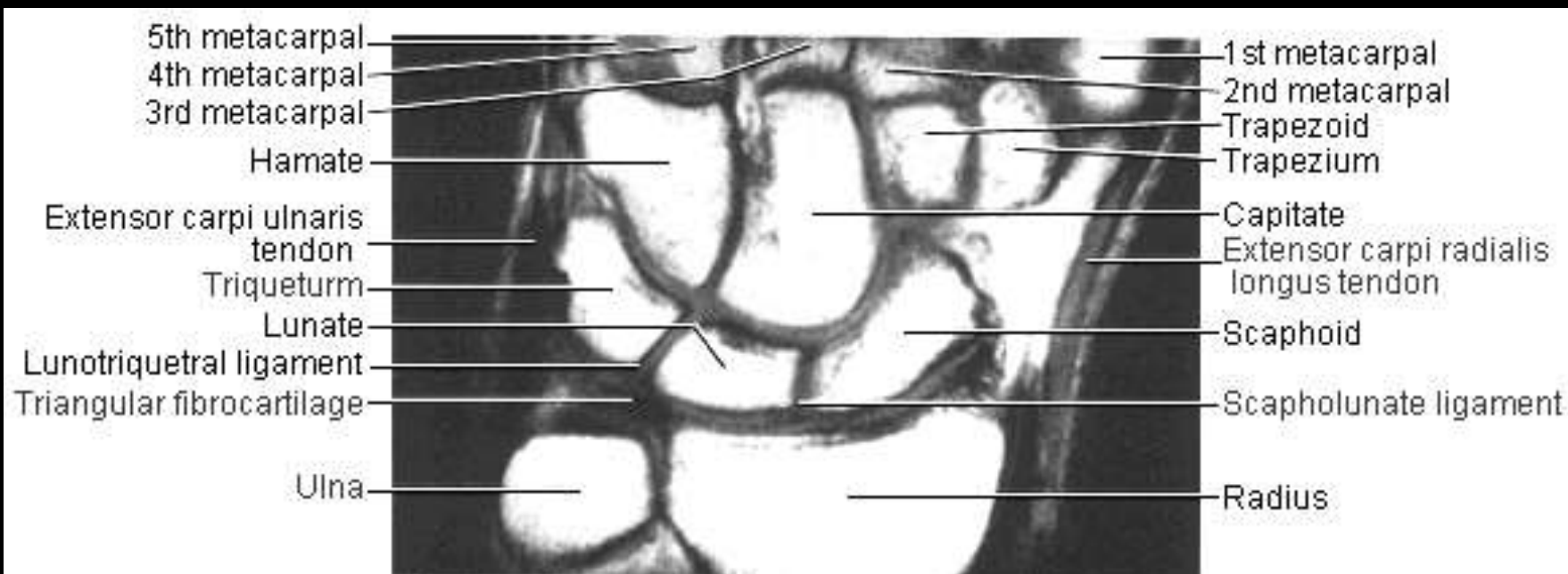


## Normal biomechanics of the distal radioulnar Joint

- Mild dorsal shift in pronation.
- Mild volar shift in supination.



- Ulna articulates with the lunate and triquetrum.
- Ulna is separated from carpal bones by TFC.



### Proximal carpal bones

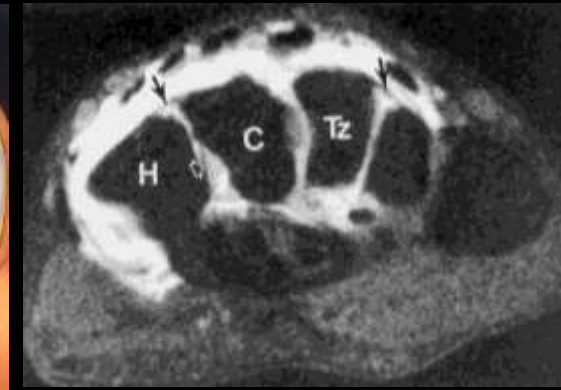
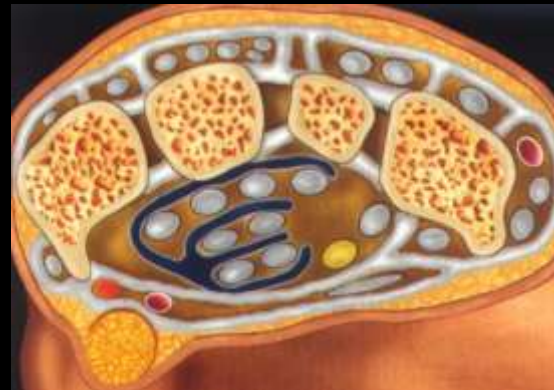
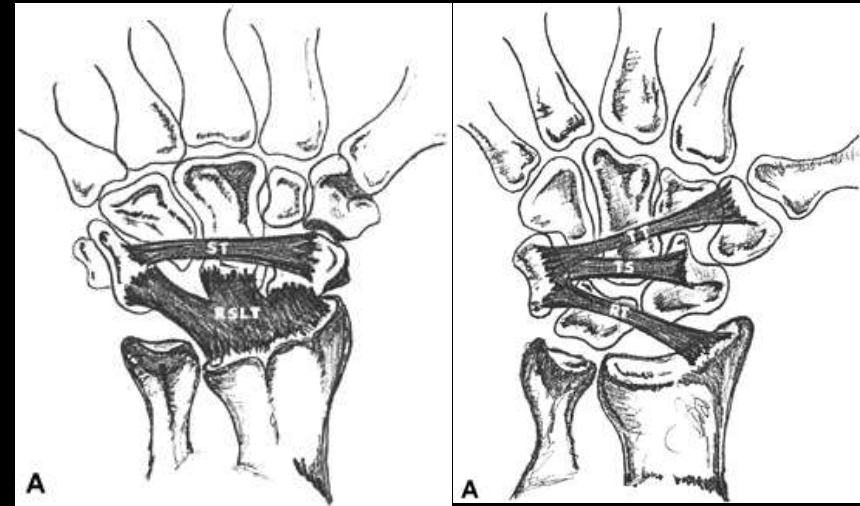
- Scaphoid, lunate, triquetrum, basiform.
- The proximal surface should form a smooth unbroken arch in the coronal plane.

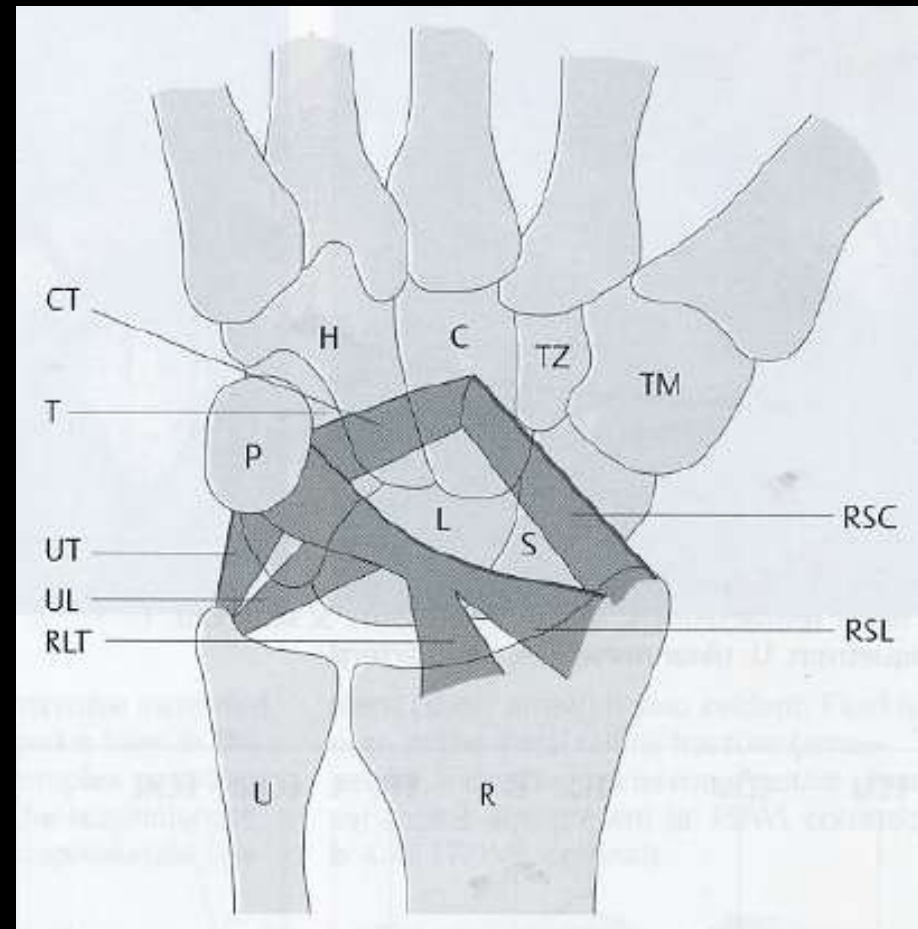
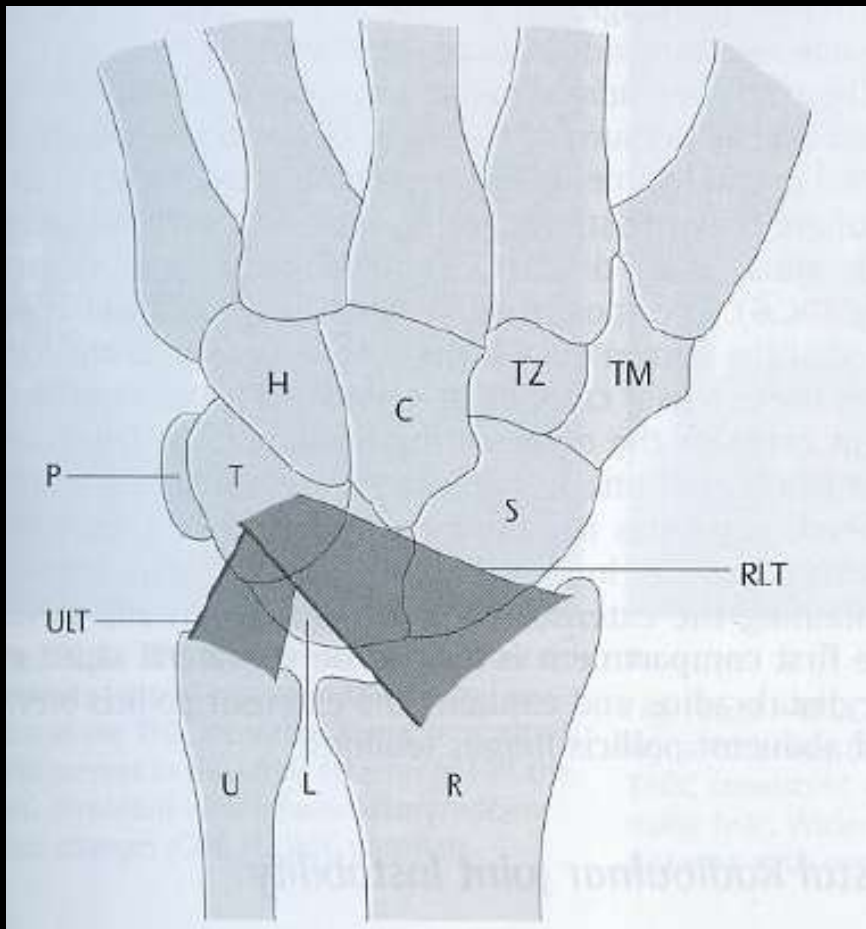


# Anatomy Ligaments

## @distal radioulnar joint

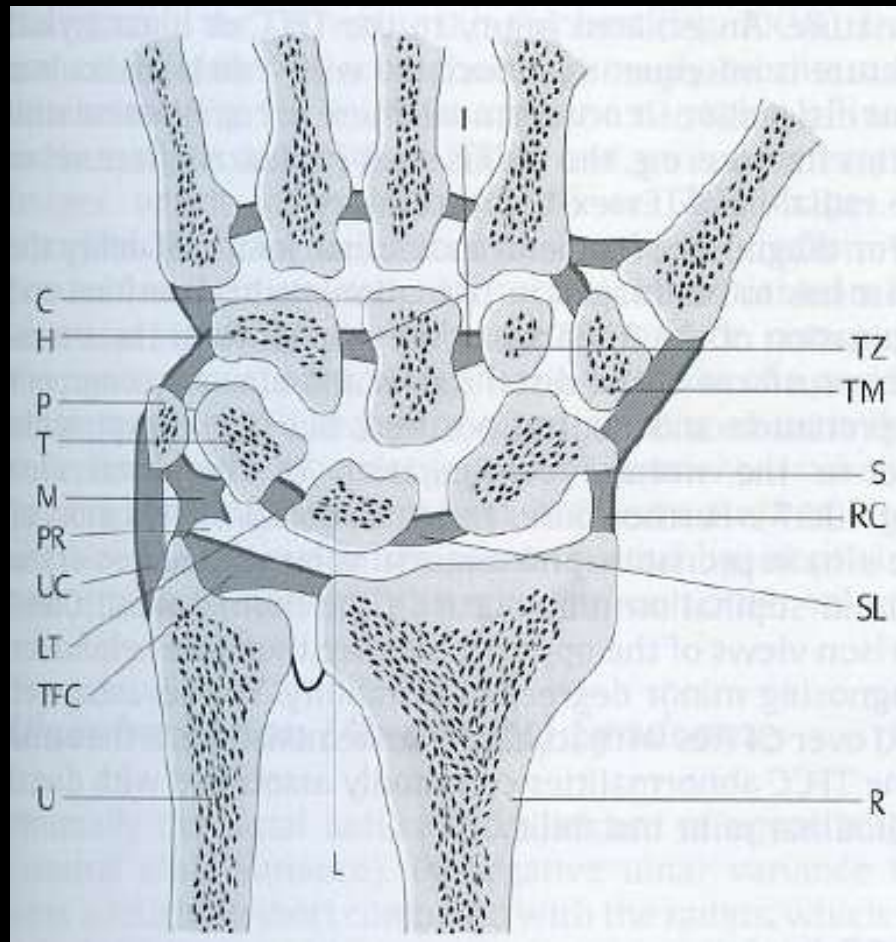
- Triangular fibro cartilage  
TFC (coronal)
- Volar & dorsal radioulnar  
ligaments (axial)
- Interosseous membrane
- Segmoid notch





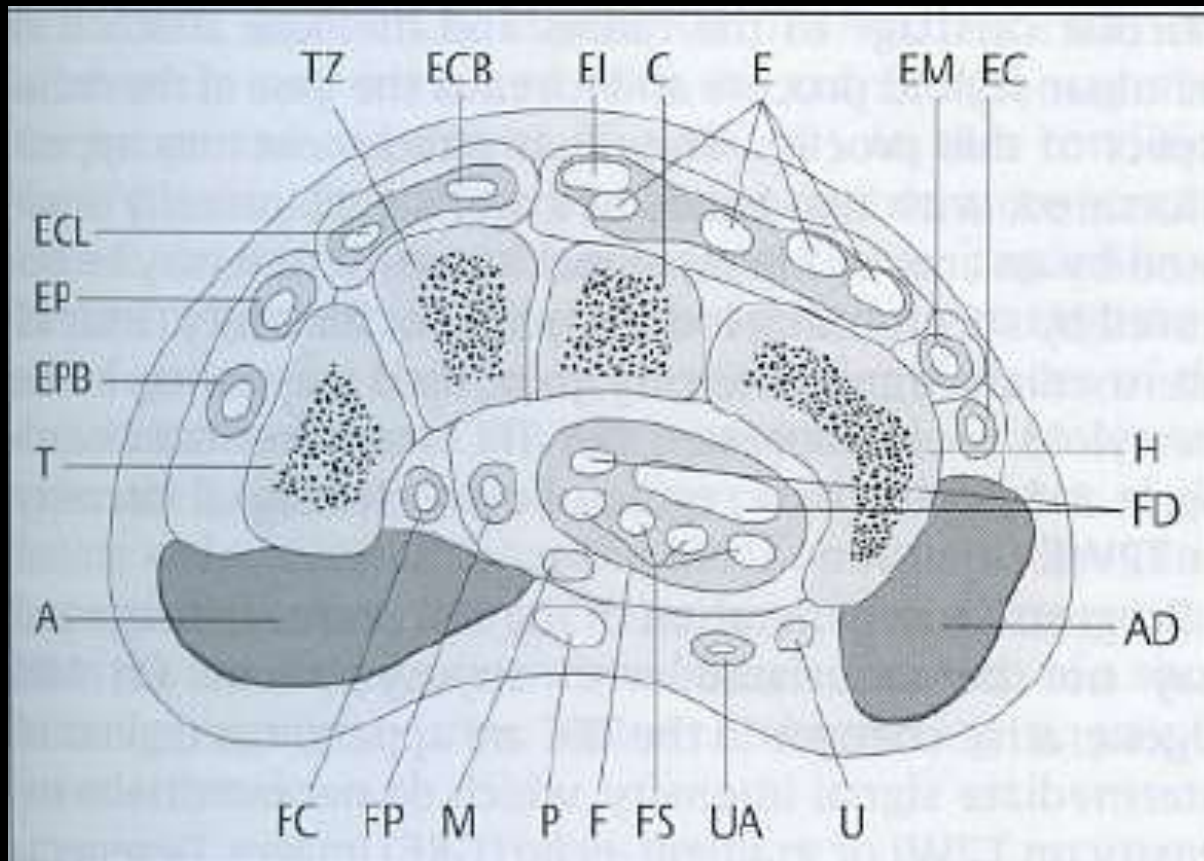
### Wrist Ligaments (A- Dorsal view, B- Palmar view)

**C** = capitate, **CT** = capito-triquetral ligament, **H** = hamate, **I** = interosseous ligaments (distal carpal row). **L** = lunate, **LT** = luno-triquetral ligament, **M** = meniscus homologue, **P** = pisiform, **PR** = prestyloid recess, **R** = radius, **RC** = radial collateral ligament, **RLT** = radio-luno-triquetral ligament, **RSC** = radio-scapho-capitate ligament, **RSL** = radio-scapho-lunate ligament, **S** = scaphoid, **SL** = scapho-lunate ligament, **T** = triquetrum, **TFC** = triangular fibrocartilage, **TM** = trapezium, **TZ** = trapezoid, **U** = ulna, **UC** = ulnar collateral ligament, **UL** = ulno-lunate ligament, **ULT** = ulno-luno-triquetral ligament.



### Wrist Ligaments (C- Coronal section)

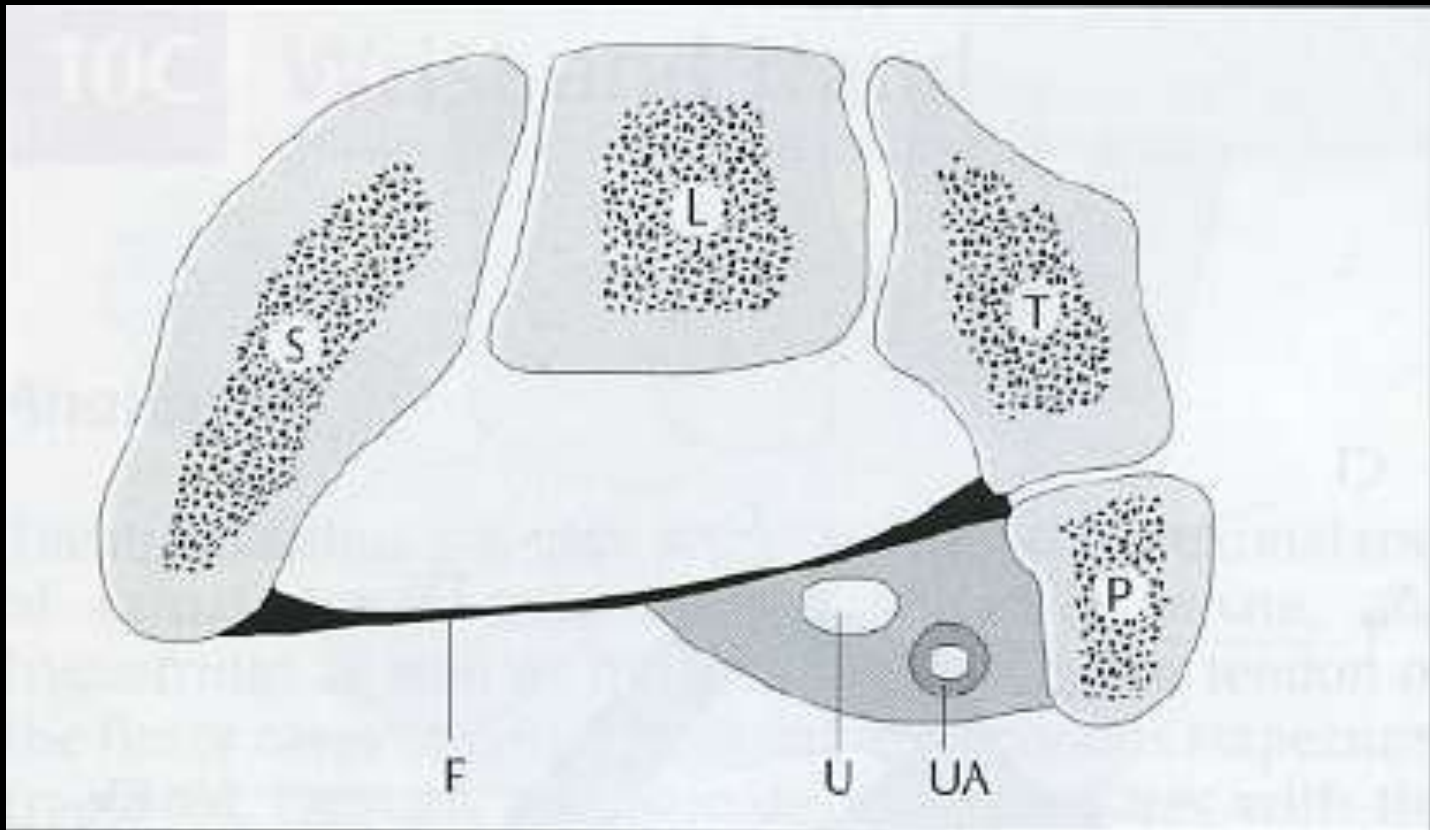
**C** = capitate, **CT** = capito-triquetral ligament, **H** = hamate, **I** = interosseous ligaments (distal carpal row). **L** = lunate, **LT** = luno-triquetral ligament, **M** = meniscus homologue, **P** = pisiform, **PR** = prestyloid recess, **R** = radius, **RC** = radial collateral ligament, **RLT** = radio-luno-triquetral ligament, **RSC** = radio-scapho-capitate ligament, **RSL** = radio-scapho-lunate ligament, **S** = scaphoid, **SL** = scapho-lunate ligament, **T** = triquetrum, **TFC** = triangular fibrocartilage, **TM** = trapezium, **TZ** = trapezoid, **U** = ulna, **UC** = ulnar collateral ligament, **UL** = ulno-lunate ligament, **ULT** = ulno-luno-triquetral ligament.



## Carpal tunnel

**A** = abductor pollicis brevis, **AD** = abductor digiti minimi, **C** = capitate, **E** = common extensor digitorum tendon, **EC** = extensor carpi ulnaris, **ECP** = extensor carpi radialis brevis, **ECL** = extensor carpi radialis longus, **EI** = extensor indicis, **EM** = extensor digiti minimi, **EP** = extensor pollicis longus, **EPB** = extensor pollicis brevis, **F** = flexor retinaculum, **FC** = flexor carpi radialis, **FD** = flexor digitorum profundus, **FP** = flexor pollicis longus, **FS** = flexor digitorum superficialis, **H** = hamate, **M** = median N., **P** = palmaris tendon, **T** = trapezium, **TZ** = trapezoid, **U** = ulnar N., **UA** = ulnar A.

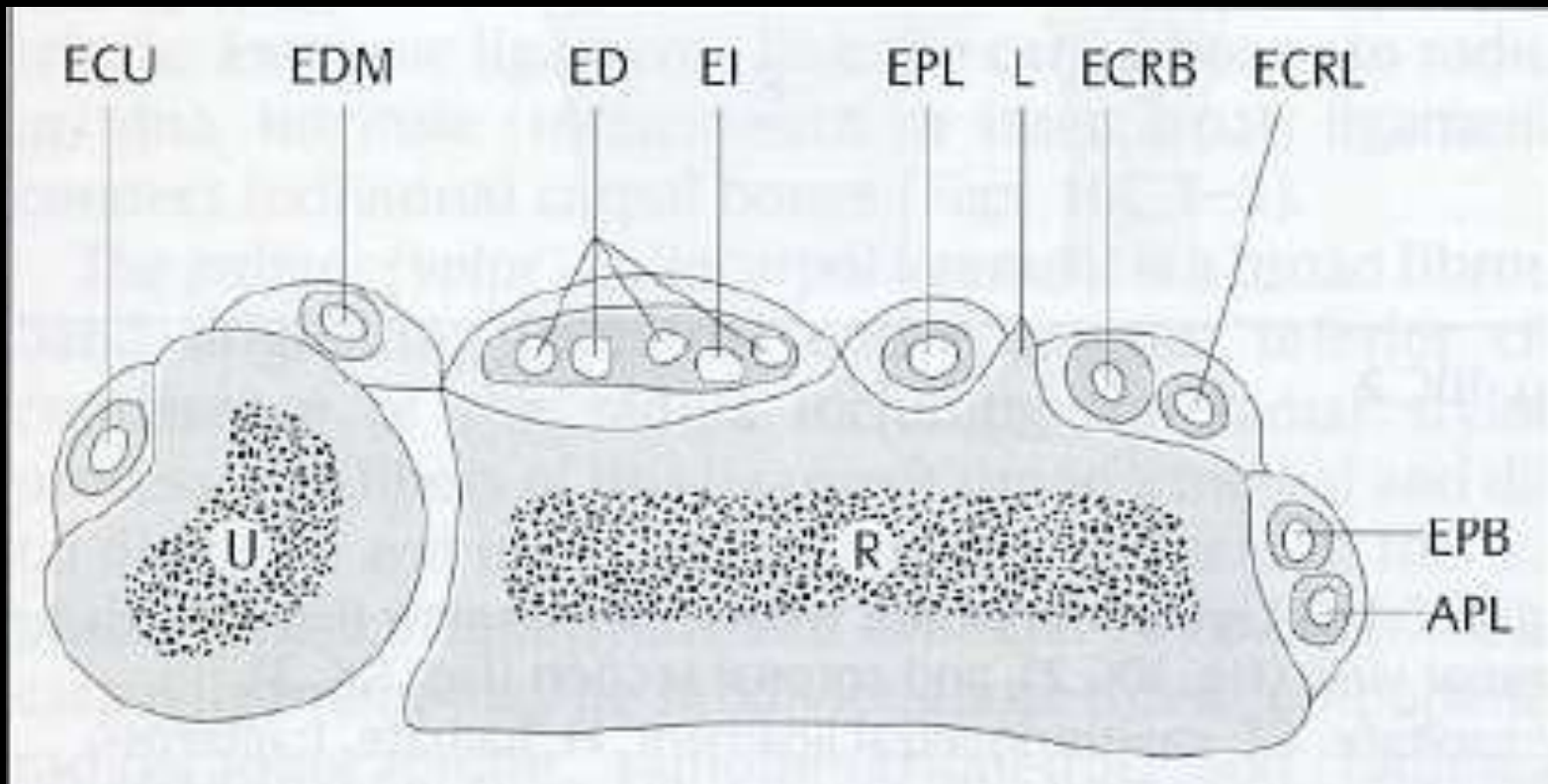




### Guyon`s canal (Ulnar tunnel)

**F** = flexor retinaculum, **L** = lunate, **P** = pisiform, **S** = scaphoid, **T** = triquetrum, **U** = ulnar N., **UA** = ulnar A.





### Wrist extensor compartments

Compartment 1: **APL** = abductor pollicis longus, **EPB** = extensor pollicis brevis.

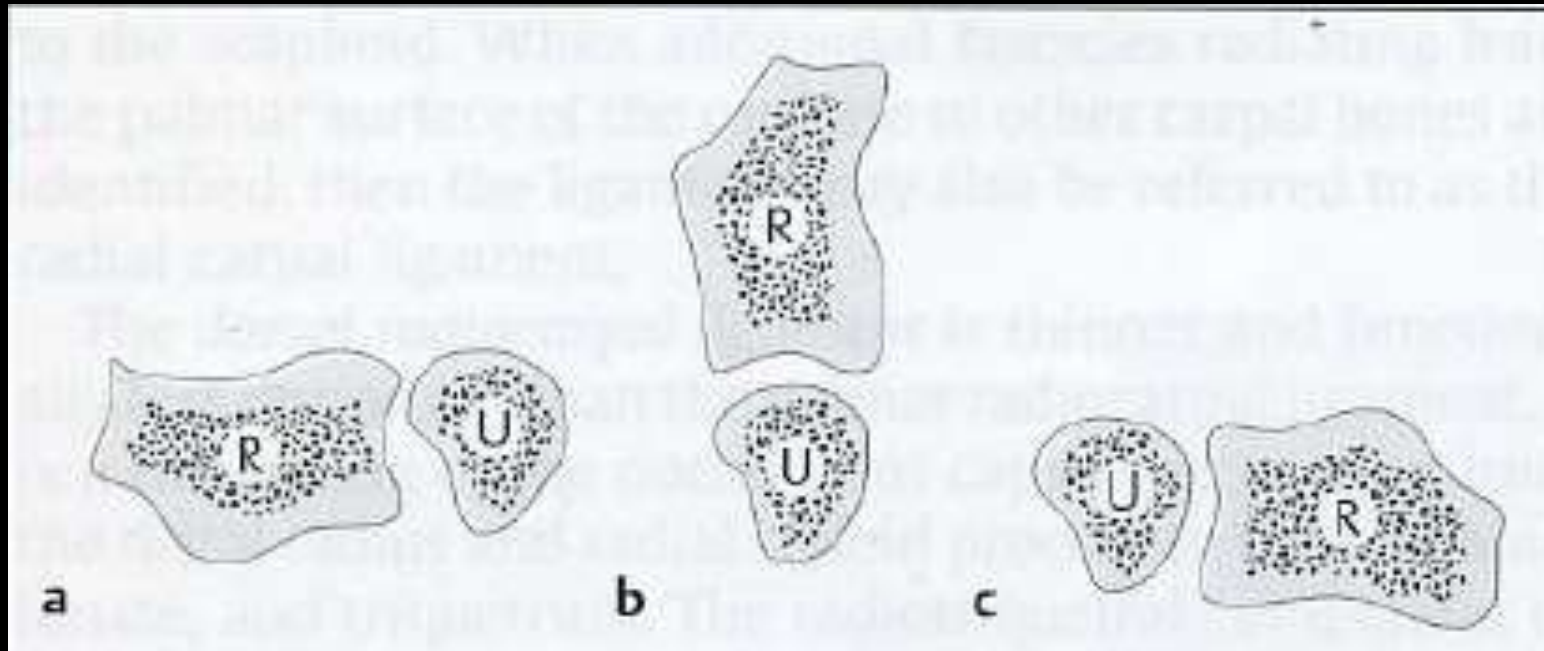
Compartment 2: **ECRL** = extensor carpi radialis longus, **ECRB** = extensor carpi radialis brevis.

Compartment 3: **EPL** = extensor pollicis longus.

Compartment 4: **ED** = extensor digitorum, **EI** = extensor indicis.

Compartment 5: **EDM** = extensor digiti minimi.

Compartment 6: **ECU** = extensor carpi ulnaris, **L** = Lister's tubercle. **R** = radius, **U** = ulna.



### Normal alignment in the Lt distal radio-ulnar joint

A- Supination, the joint is not congruent but the ulna is centered within the sigmoid notch.

B- Neutral position & C- Pronation, in both positions, the joint is congruent.

A photograph of a sunset over a mountain range. The sky is filled with soft, pink and orange clouds, with a bright yellow sun partially obscured by a cloud. The mountains in the foreground are dark and silhouetted against the bright sky. The text "Thank You" is centered in the middle of the image in a white, serif font with a slight shadow.

**Thank You**