Examination of the hand

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Clinical History

- Mechanisms of the trauma
- Pain history (type, intensity, localisation)
- Inflammation
- Deformation
- Mobility
- Co-morbidities

Installation

- Comfort
- Seat
- Face to face
- Elbow on table

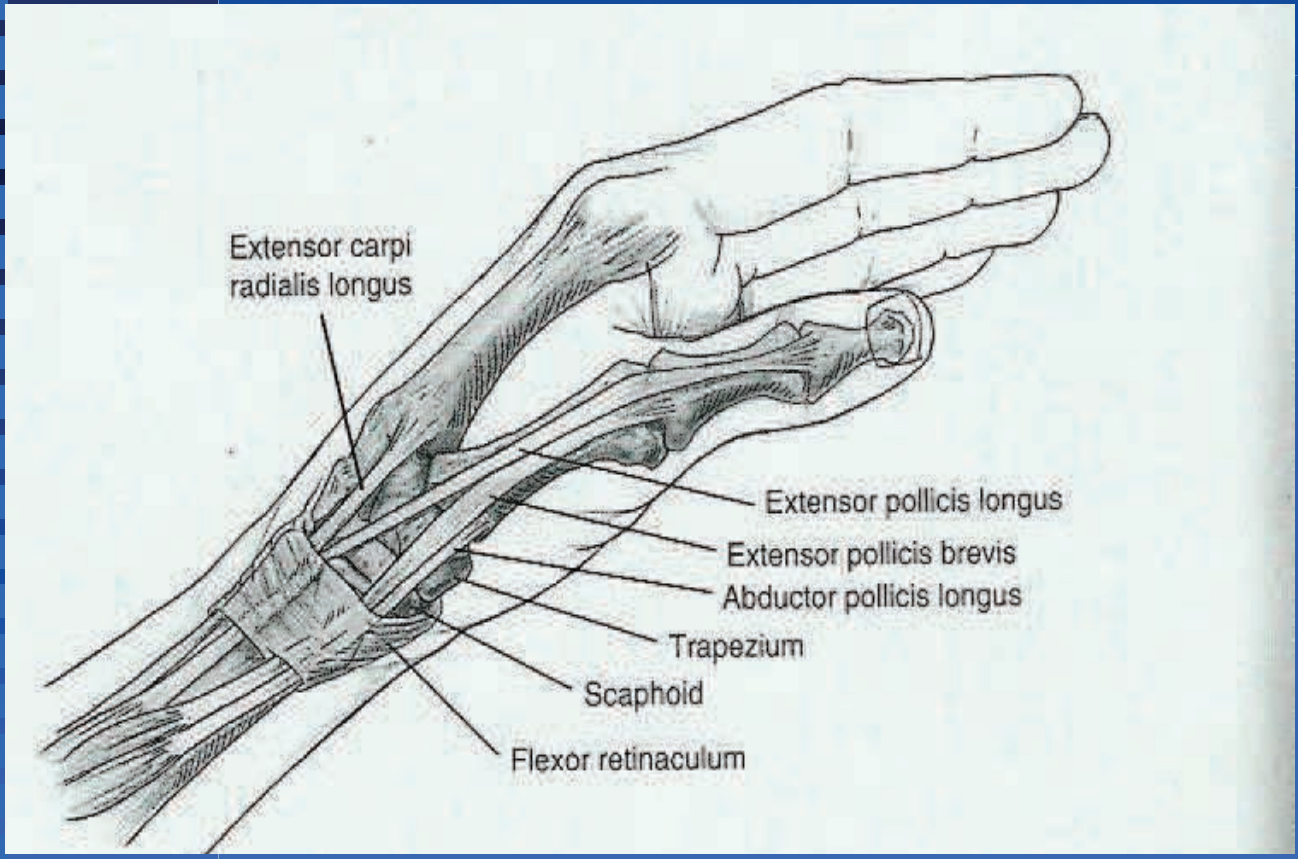
Observation

- How the patient uses and holds the hand and wrist
- Inspection : Wasting of muscles, shiny skin, scars, skin changes

Palpation

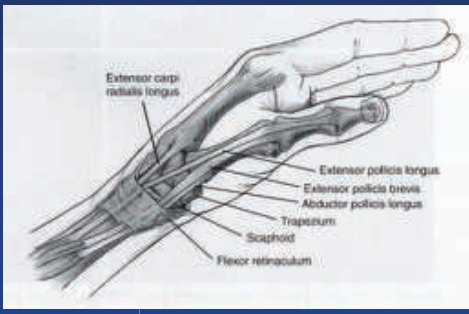
- Knowledge of anatomy and pathology of the concerned area

ANATOMY : Radial dorsal zone



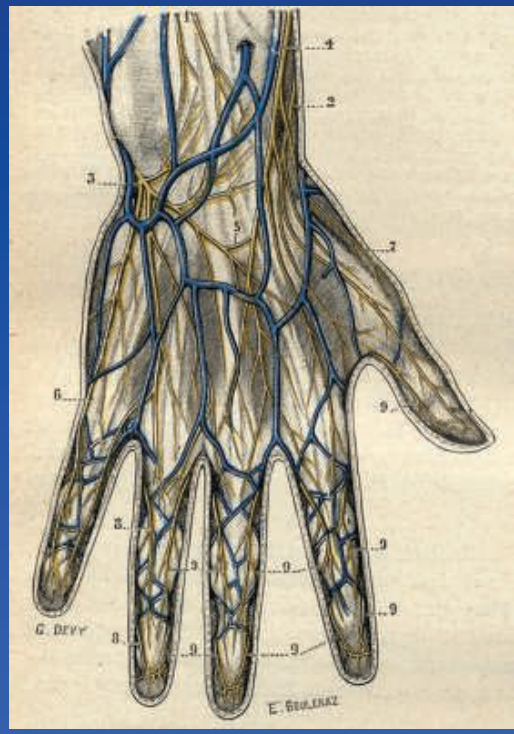
- Bony features palpable
  - Radial styloid
  - Scaphoid
  - Scapho-trapezial joint
  - Trapezium
  - Base of the first metacarpal

Radial wrist examination

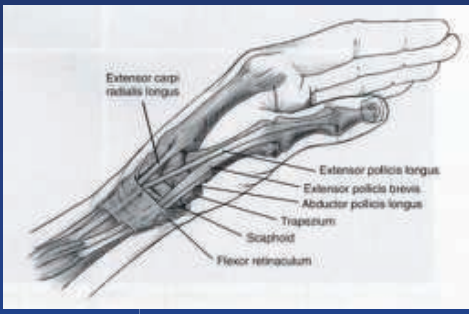


- Soft tissues : nerve

* Nevralgia of lateral antebrachial cutaneous nerve / superficial branch of radial nerve

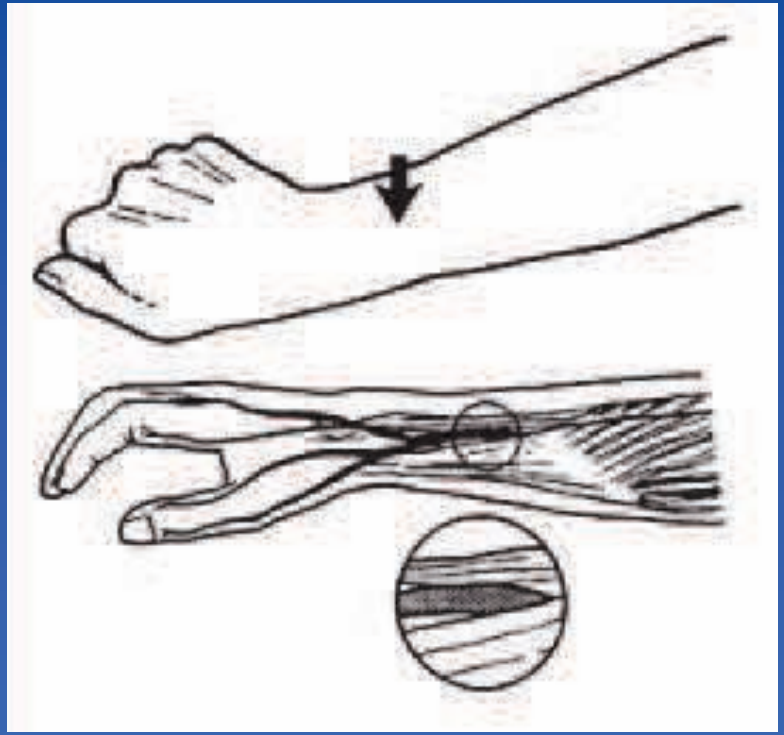


Radial wrist examination

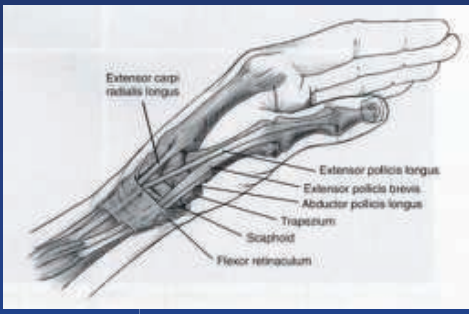


- Soft tissues : nerve

* Wartenberg Syndrome

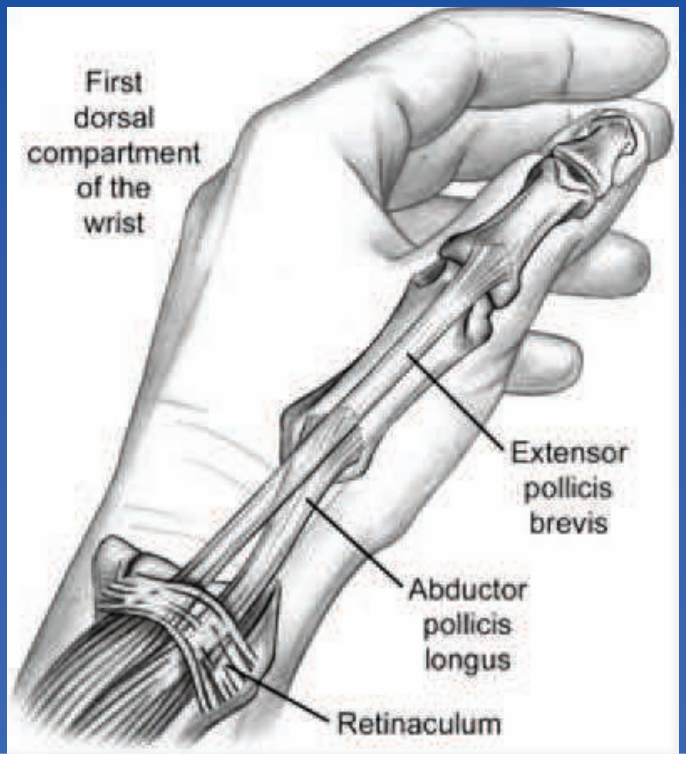


Radial wrist examination



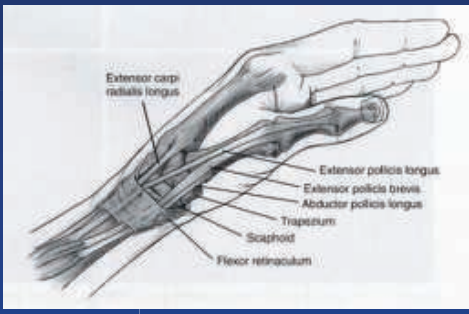
- Soft tissues : tendon

* De Quervain Tenosynovitis



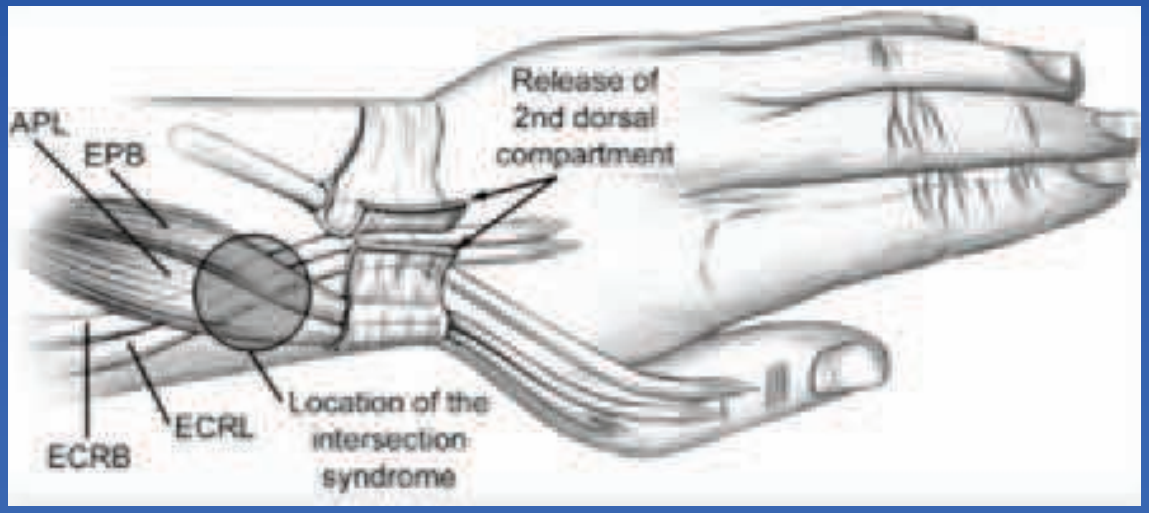
(Finkelstein test)

Radial wrist examination

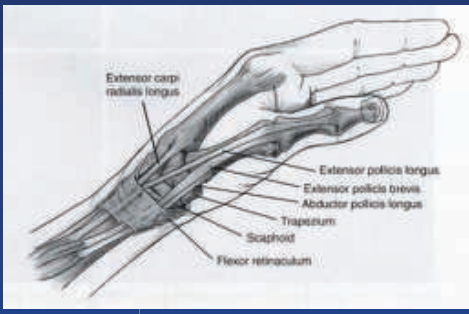


- Soft tissues : tendon

* Intersection Syndrome

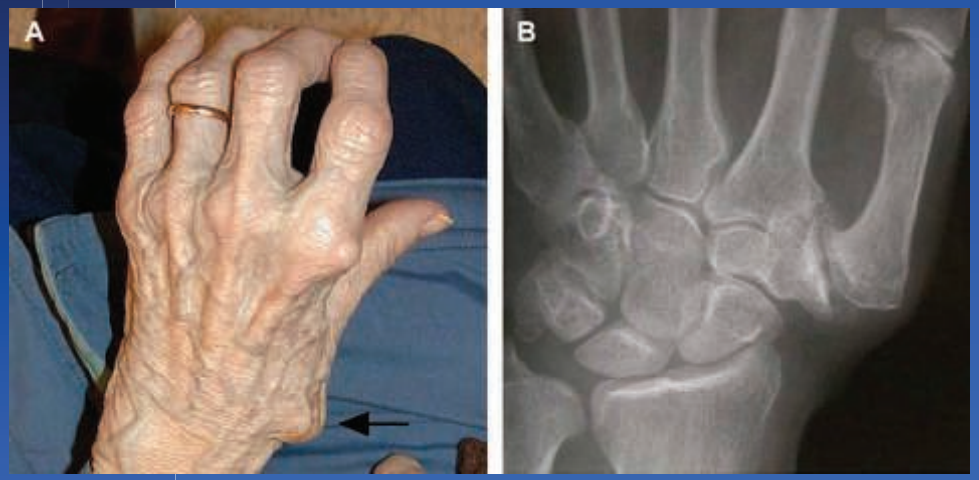


Radial wrist examination



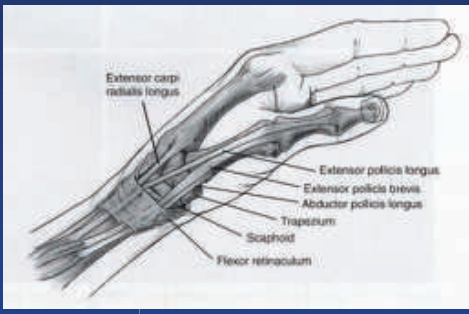
- Osteoarticular

* TM Arthrosis



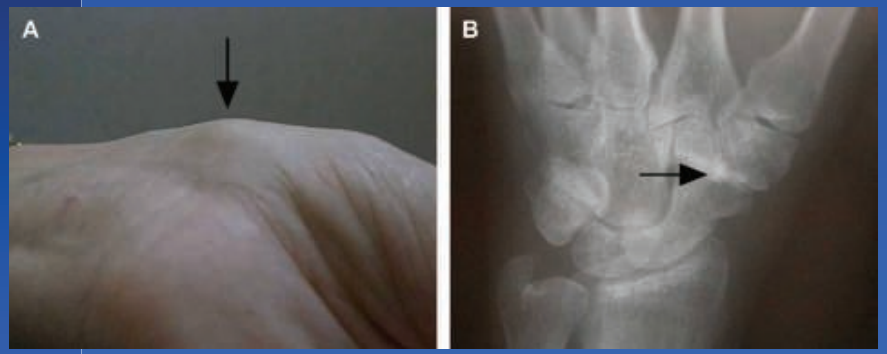
Compression

Radial wrist examination



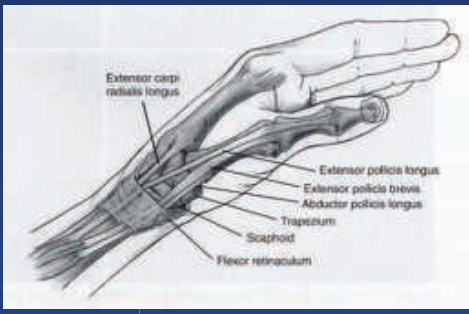
- Osteoarticular

* STT arthrosis



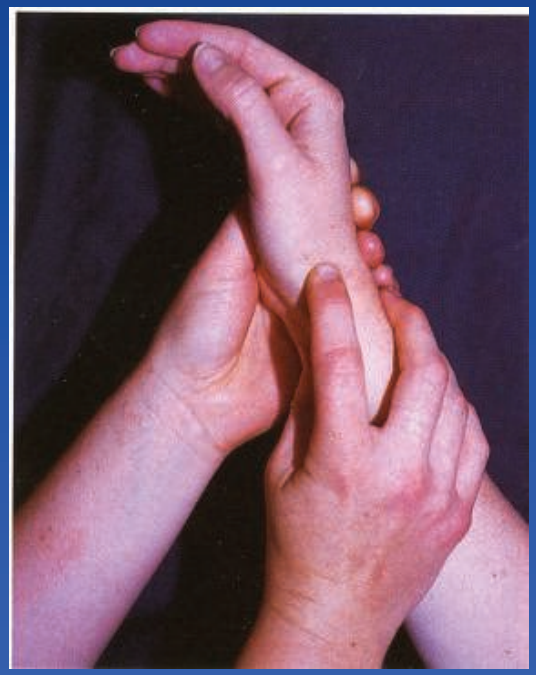
Compression

Radial wrist examination



- Osteoarticular

* Scaphoid fracture
* Scapholunate instability



Snuffbox

ANATOMY : Dorsal wrist

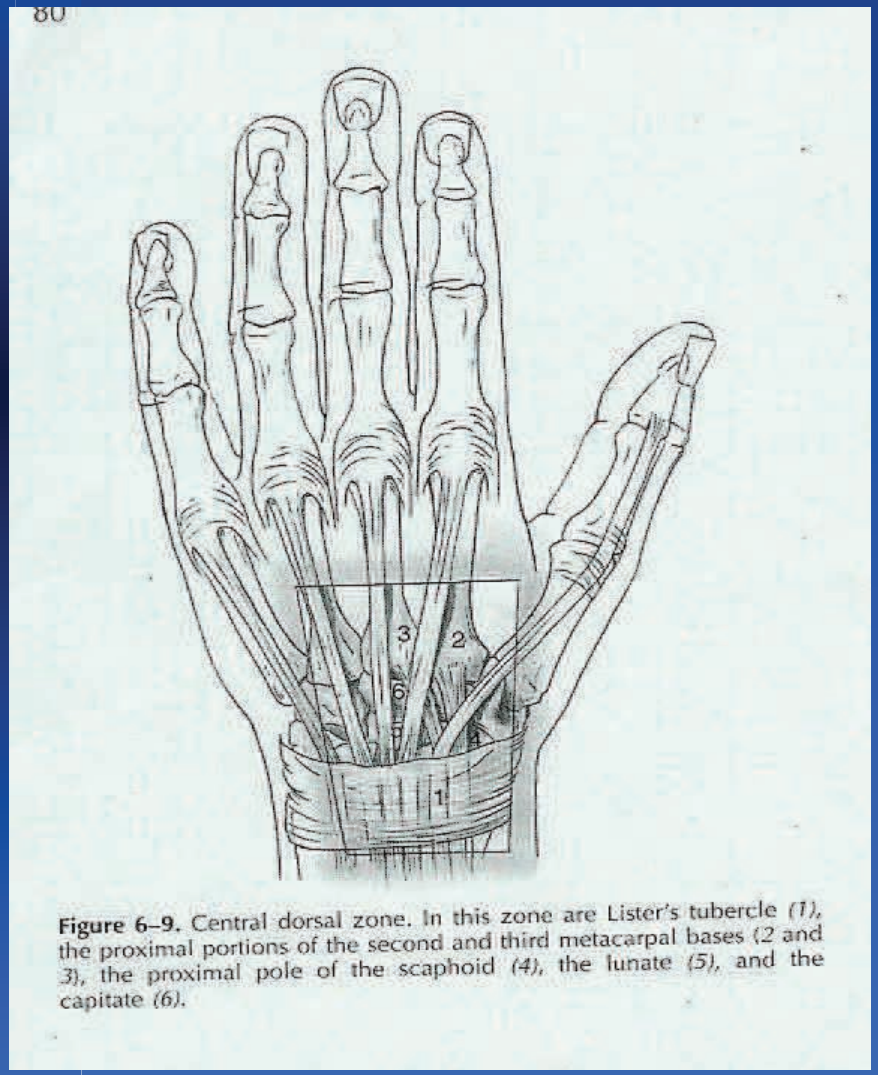
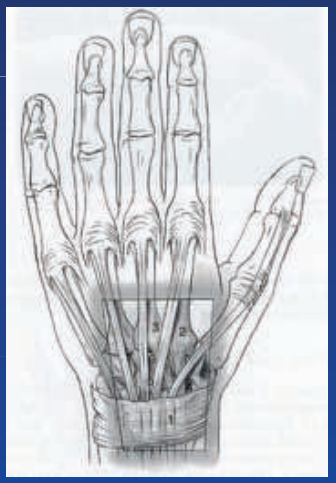
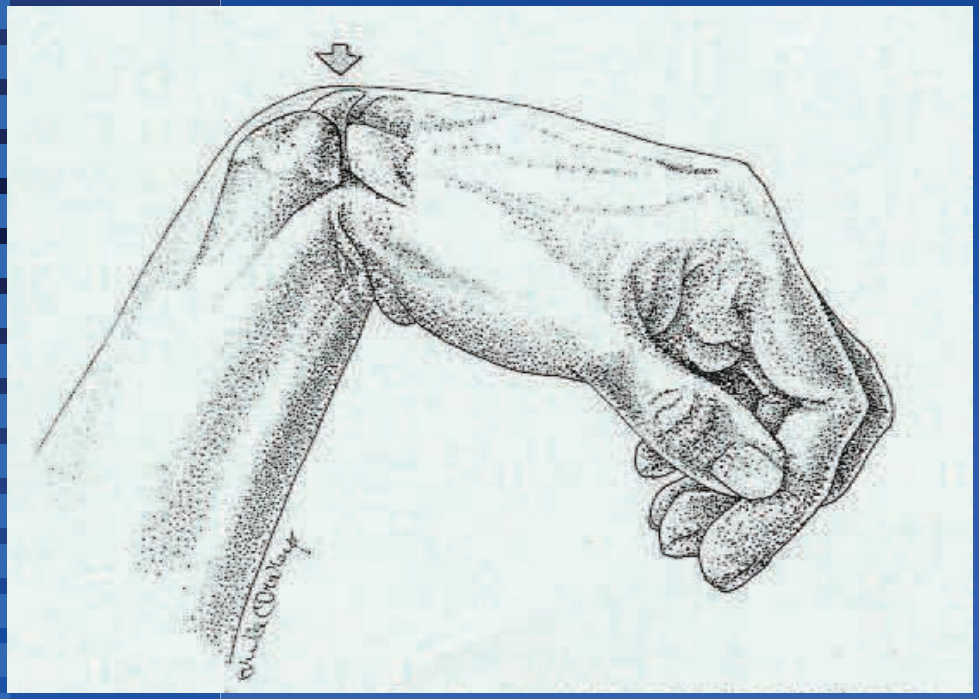


Figure 6–9. Central dorsal zone. In this zone are Lister's tubercle *(1)*, the proximal portions of the second and third metacarpal bases (*2* and *3*), the proximal pole of the scaphoid *(4)*, the lunate *(5)*, and the capitate *(6)*.

- Lister's tubercle
- Scapholunate joint
- Lunate
- Capitate
- Bases of the second and third metacarpals and CMC joints
- Distal aspect of ECRL and ECRB
- EPL and EDC

ANATOMY : Dorsal wrist

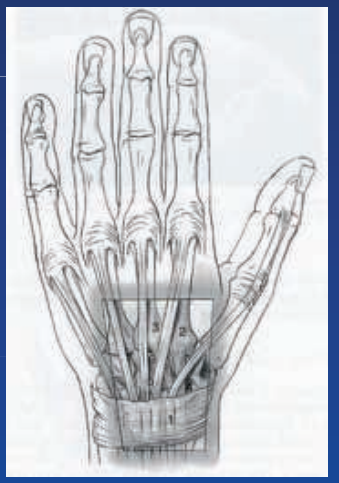




LUNATE

- Distal & ulnar to Listers's tb
- More prominent with wrist held in flexion
- Pain in the absence of trauma may indicate idiopatic osteonecrosis (Kienböck's disease)

ANATOMY : Dorsal wrist



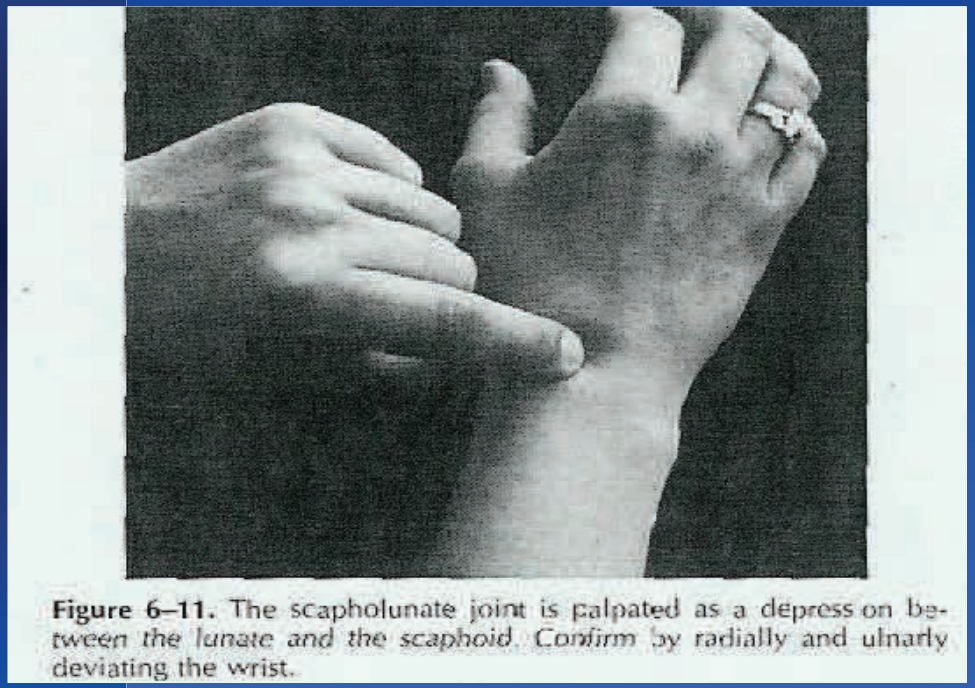
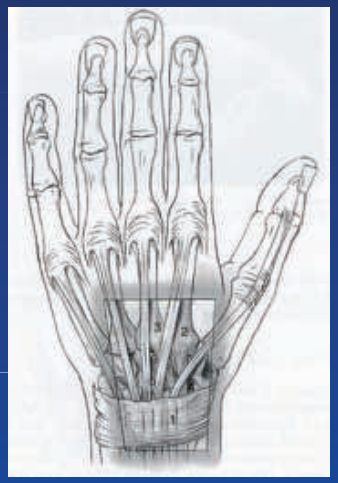


Figure 6–11. The scapholunate joint is palpated as a depress on be- *tween the lunate and the scaphoid. Confirm* by radially and ulnarly deviating the wrist.

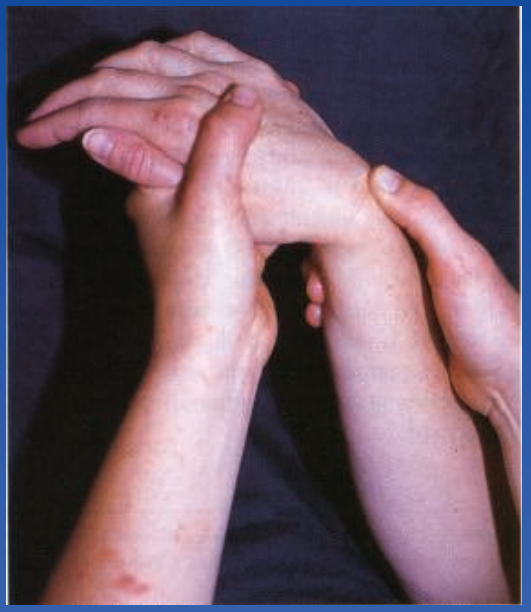
SCAPHO-LUNATE JOINT

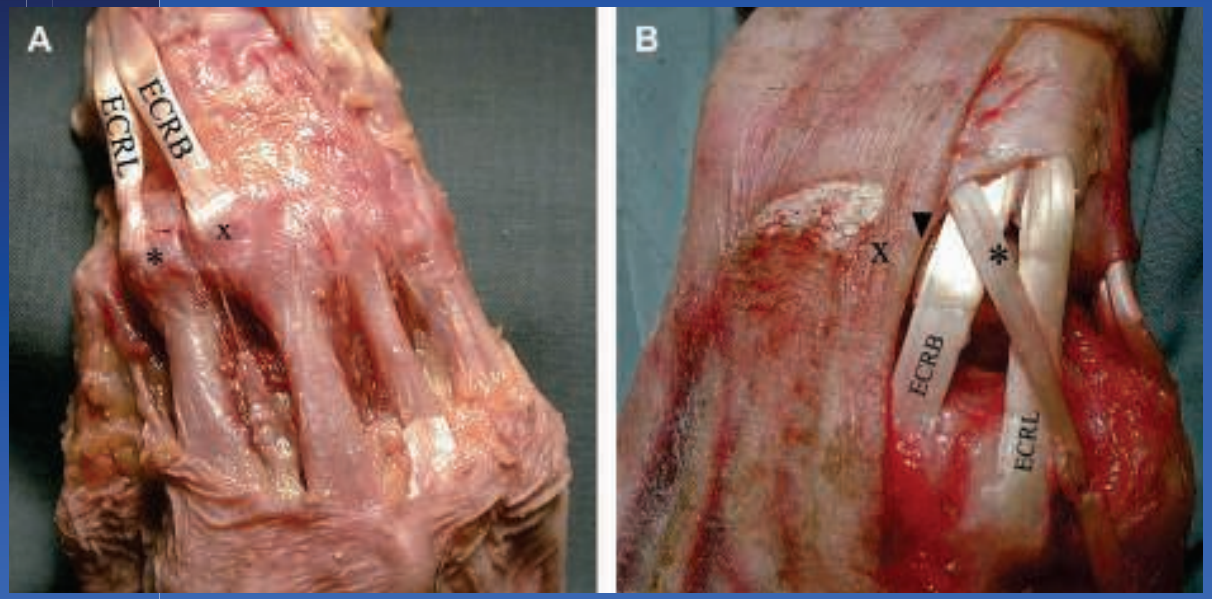
- Begin palpation on the lunate bone
- Once found, then move wrist into radio and ulnar deviation.
- Tenderness may reveal S-L dissociation
- Occult ganglion may cause chronic wrist pain (more evident in wrist flexion)

Dorsal wrist examination

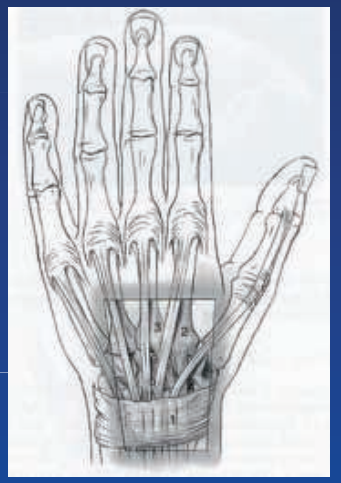


- Ligament
* Scapholunate interval





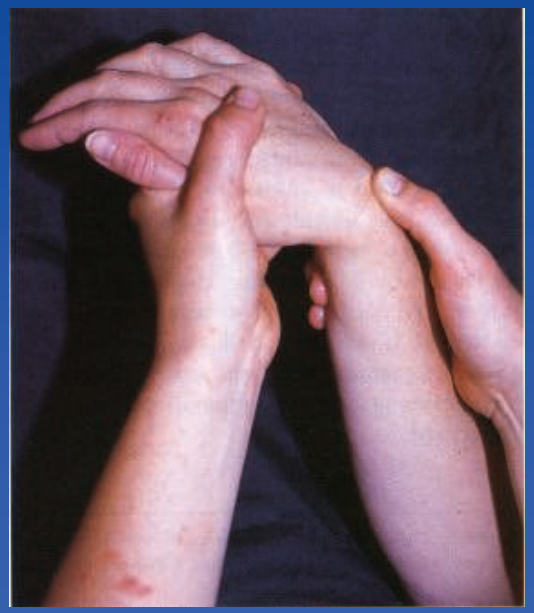
Dorsal wrist examination



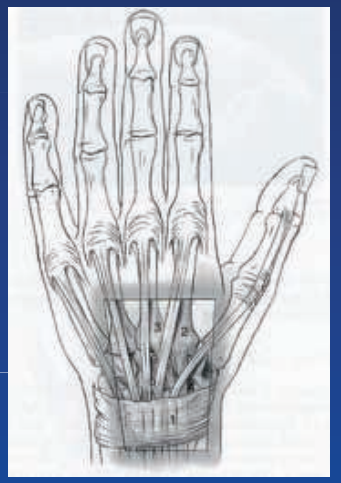
- Ligament

* Scapholunate interval

  - Kienbock's disease
  - SL ligament tears
  - Chronic occult ganglion



Dorsal wrist examination

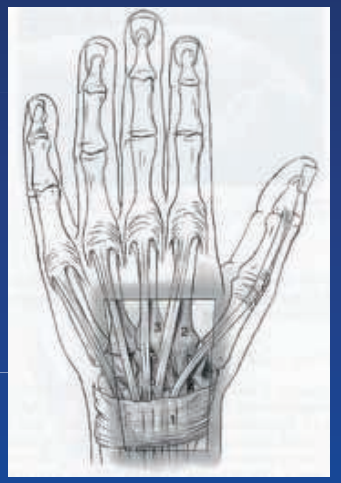


- Tendon

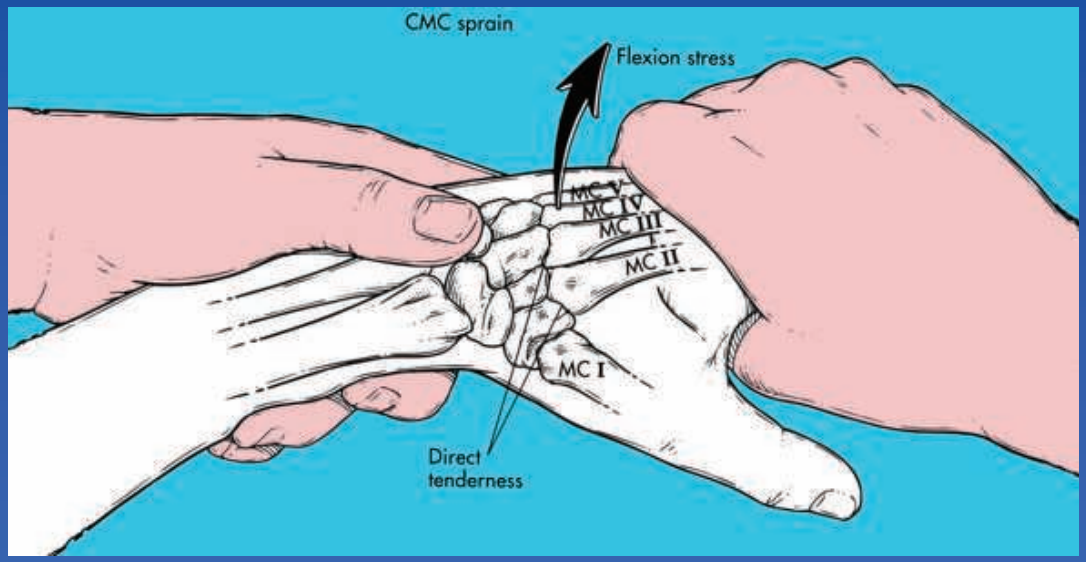
* 4th and 5th extensor compartment

  - Tenosynovitis (pain, swelling, tenderness)

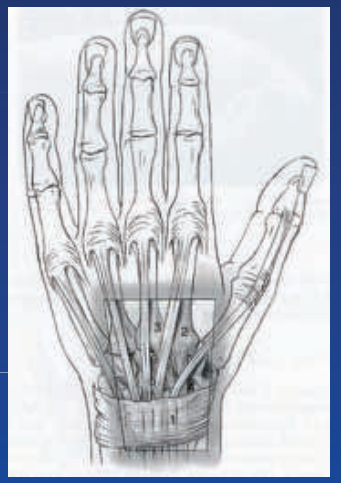
Dorsal wrist examination



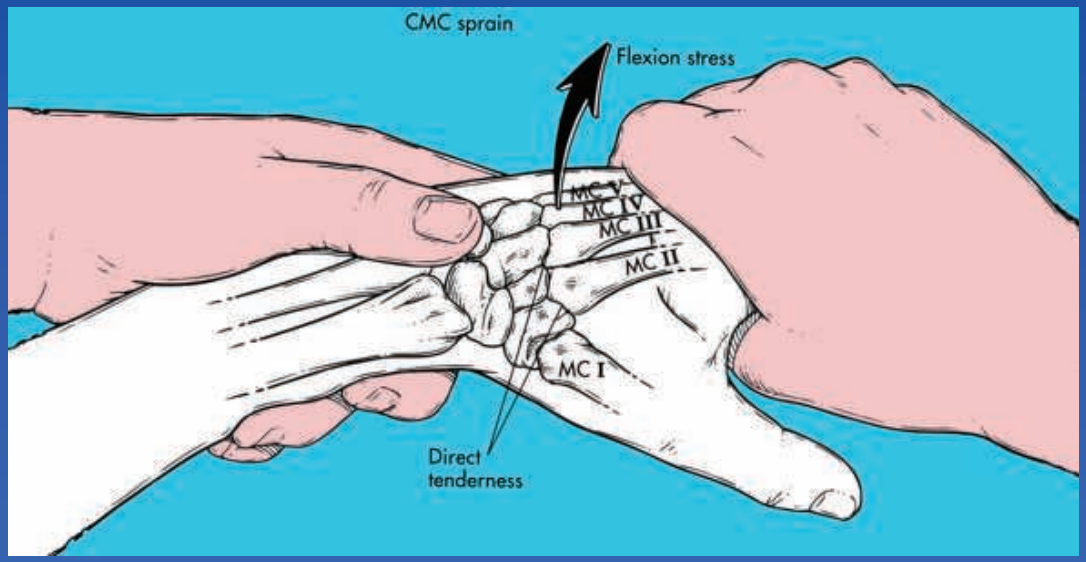
- Osteoarticular
* Carpometacarpal joints



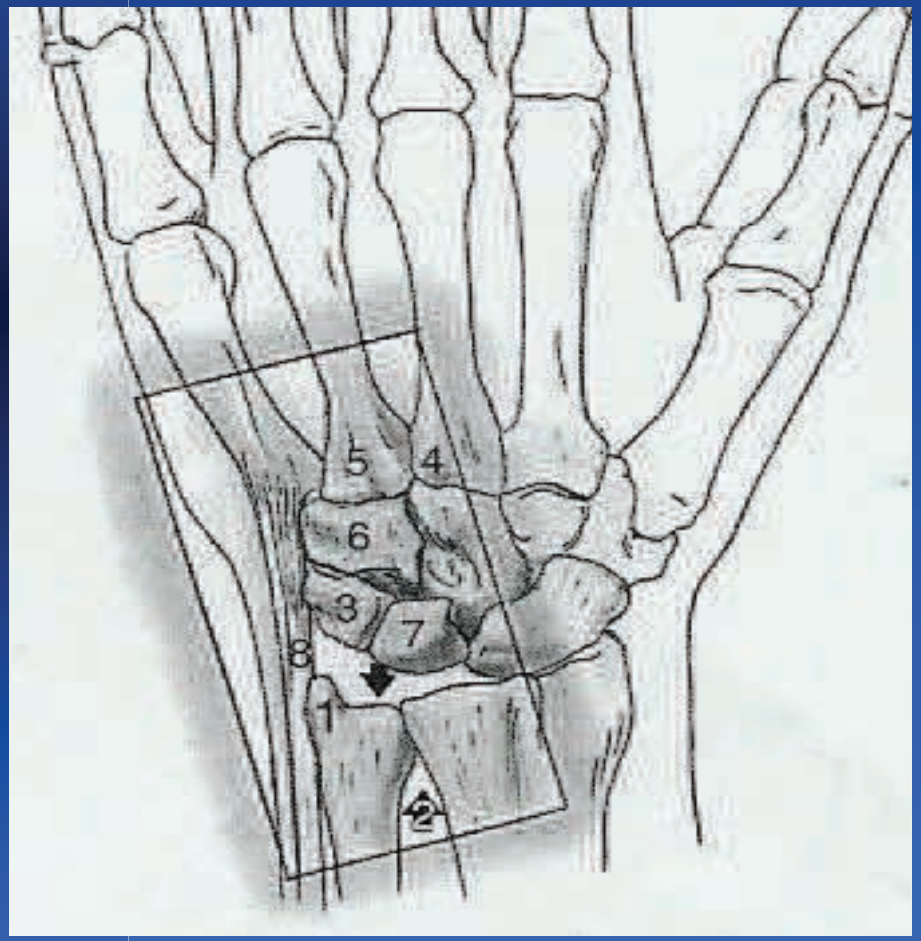
Dorsal wrist examination



- Osteoarticular
* Carpometacarpal joints
  - CMC Sprain
  - Carpal boss



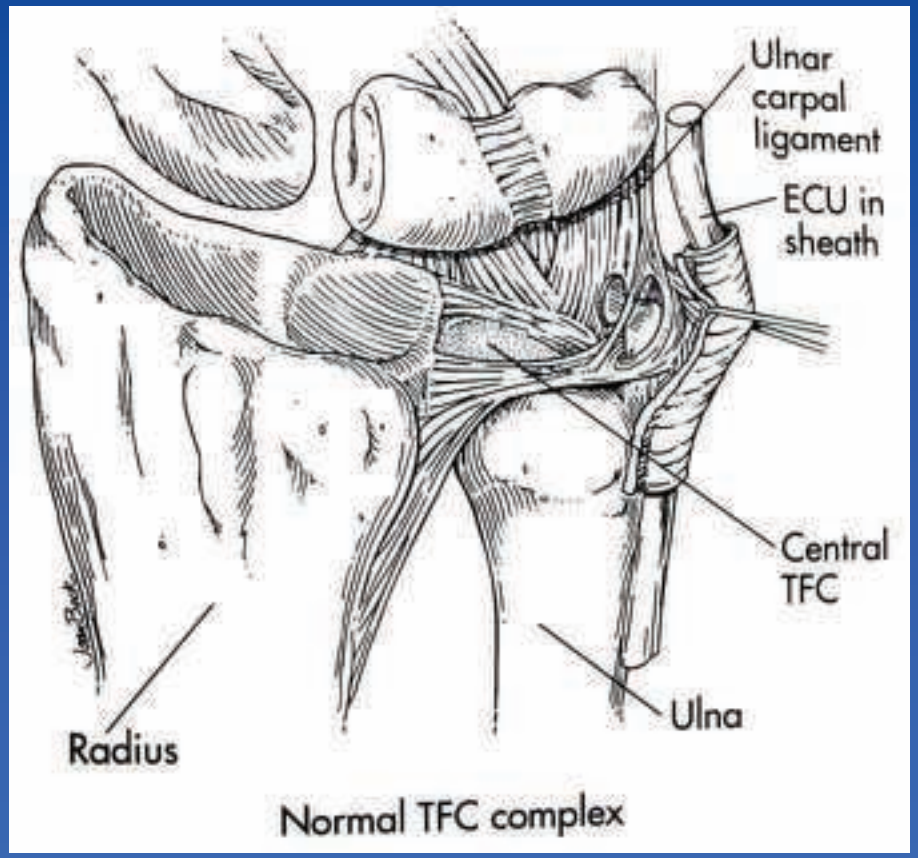
ANATOMY : Ulnar wrist



- Ulnar styloid
- Distal radio-ulnar joint
- Triquetrum
- Hamatum
- Bases of the fourth and fifth metacarpals and CMC joints
- Lunate
- ECU

ANATOMY : Ulnar wrist

TFCC



Normal TFC complex

Ulnar wrist examination

- Tendon
* Extensor carpi ulnaris

Ulnar wrist examination

- Osteoarticular

* Ulnocarpal impaction

The ‘‘grind test’’ for ulnocarpal impaction or TFCC tears.

Ulnar wrist examination

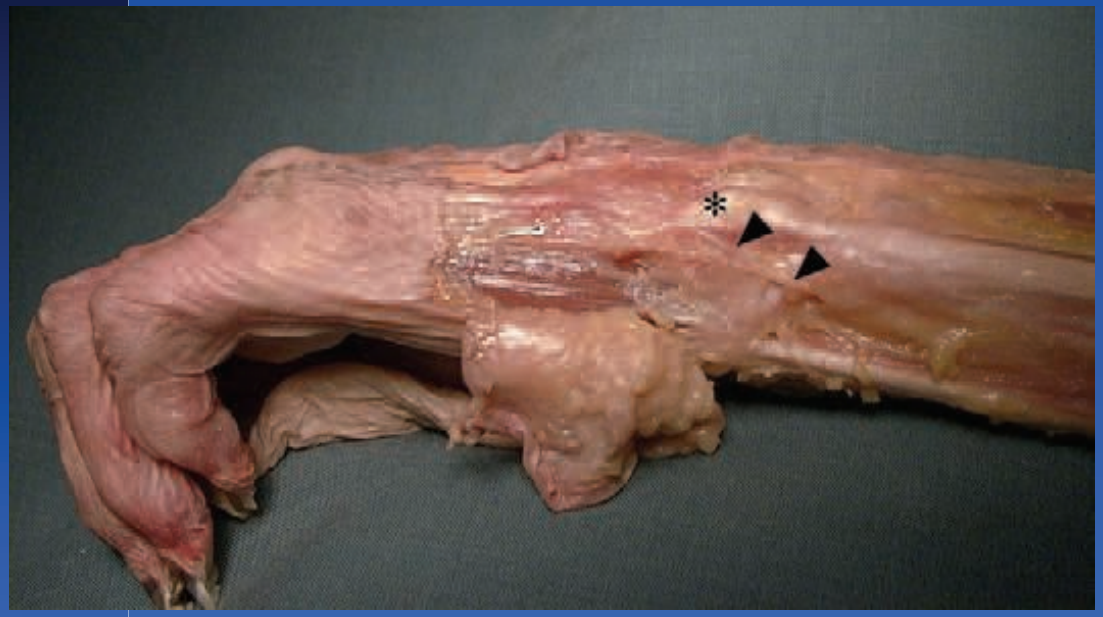
- Osteoarticular
* TFCC tear

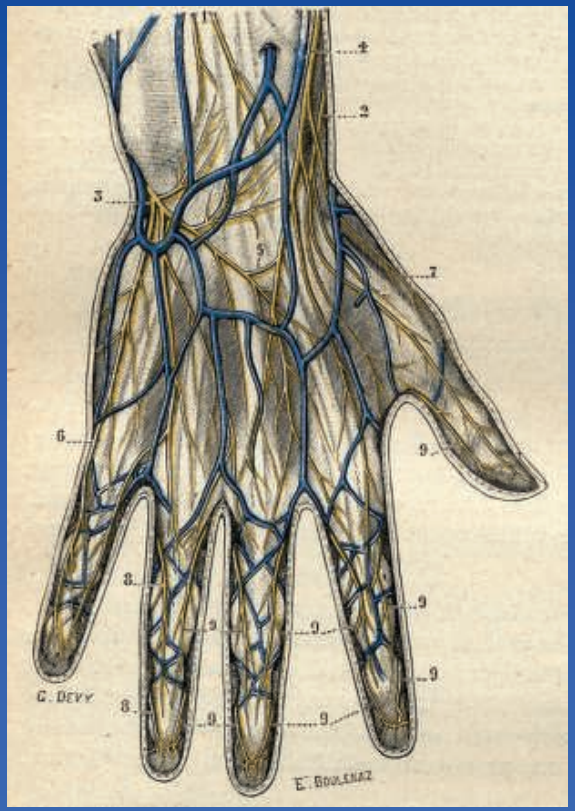
The ‘‘grind test’’ for ulnocarpal impaction or TFCC tears.

Ulnar wrist examination

- Nerve

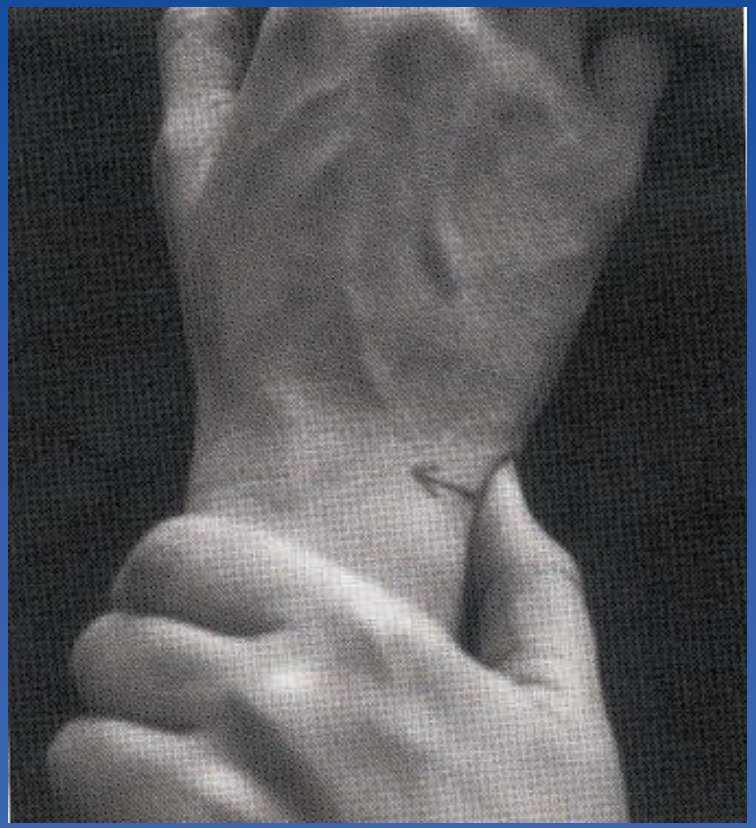
* Nevralgia of the ulnar nerve





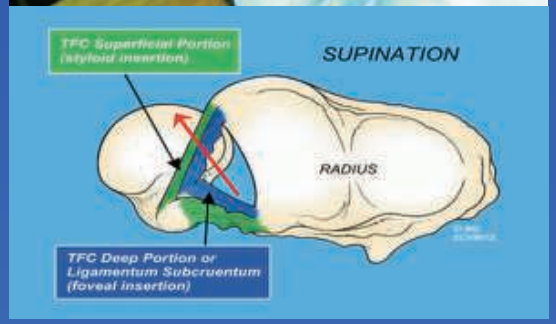
Ulnar wrist examination

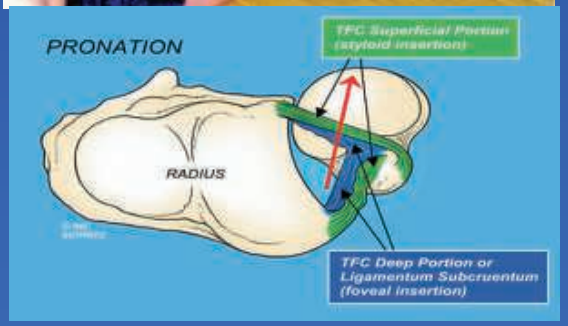
- Osteoarticular
* Triquetrum



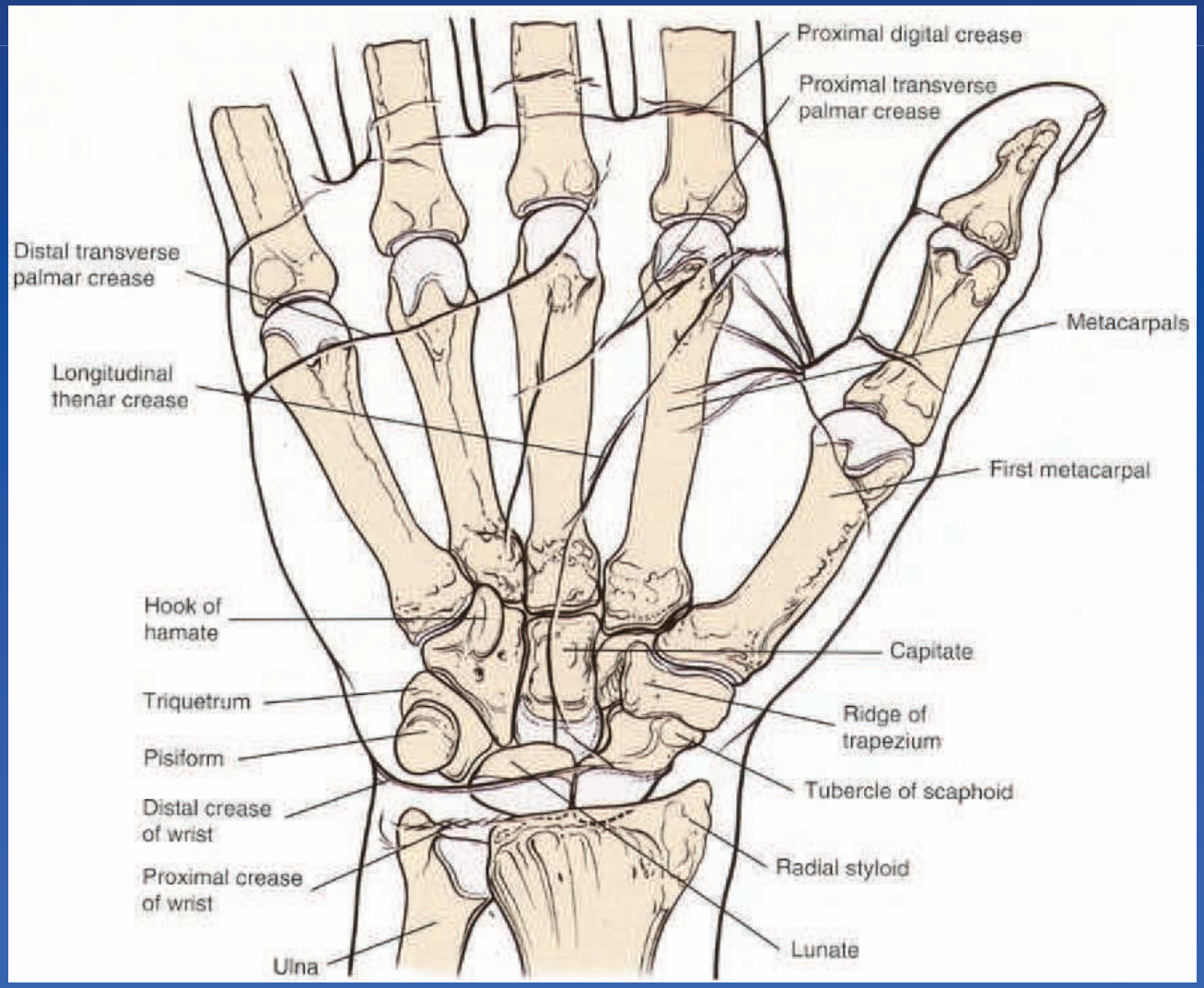
Ulnar wrist examination

- Ligament
* TFCC

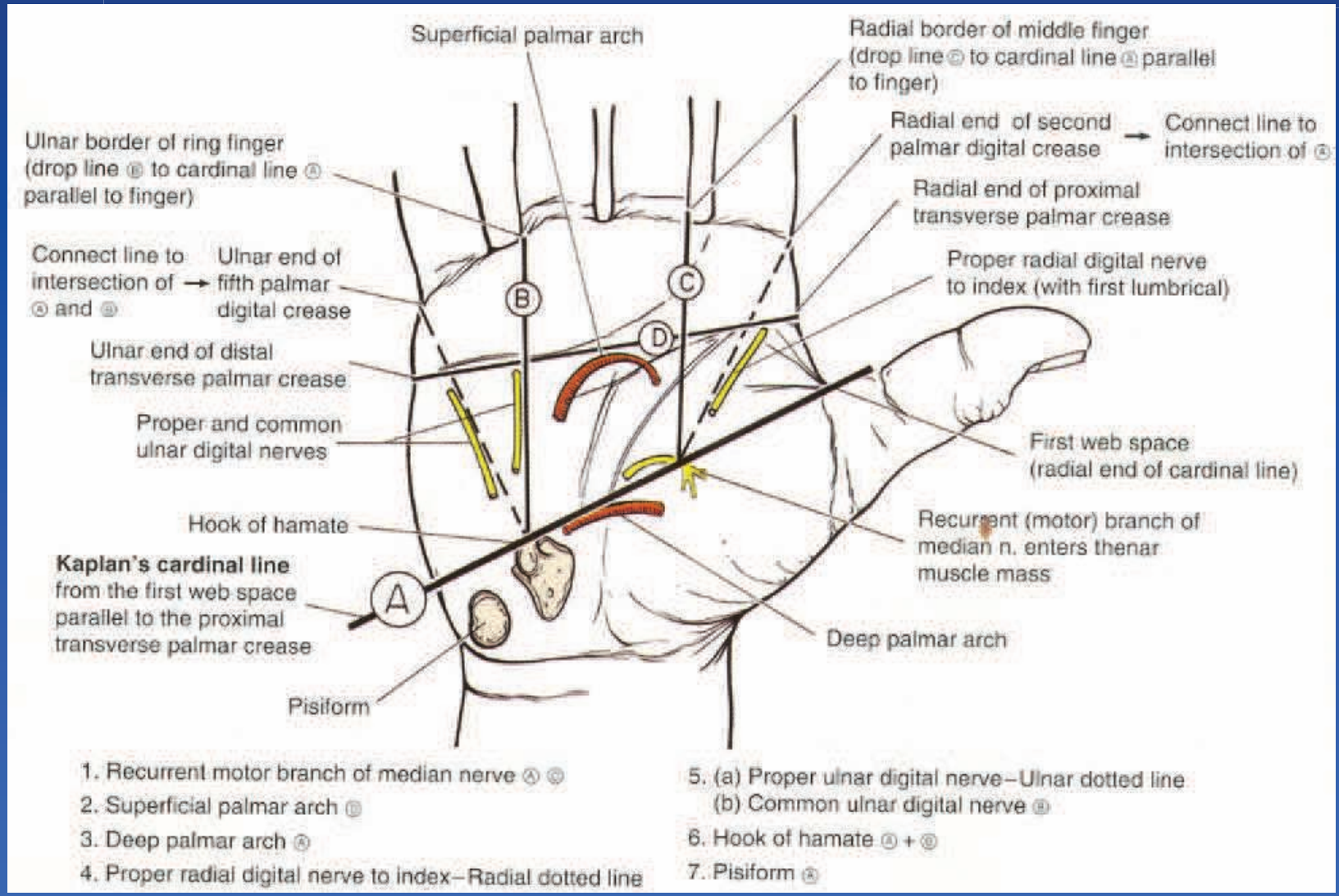




ANATOMY : Volar zone



ANATOMY : Volar zone



ANATOMY : Ulnar volar zone

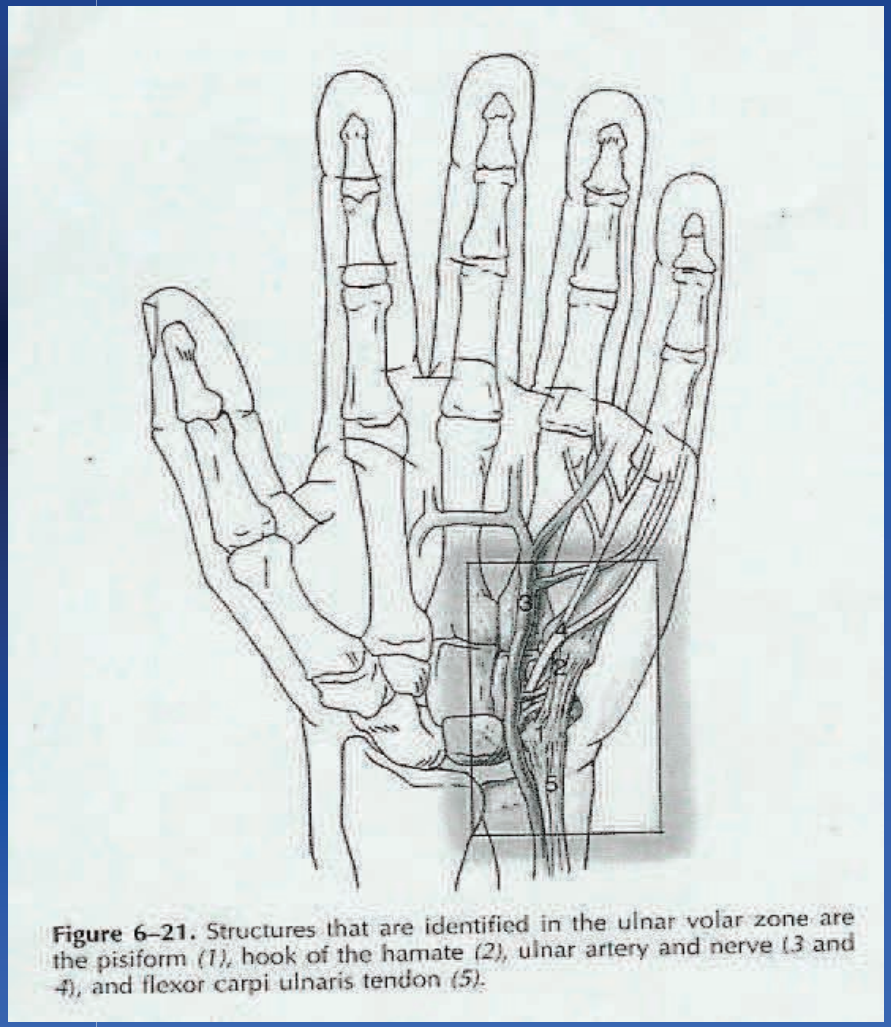


Figure 6–21. Structures that are identified in the ulnar volar zone are the pisiform *(1)*, hook of the hamate *(2)*, ulnar artery and nerve (3 and 4), and flexor carpi ulnaris tendon *(5)*.

- Pisiform
- Hook of the hamate
- Ulnar nerve and artery
- Flexor carpi ulnaris tendon

ANATOMY : Radial volar zone

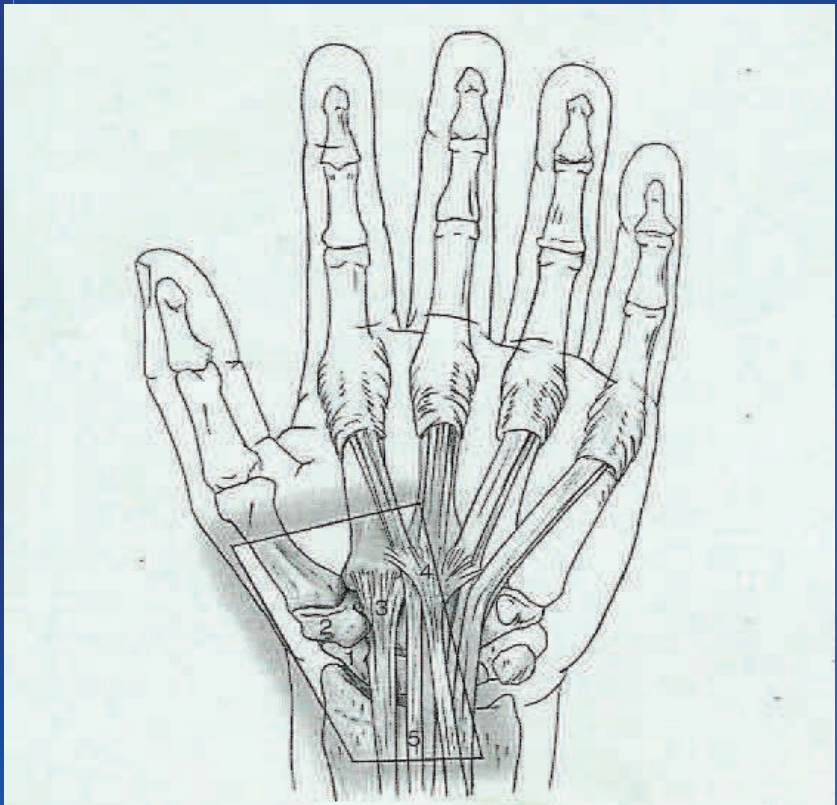
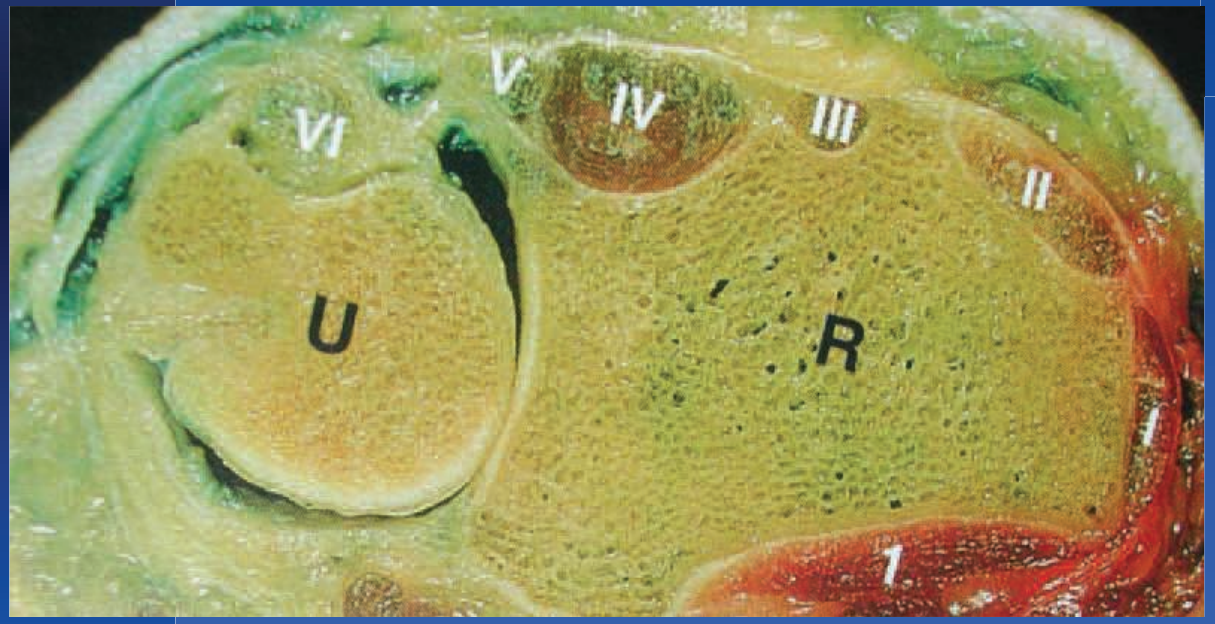


Figure 6–20. Structures identified in the radial volar zone zone are the scaphoid tuberosity *(1)*, tubercle of the trapezium *(2)*, flexor carpi radialis *(3)*, palmaris longus *(4)*, and the long finger flexors *(5)*.

- Scaphoid tuberosity
- Tubercle of the trapezium
- Flexor carpi radialis
- Palmaris longus
- Long fingers flexors
- Median nerve

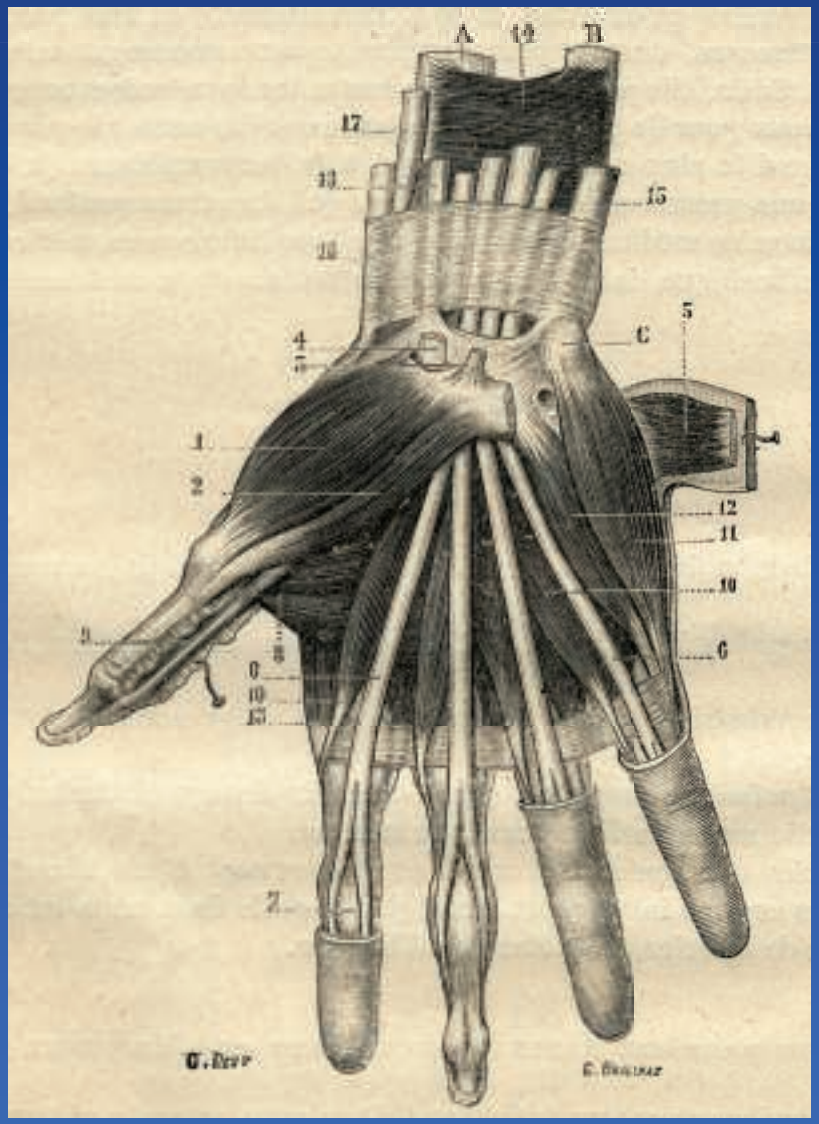
ANATOMY : Tendons



EXTENSOR TENDONS

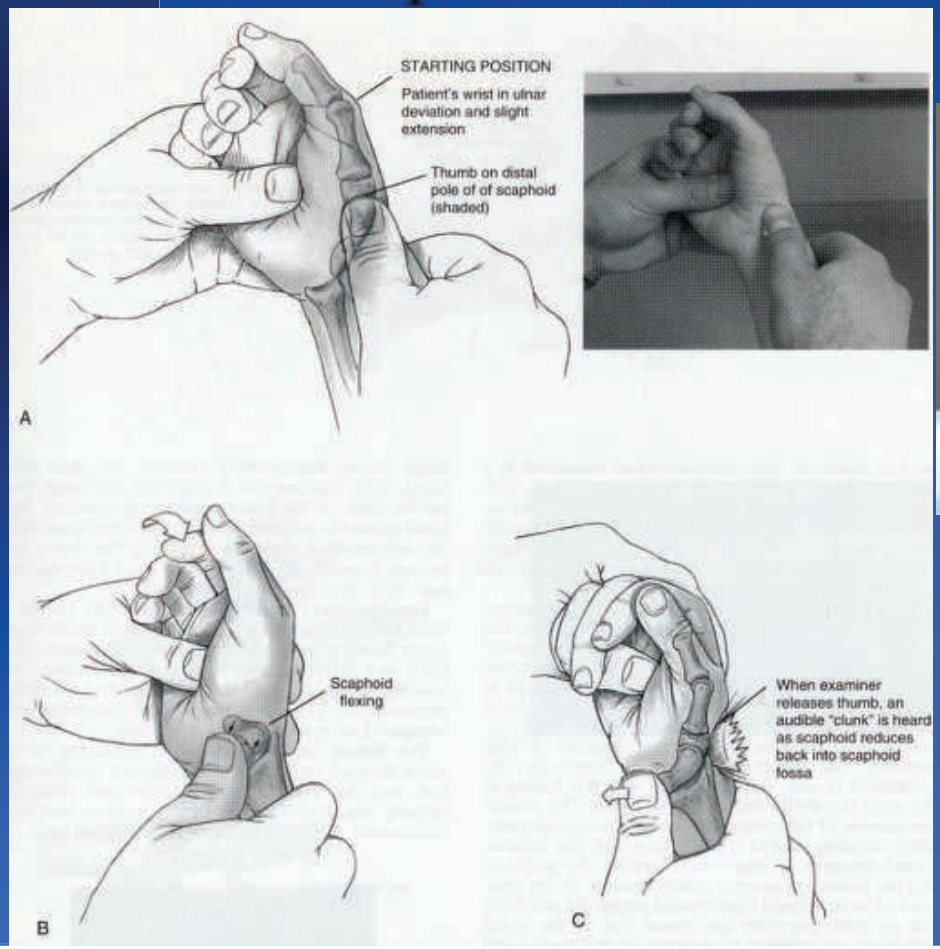
- 1st comp. : APL / EPB
- 2nd comp. : ECRL / ECRB
- 3rd comp. : EPL
- 4th comp. : EDC / EIP
- 5th comp. : EDM
- 6th comp. : ECU

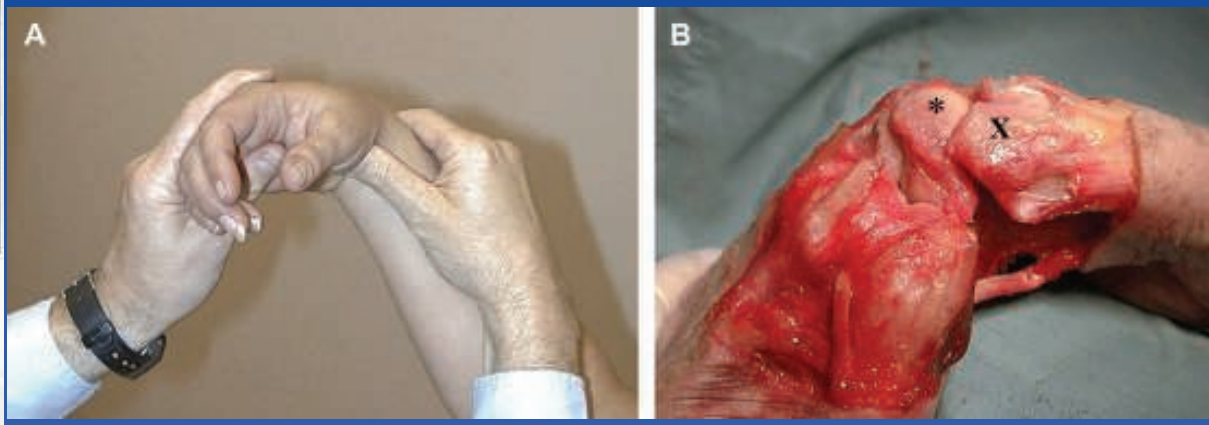
ANATOMY : Tendons



Provocative tests of carpal instability

- Scapholunate instability





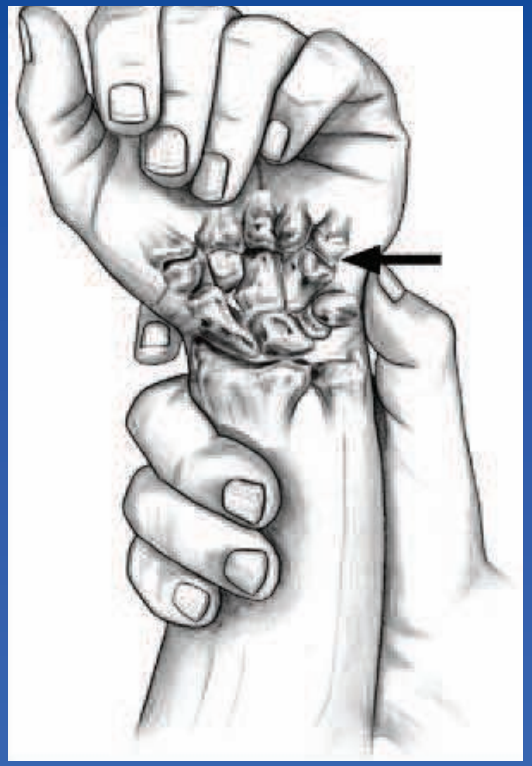
Scaphoid shift test (Watson)

Provocative tests of carpal instability

- Lunotriquetral instability

Ballottement test (Reagan)

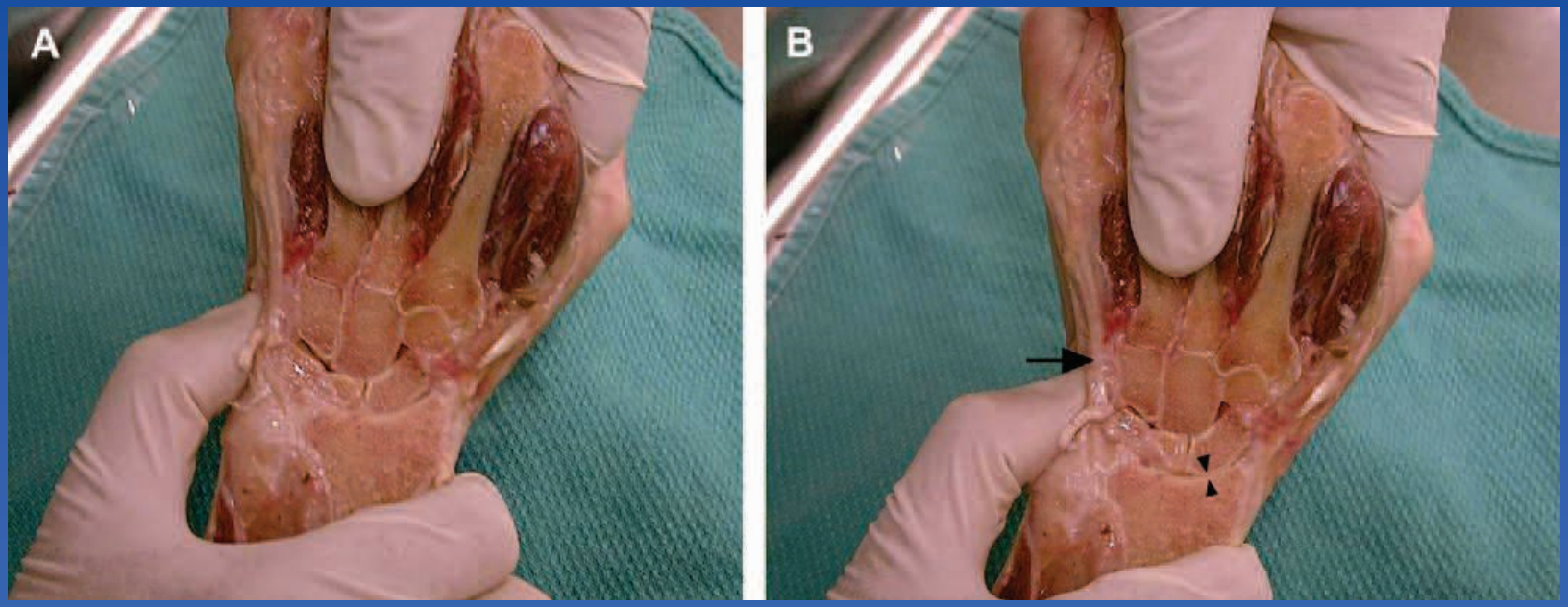
Kleinman's shear test



Lateral compression test

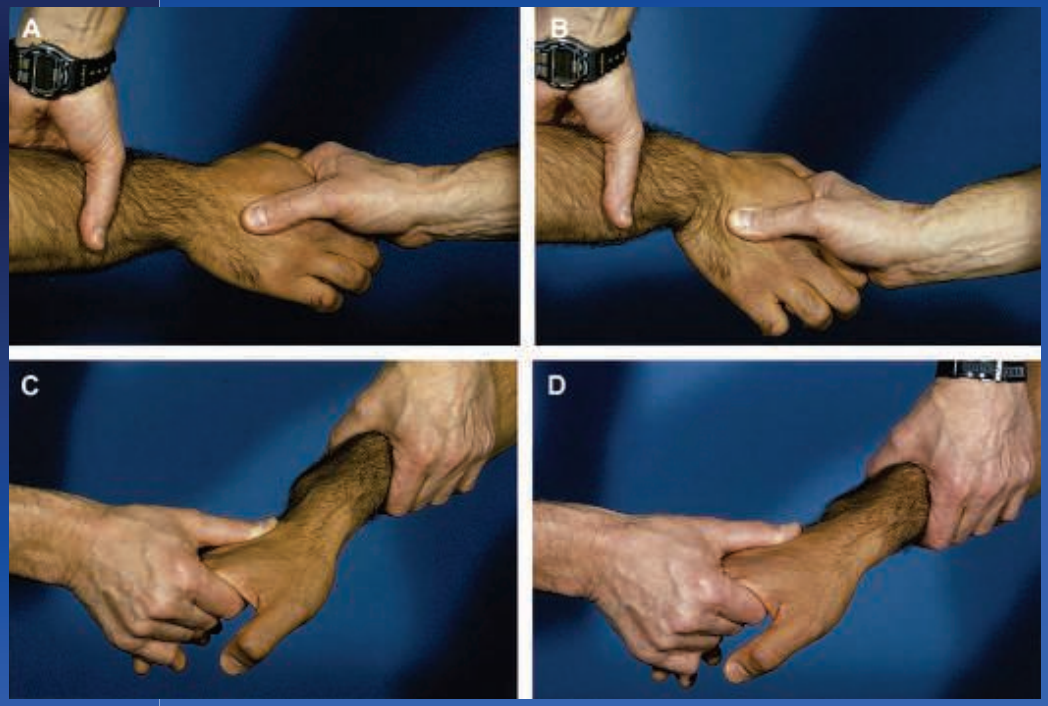
Provocative tests of carpal instability

- Radiocarpal instability



Provocative tests of carpal instability

- Midcarpal instability



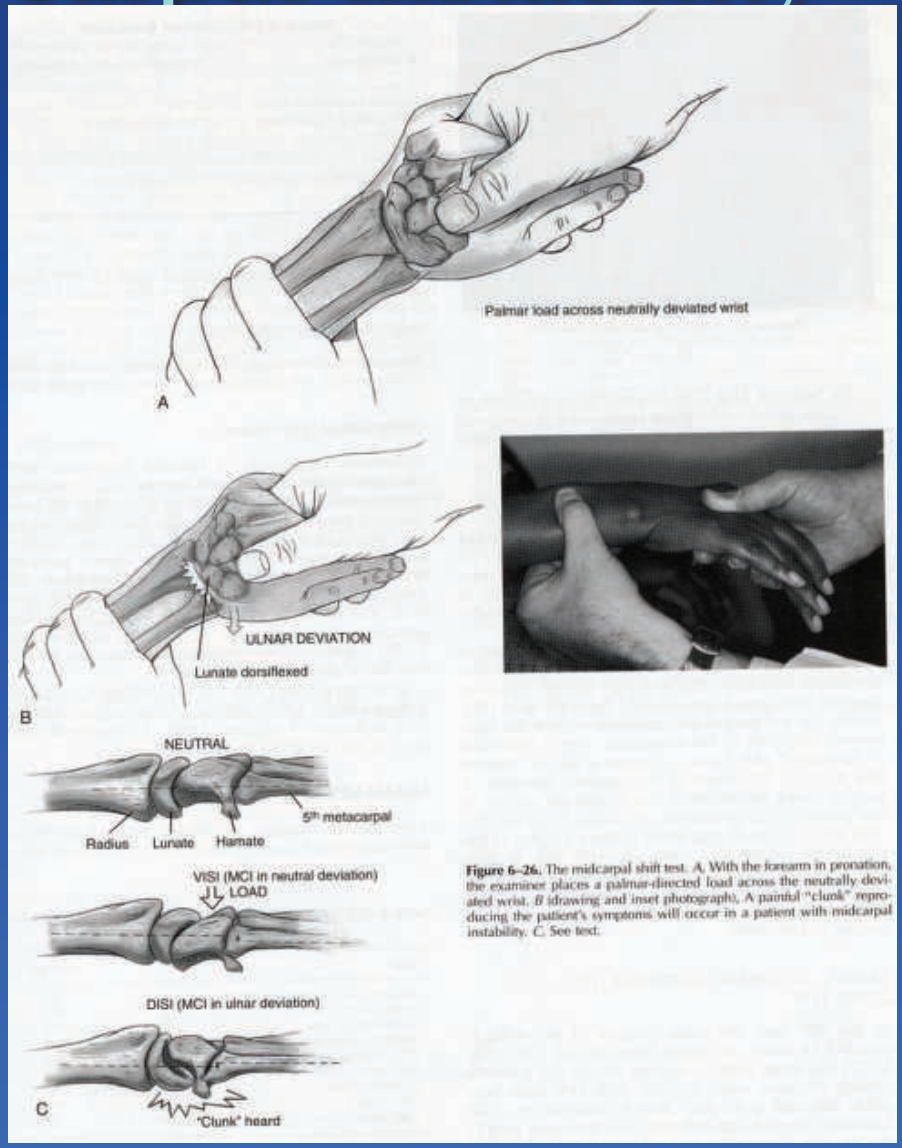
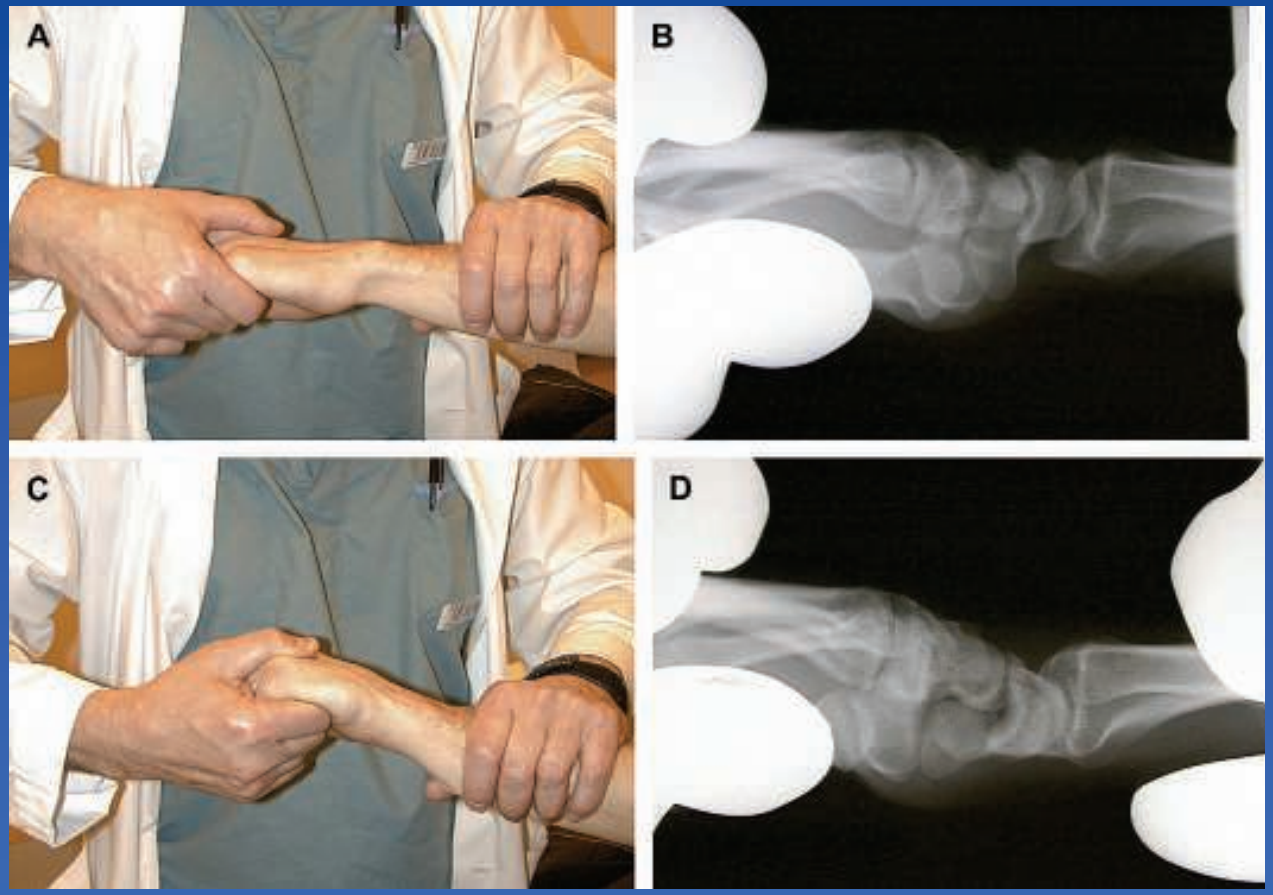


Figure 6–26. The midcarpal shift test. *A*, With the forearm in pronation, the examiner places a palmar-directed load across the neutrally deviated wrist. *B* (drawing and inset photograph), A painful "clunk" reproducing the patient's symptoms will occur in a patient with midcarpal instability. *C*, See text.

Provocative tests of carpal instability

- Capitolunate instability



Other tests

- Pisiform grinding test

- pisiform instability
- pisotriquetral arthritis

Range of motion

Extension (70°) / Flexion (80°)

Radial (20°) / Ulnar deviation (40°)

Pronation (70°) / Supination (90°)

Strength

- Dynamometer
- Global strength / pinch thumb-index
- Men
  - 80 pounds (36 kg) / 60 pounds (27 kg)
- Women
  - 50 pounds (23 kg) / 30 pounds (14 kg)

Thank you for your attention

Reference : Physical Examination of the Wrist
D. Young, S. Papp, A. Giachino
Orthopedic Clinics of North America
38 (2007)149-165