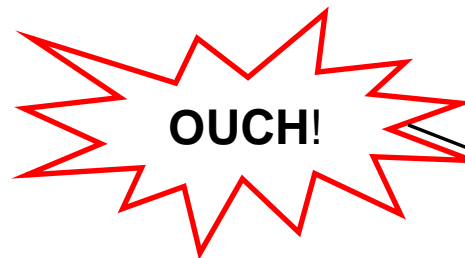


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Acute Wrist Injuries



Case – the athlete

- FOOSH from sporting event 2 days ago
- C/O wrist swelling, pain, worse with movement

Hmmm...
Wrist pain

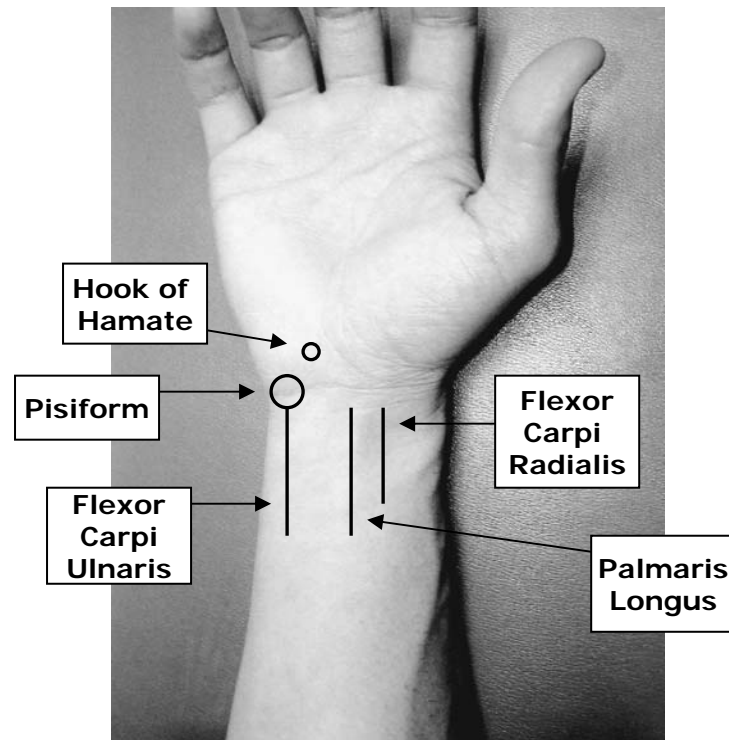
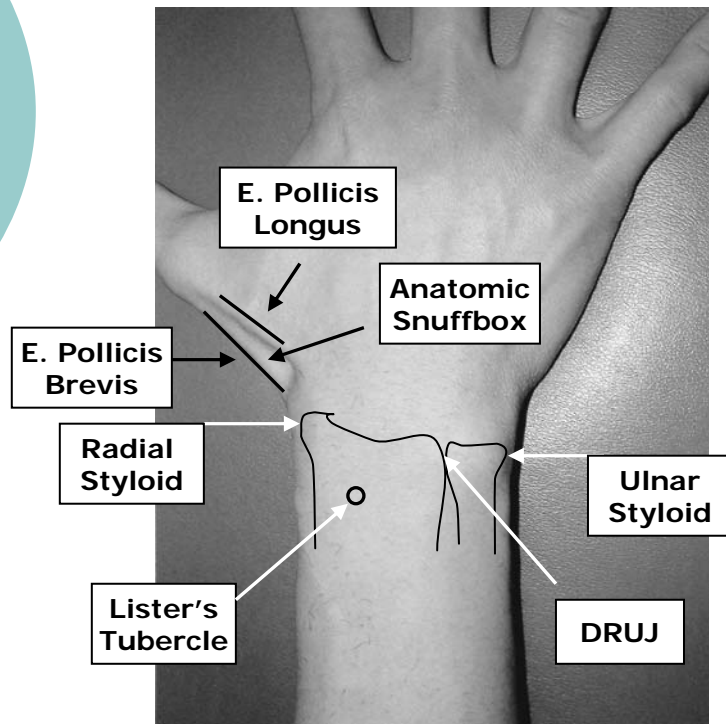


Exam of the wrist - basics

- Appearance
 - Swelling, bruising, deformity
- Function
 - Range of motion, grip, neurovascular status
- Pain
 - With motion, palpation



Anatomy review – honing in



THINK

- Dorsal vs Ventral
- Radial vs. Ulnar

Carpals



TTCH
SLTP



Differential Diagnosis

○ Benign Stuff

- Sprain
- Tendonitis
- Contusion

○ Can't Miss Stuff

- Fractures
- Tendon rupture
- Ligament disruptions
- Carpal dislocation

Imaging – review of normal



PA



Oblique



Lateral

Additional views



Clenched fist PA



**Clenched fist
Oblique**

Additional views



Scaphoid View



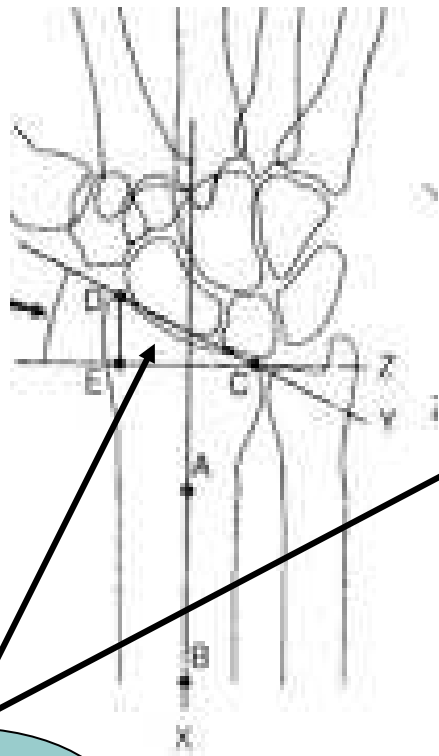
Tunnel View



Key measures on X-ray

- Radial inclination - 23°
- Volar Tilt – 11°
- Radial Height -12mm
- Scapholunate angle – 30° to 60°
- Scapholunate joint width – 2mm
- Capitate-Lunate angle $<10^{\circ}$ - 20°

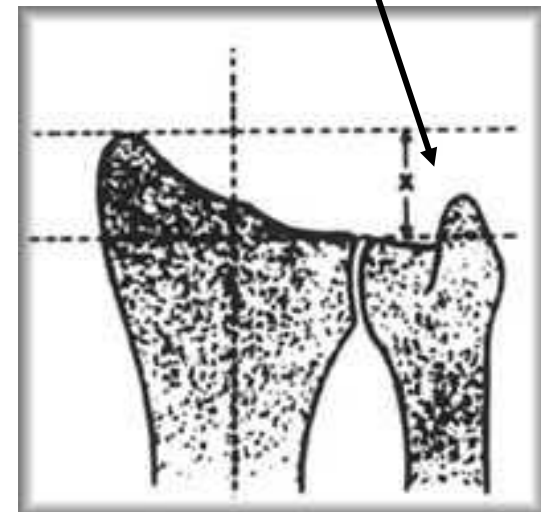
Radial Inclination & Height



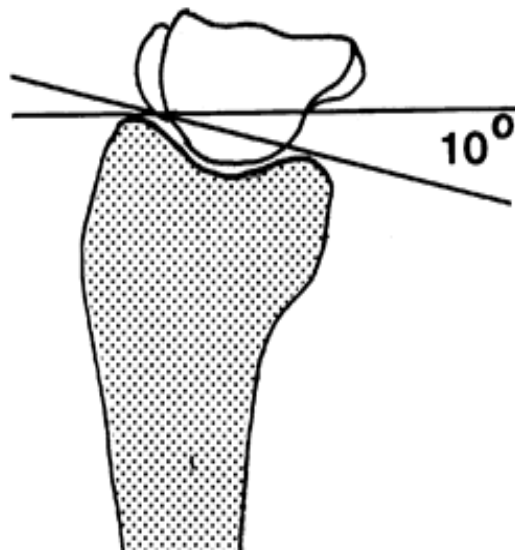
23°



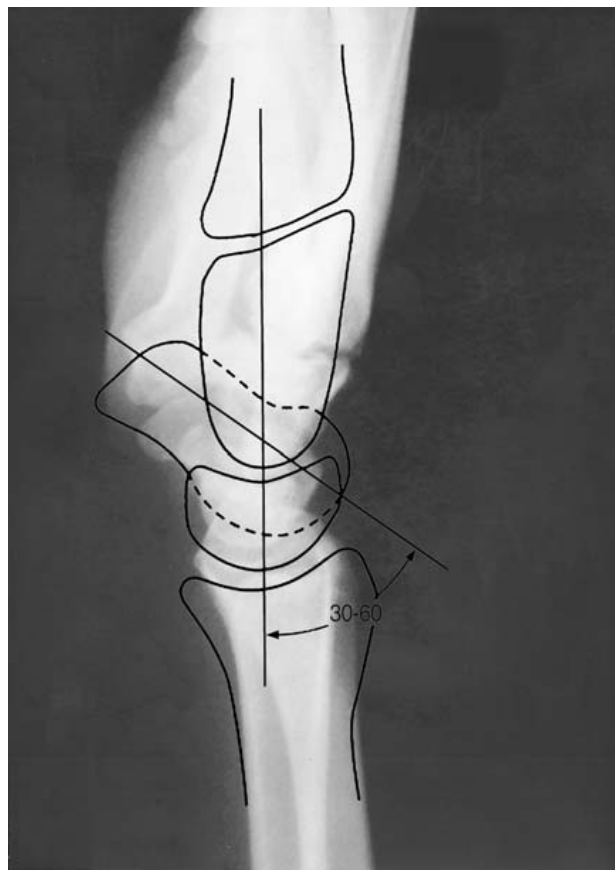
12mm



Volar tilt - 11°

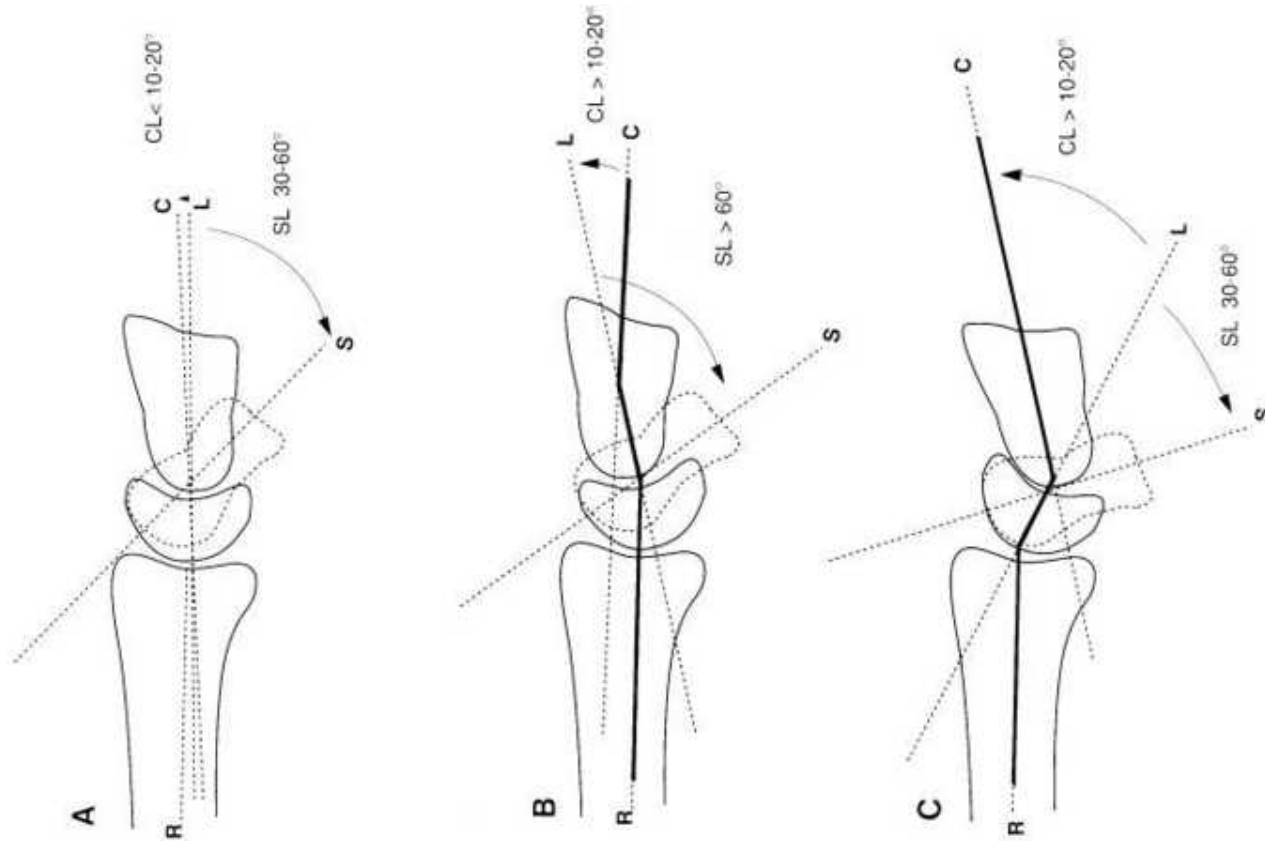


Scapholunate angle & joint width



2mm

Captitate - Lunate association/angle



Fractures

- Radius / Ulna
- Carpals
 - Scaphoid*
 - Triquetrium
 - Hamate



Distal Radius Fracture

- **RED FLAGS**
 - Inclination $< 20^\circ$
 - Dorsal Tilt
 - Shortening $> 5\text{mm}$

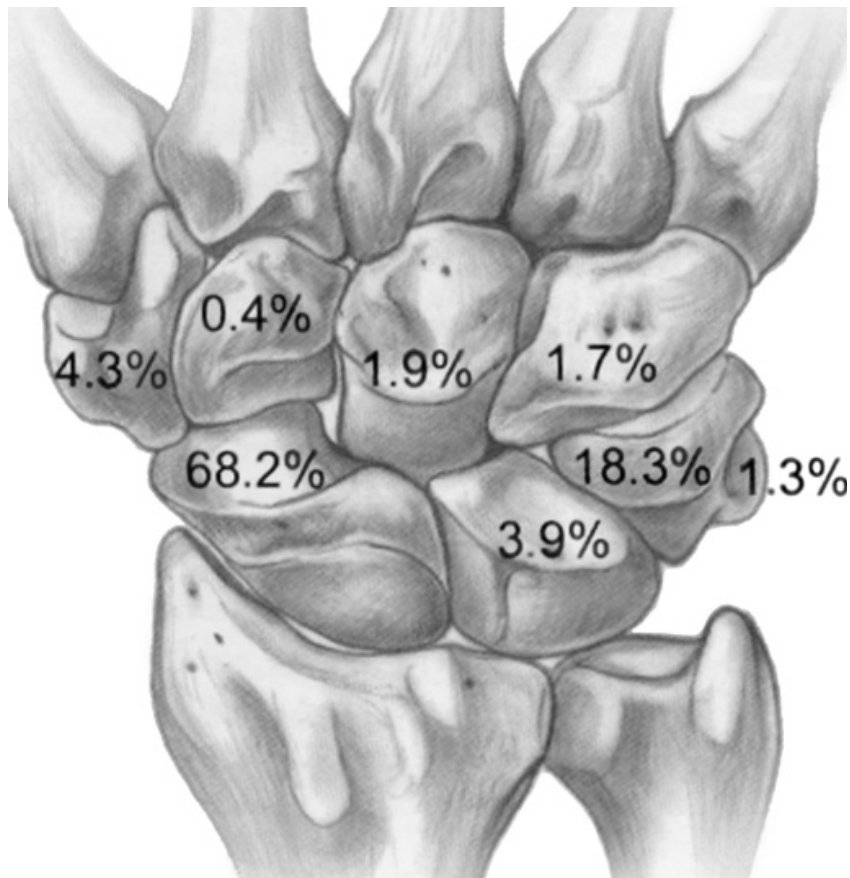


Other Radius / Ulna fractures

- Distal ulna
- Ulnar styloid
- Radial styloid



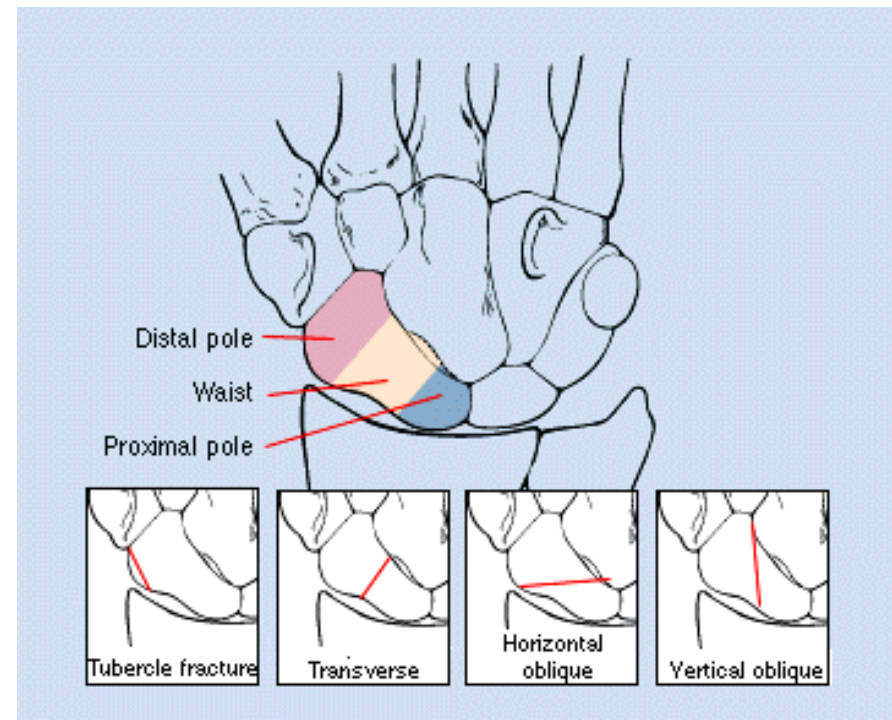
Carpal Fractures



- Scaphoid #1
- Triquetrum
- Then the rest

Scaphoid

- Check snuffbox tenderness
- Order scaphoid view
- May not be seen on initial x-ray
- Consider alternate imaging (CT, Bone scan, MRI)
- Treat until ruled out
- High incidence of non-union with proximal fx



Scaphoid x-rays

Initial



2 month f/u



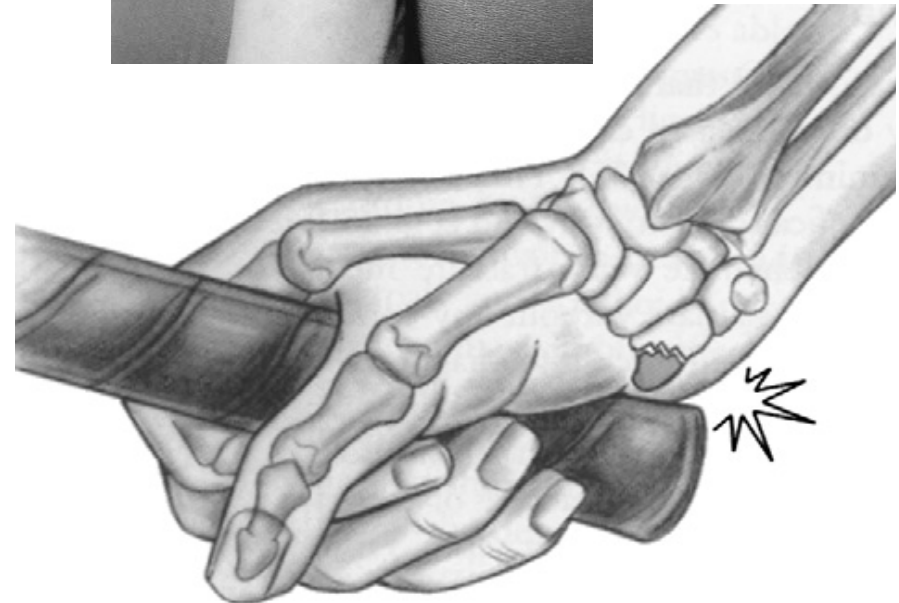
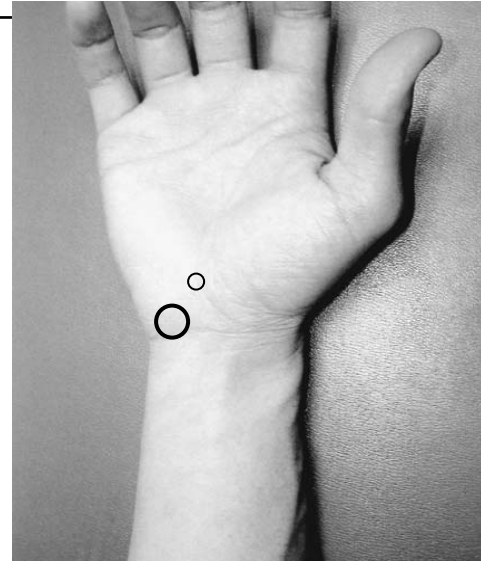
Triquetrium

- Pain ulnar sided and dorsal
- Associated with ulnar styloid fx and TFCC injury
- Oblique film with slight pronation best view
- Dorsal chip avulsion most common



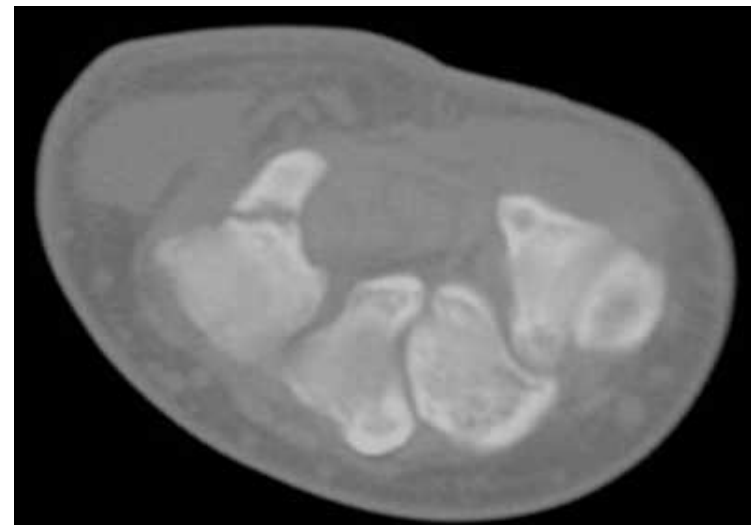
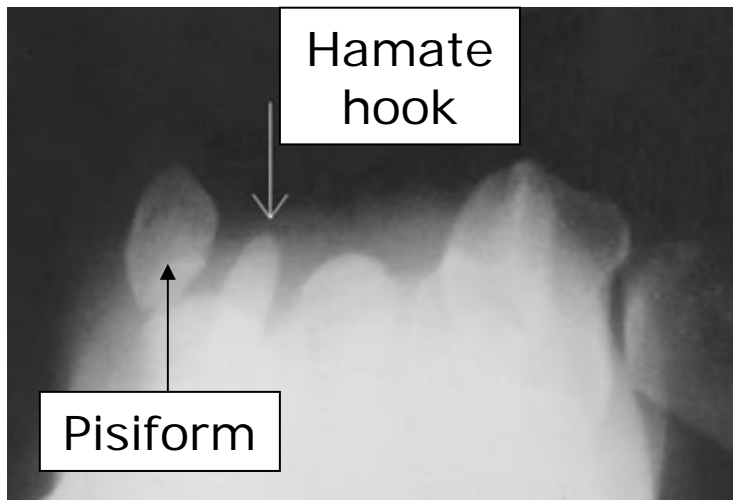
Hamate

- Pain ulnar sided and palmar
- Hook of hamate common site
- Tunnel view xray
- Associated with club/racquet use



Hamate - xray

Don't confuse
with pisiform



Pisiform

- Similar to hamate
- Ulnar and palmar pain





Ligament Injury

- Scapholunate dissociation
- Lunate dislocation
- Perilunate dislocation
- TFCC injury
- DRUJ injury

Scapholunate dissociation

- Terry Thomas or 'Newman' sign



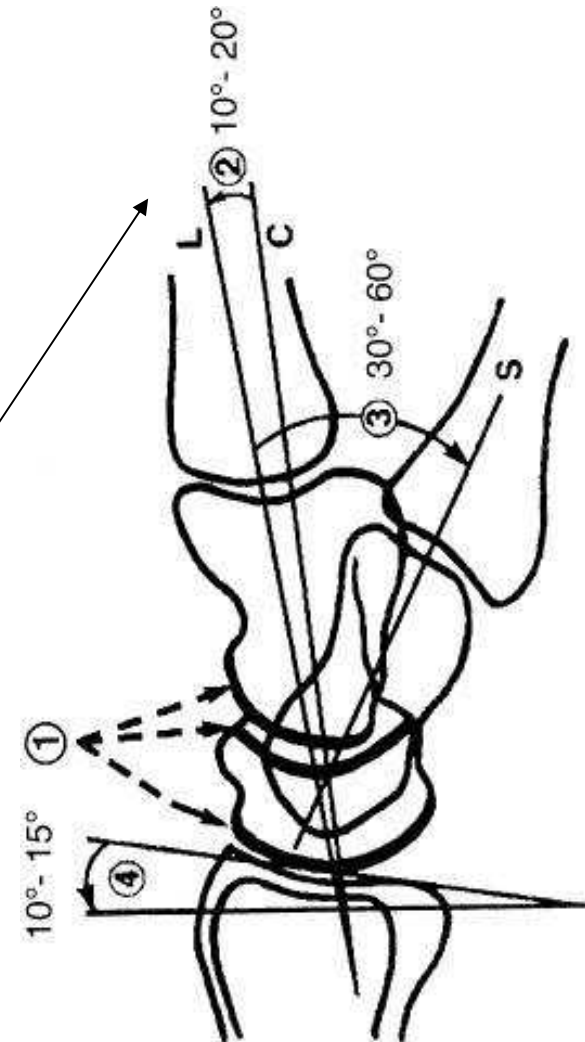
Tests to assess scapholunate instability



Watson test showing the starting position (A) and end position (B) testing for scapholunate instability

Perilunate & Lunate dislocation

- Associated with significant wrist injury (scaphoid, radius, ulnar styloid fracture)
- **Remember** the lunate-capitate association on lateral film
 - Capitate–lunate lines $< 20^\circ$
 - Triple C



Perilunate dislocation



Lunate dislocation



The Shuck Test for perilunate instability



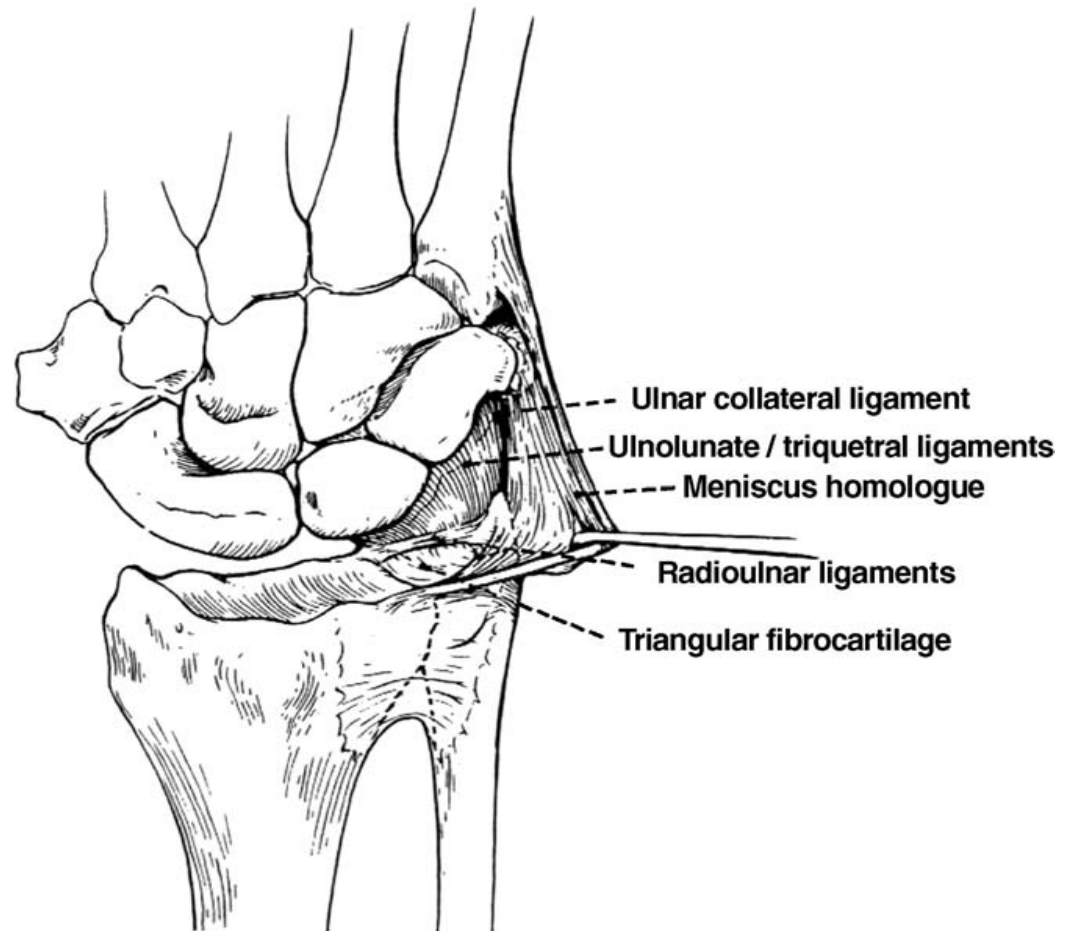
(Left) The wrist is held in flexion by the physician, and the patient extends his or her fingers. (Right) The physician resists this movement. Significant parascaphoid inflammation, radial carpal, or midcarpal instability may cause considerable pain with this maneuver.



TFCC injury

- Triangular Fibrocartilage Complex
 - Mechanism: ulnar loading with rotational stress (FOOSH)
 - Symptoms: ulnar wrist pain, worse with extension, pronation/supination
 - Exam: TFCC compression, Press test, supination lift test
 - Imaging: MRI (Xray typically normal)

TFCC anatomy





TFCC exam tests

- Palpate TFCC – elicits tenderness
- TFCC Compression:
 - ulnar deviation, axial load, flex and extend – produces pain or clicking in TFCC
- Press test:
 - Lift self from chair while bearing wt on extended wrists – produces pain
- Supination lift test:
 - Attempt to lift table/desk with palm flat on underneath side



DRUJ injury/dislocation

- Distal Radioulnar Joint
 - Closely associated with TFCC
 - Mechanism: axial load and rotational stress (FOOSH)
 - Symptoms: Ulnar wrist pain
 - Exam: Loss or prominence of ulnar styloid
 - Imaging: Xray PA/LAT

DRUJ – volar dislocation



Tendon injury

- Flexor tendon rupture



- Extensor tendon rupture





Management points

- Recognition!
 - Fracture, ligament/tendon injury
- Basic acute management
 - splinting
- Ortho referral



Back to our case

○ Exam

- Slightly swollen dorsally
- Pain with supination/pronation & flexion
- Able to flex/extend finger
- No obvious deformity or bruising
- Any other exam tests?



Further exam tests

- Radial testing

- Snuffbox palpation
- Distal radius/styloid palpation



Tender!

- Ulnar testing

- Pisiform/hamate palpation
- TFCC testing (compression, press, supination lift)

- Ligament stability

- Scapholunate – Watson test / Shuck test
- DRUJ – grip, direct palp

Film



- Scaphoid fx
-proximal pole
- High incidence
AVN
–ortho consult to
consider initial
operative rx

Treatment



If you miss it.....



...AVN chronic wrist pain, loss of mobility, unhappy patient