



# Evaluation (and Treatment) of TFCC Injuries

18th Annual Orthopaedic Trauma Course

4.4.24

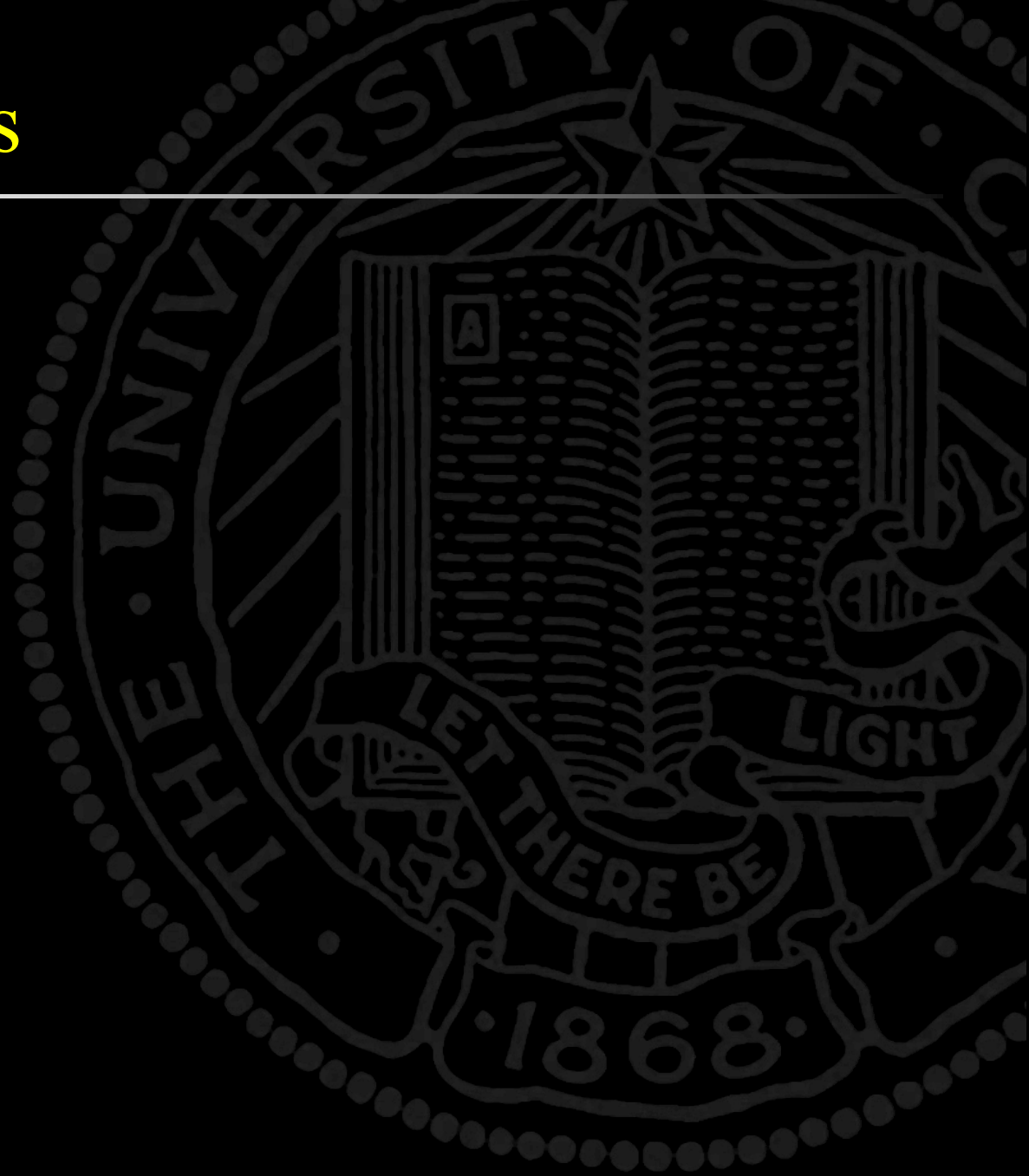
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UCSF Department of Orthopaedic Surgery

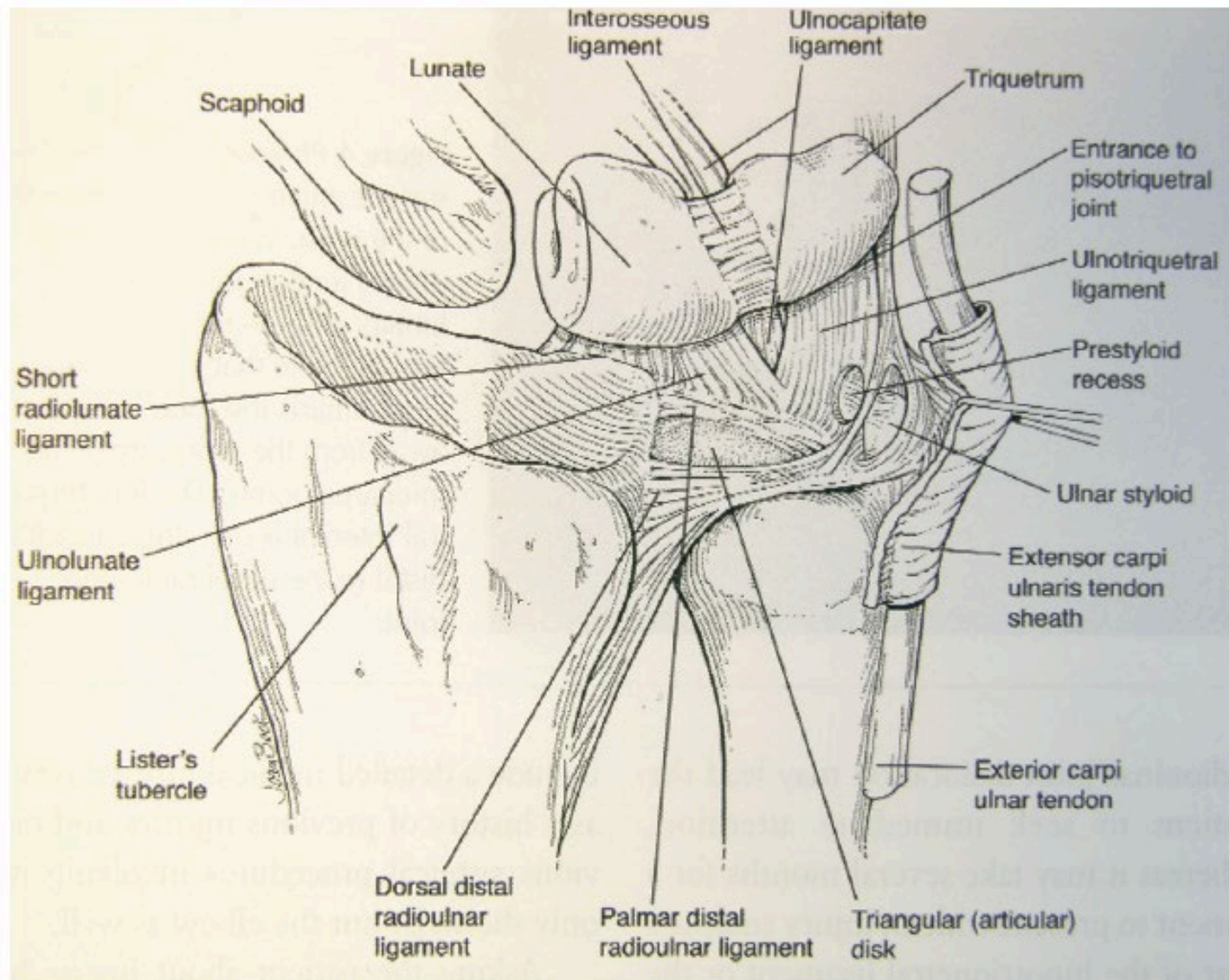
# Disclosures

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- none



# Anatomy



# Distal Radioulnar Joint (DRUJ)

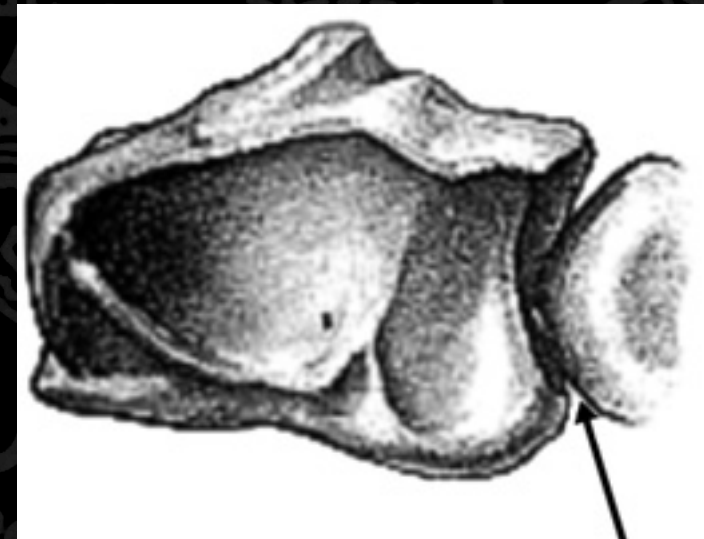
## ■ Stability

### ■ Bone

- Ulnar head- 10mm
  - Fovea
- Radius, sigmoid notch- 15mm

### ■ Soft tissue

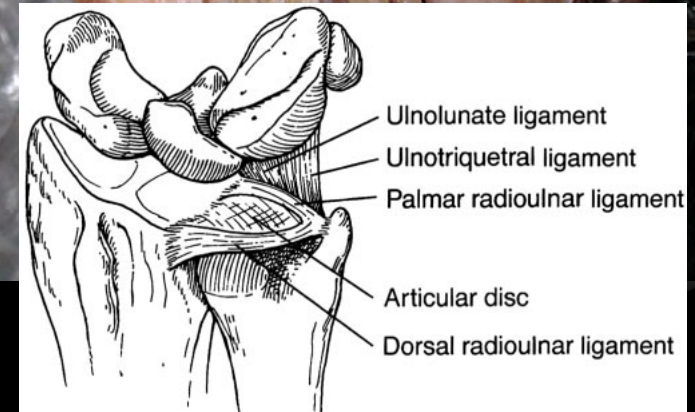
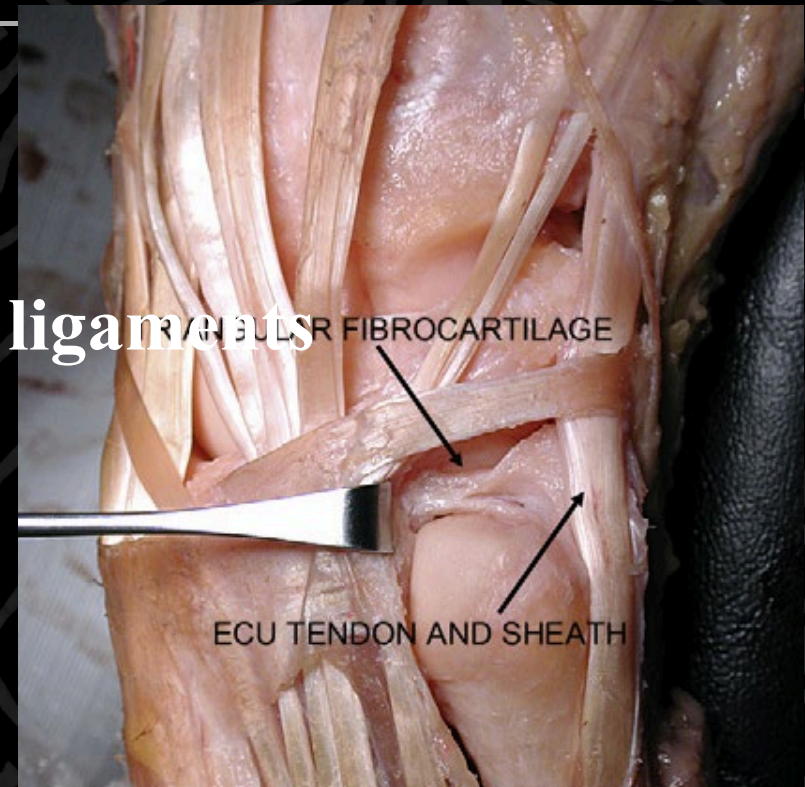
- Primary
  - TFCC
- Secondary
  - Capsule, IOM, muscles

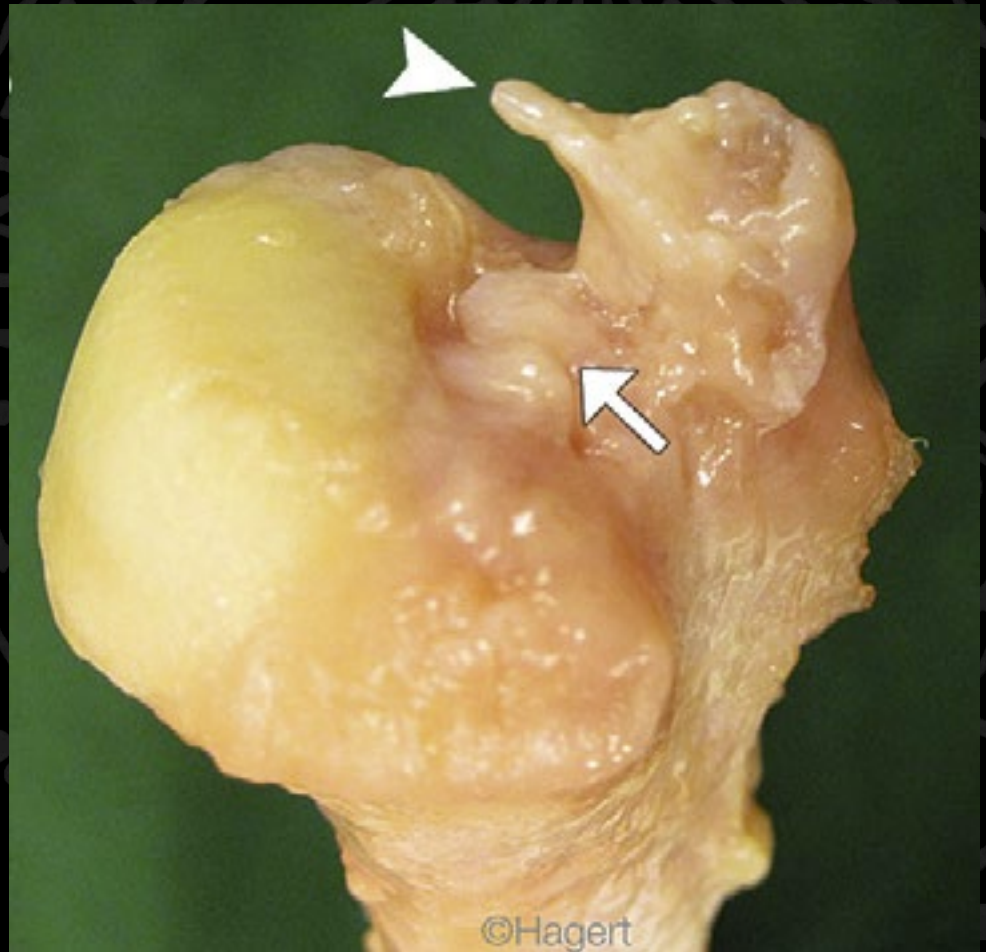
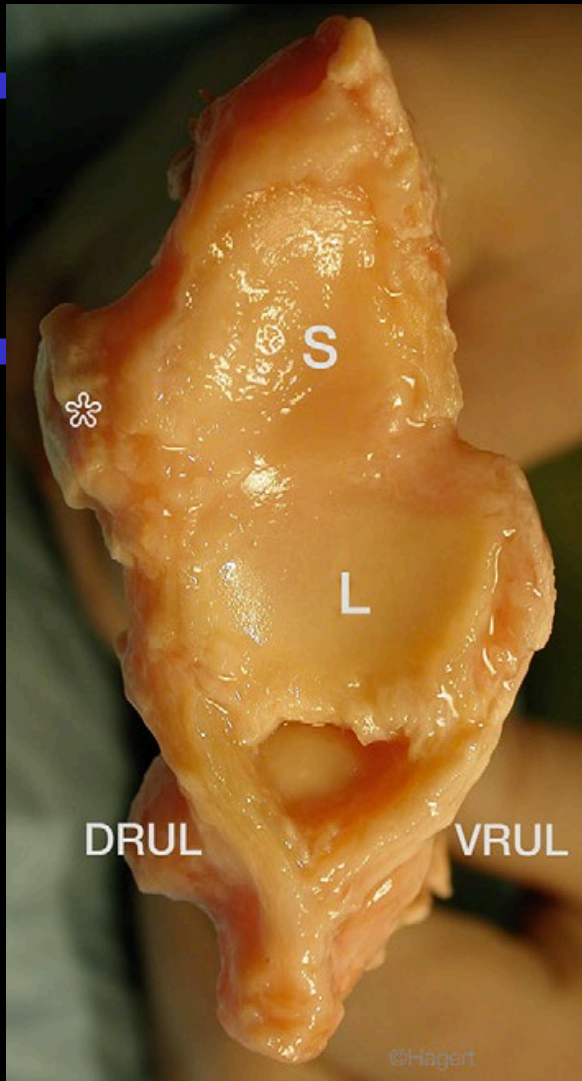




# TFCC

- Articular Disc
- Volar and Dorsal Radioulnar ligaments
- ECU subsheath
- Ulnolunate ligament
- Ulnotriquetral ligament
- Meniscal homologue





# History

- Consider age, occupation
- Onset- Acute or Chronic?
- Duration
- Location
- Aggravating
  - P/S





# Presentation/ Mechanism of Injury

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- **Fall onto a pronated, outstretched extremity with axial load**
  - Or
- **Rotational injury to the forearm**
  - Or
- **Chronic overuse**

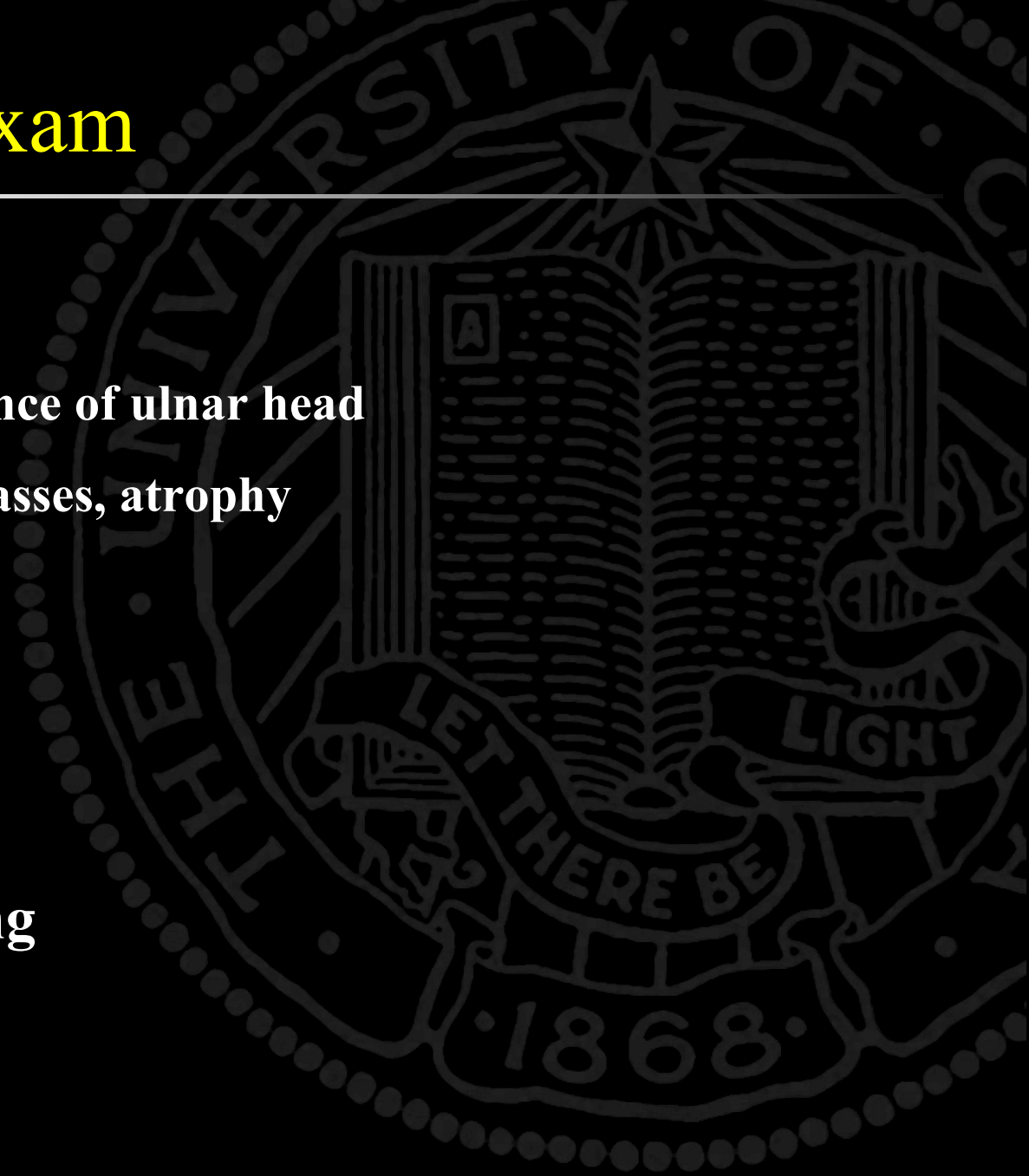
**Acute DRF.... Or old DRF**



# Physical Exam

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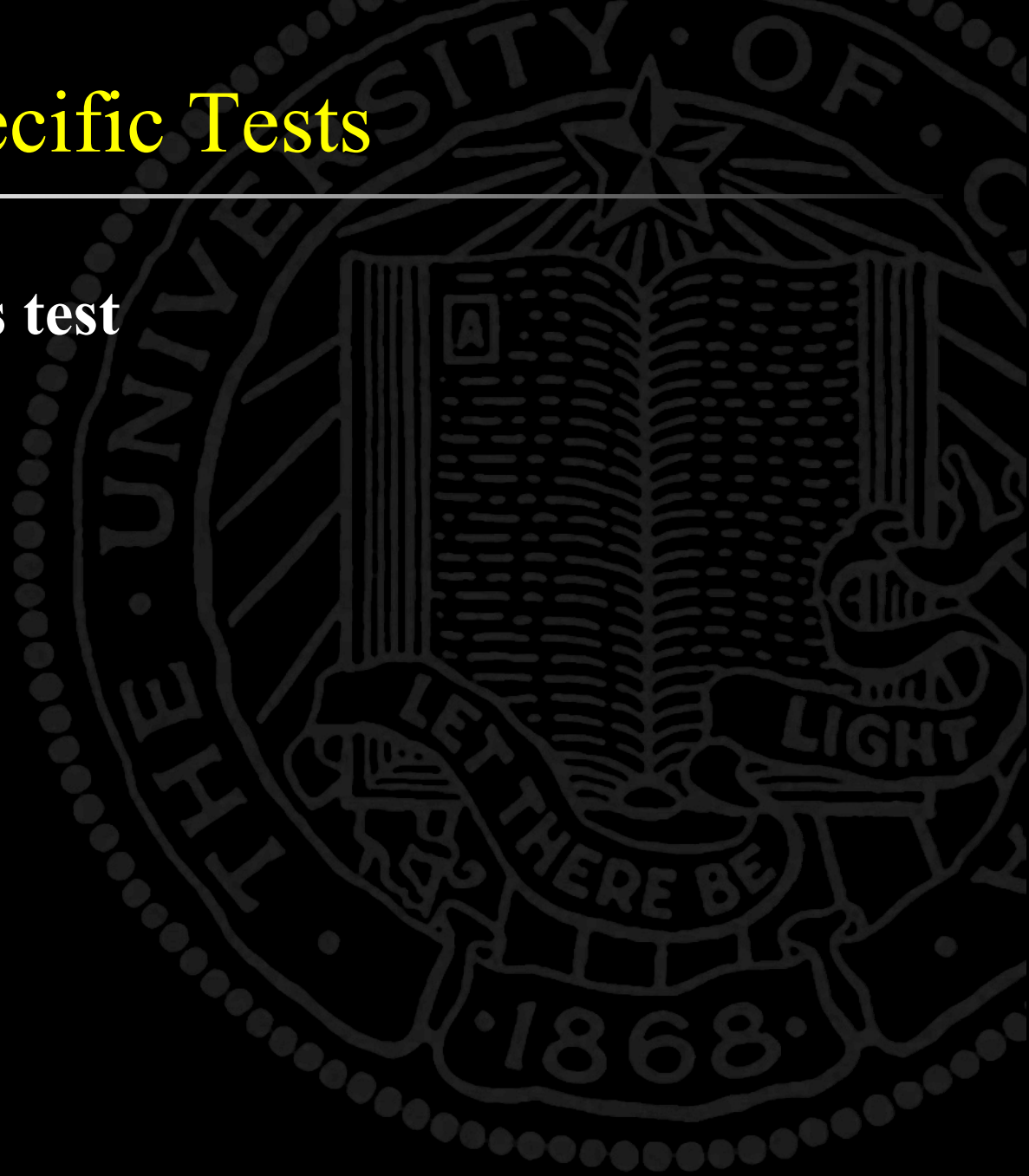
- **Inspect**
  - **Examine prominence of ulnar head**
  - **Swelling, scars, masses, atrophy**
- **A/PROM**
- **Palpation**
- **Strength**
- **Provocative Testing**



# TFCC: Specific Tests

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- **Ulnocarpal stress test**
- **Fovea**
- **ECU Tests**
  - **Ice cream scoop**
  - **ECU synergy**



# Ulnar Stress



# Fovea





# DRUJ

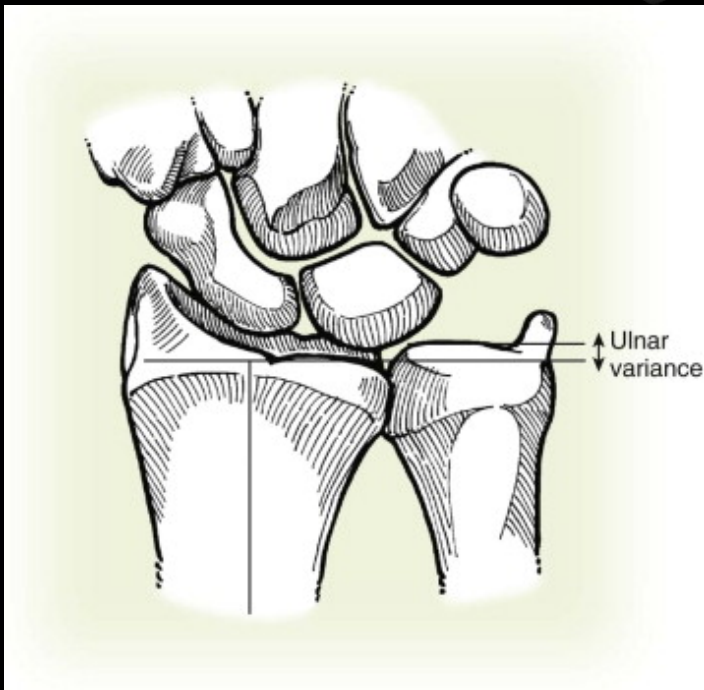
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- Piano Key



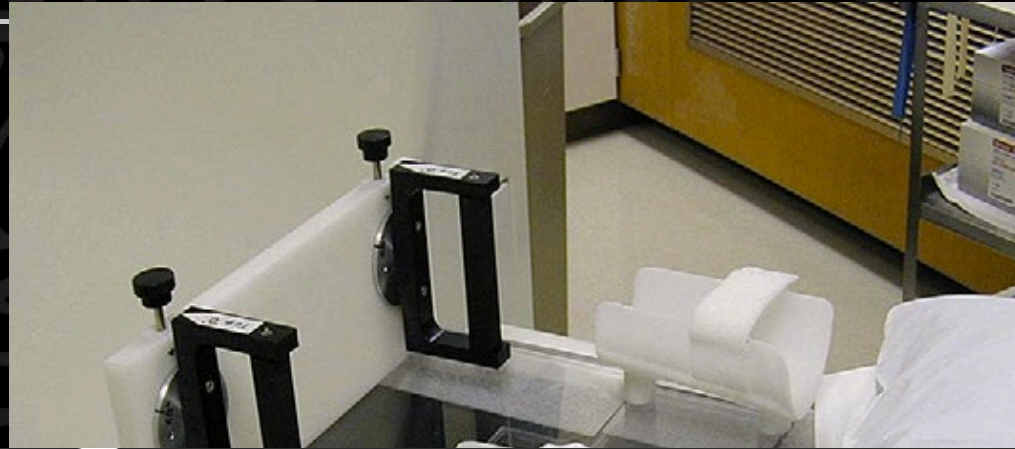
# Imaging

- Standard wrist series
- PA
- Pronated grip view

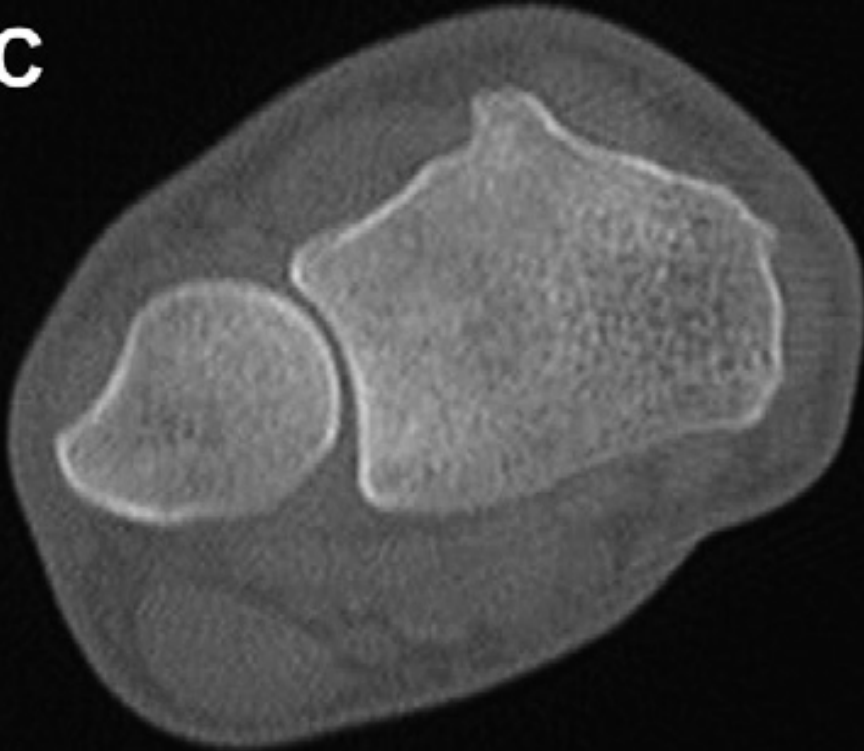


# Imaging: CT

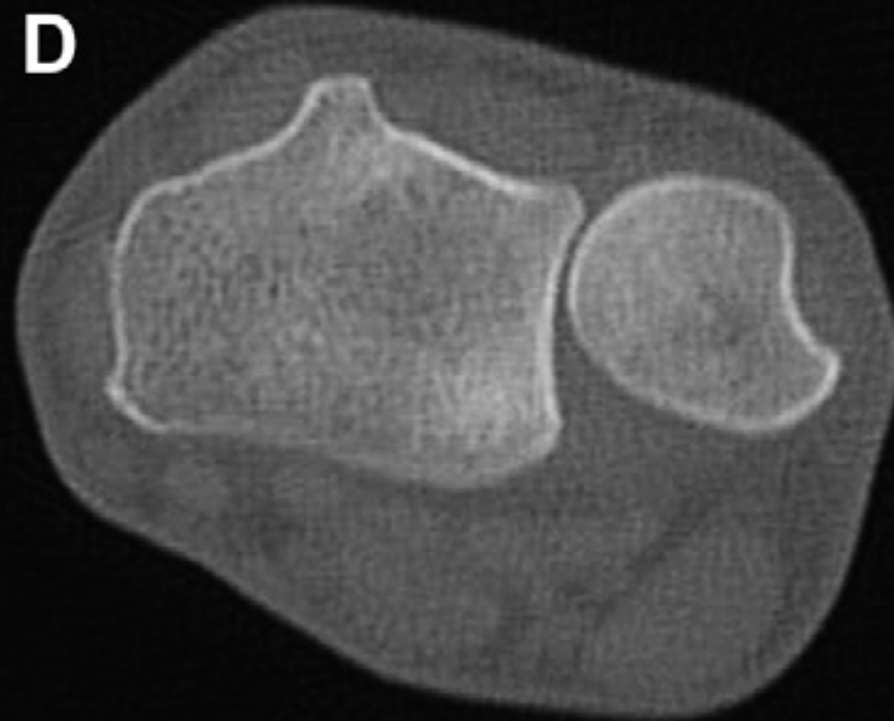
- Positioning
- Axials
- Both sides



C



D



# MRI

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- Sensitivity 67-100%  
Specificity 71-100%
- Prevalence of TFCC lesions in asymptomatic volunteers was 37.9%
  - Complete tears of seen 22.3% wrists
  - increased prevalence with increased age
- Cadaveric studies demonstrate degeneration in up to 53% of wrists in the seventh decade



# Palmer Classification

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## Class 1: Traumatic

A. Central perforation

B. Ulnar avulsion ±  
distal ulnar fracture

C. Distal avulsion

D. Radial avulsion ±  
sigmoid notch fracture

## Class 2: Degenerative

A. TFCC wear

B. TFCC wear + lunate and/or ulnar chondromalacia

C. TFCC perforation + lunate and/or ulnar chondromalacia

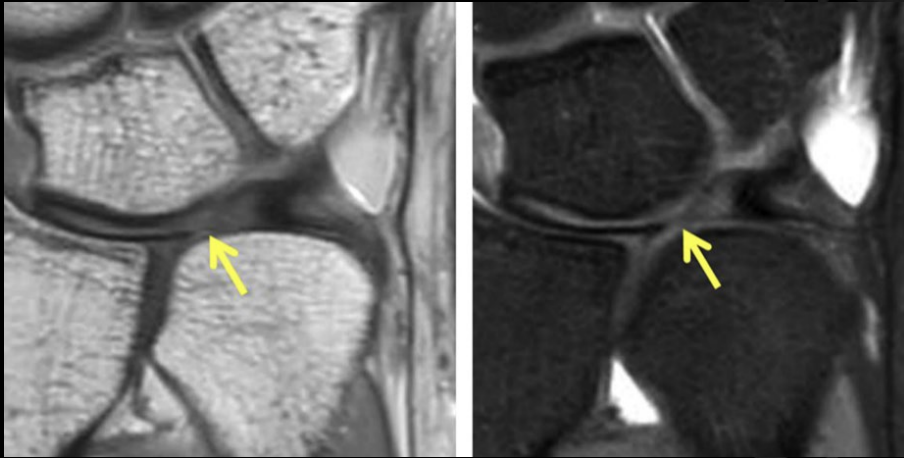
D. TFCC perforation + lunate and/or ulnar chondromalacia +  
lunotriquetral ligament perforation

E. TFCC perforation + lunate and/or ulnar chondromalacia +  
lunotriquetral ligament perforation + ulnocarpal arthritis

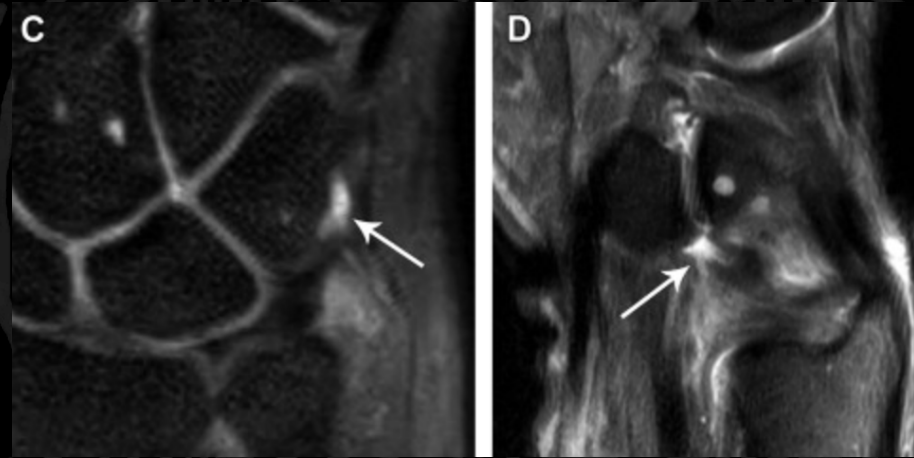
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# Palmer Type 1

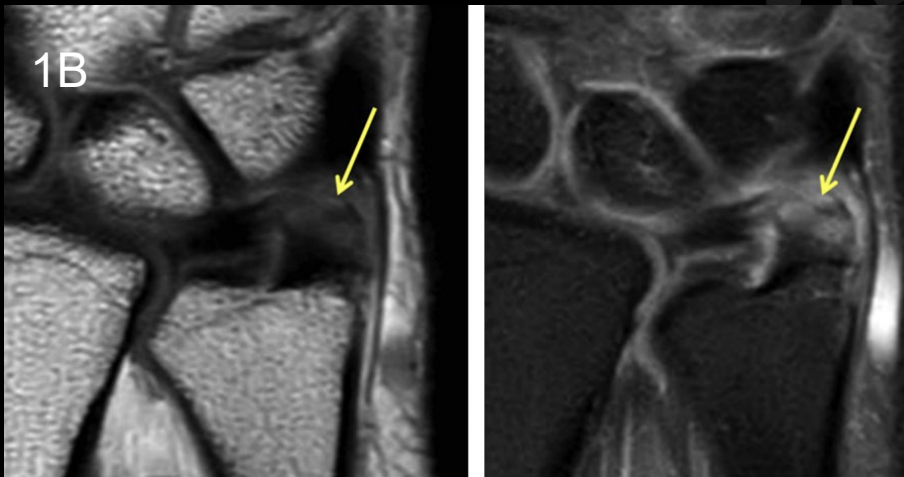
1A



1C

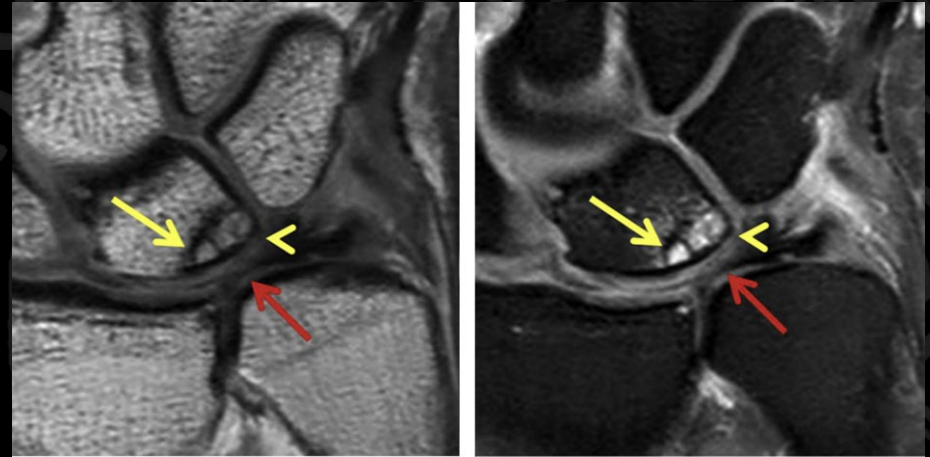


1B



# Palmer Type 2

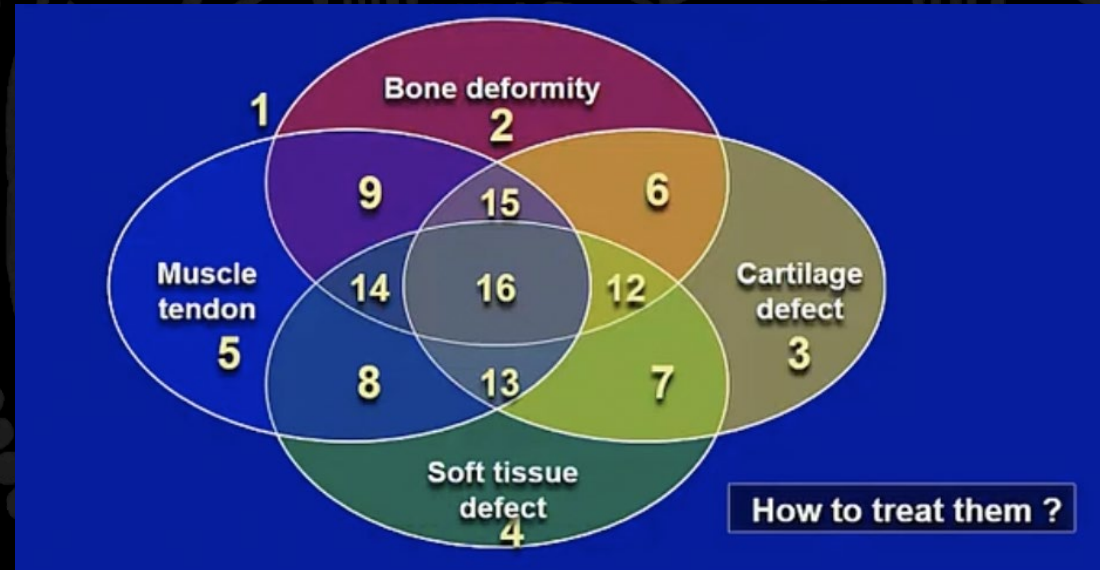
- Pathologic changes: mucoid degeneration, fibrillation, thinning
- MRI changes: increased or intermediate intensity without surface communication



thinning of the disc (red arrows)  
lunate chondromalacia (yellow arrowheads)  
subchondral cyst lunate (yellow arrows)

# Diagnosing a TFCC tear....

- Ulnar wrist pain +
- Foveal sign +
- DRUJ stable?
  - YES/NO
- Xray normal?
  - Ulnar positive?
- MRI





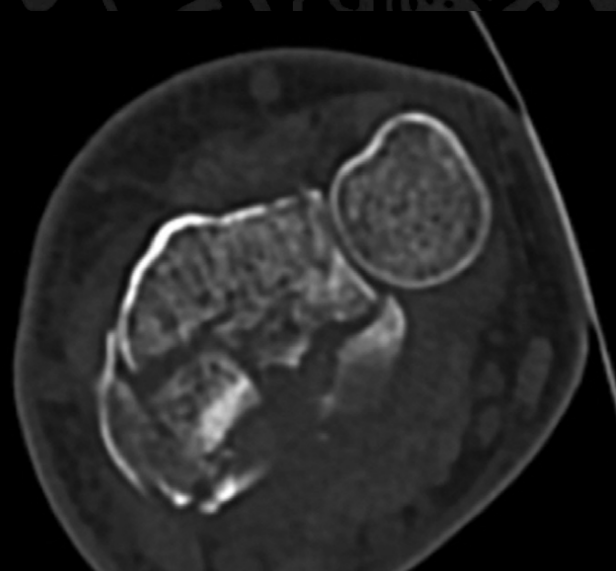
# What about the TFCC and DRF?

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- 68% of DRF have some sort of ligament injury
  - 45-84% of DRF have associated TFCC
- 2% -37% of patients with DRF have DRUJ instability after their fracture has healed
  - 2/3 of these patients have reduced range of motion and ulnar-sided wrist pain
- **Most TFCC tears are asymptomatic**
- **An unstable DRUJ is NOT always a TFCC injury.**
- **What else could it be????**

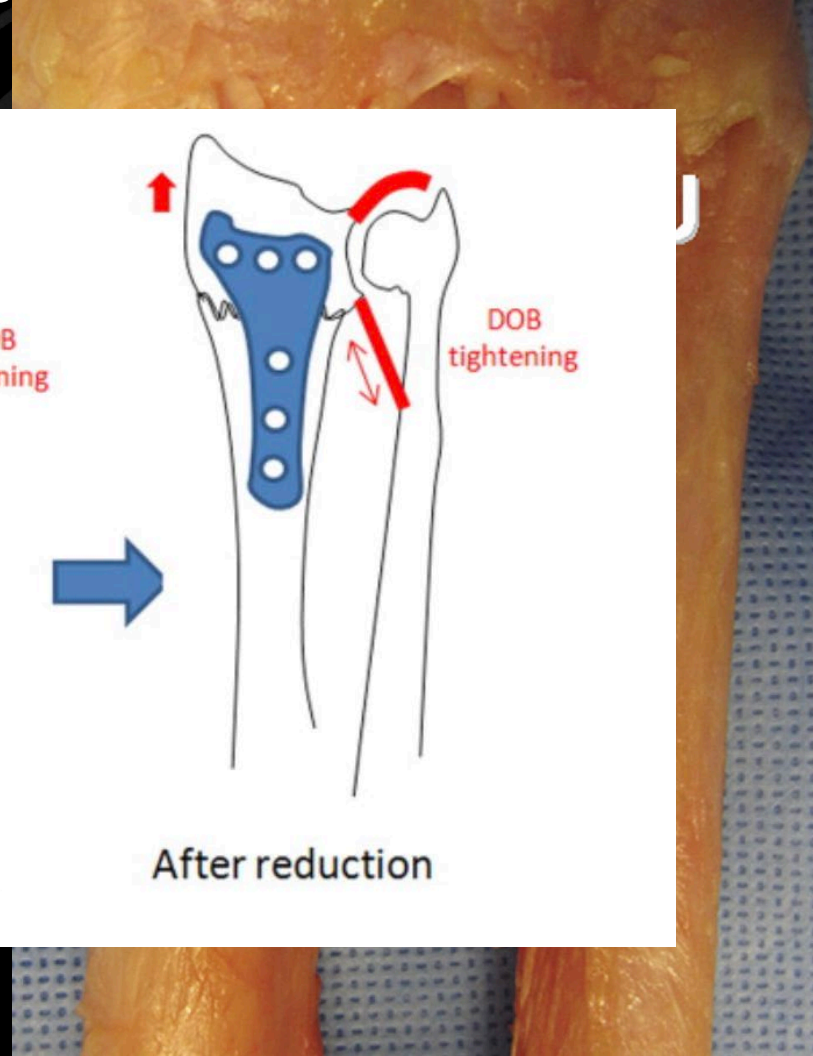
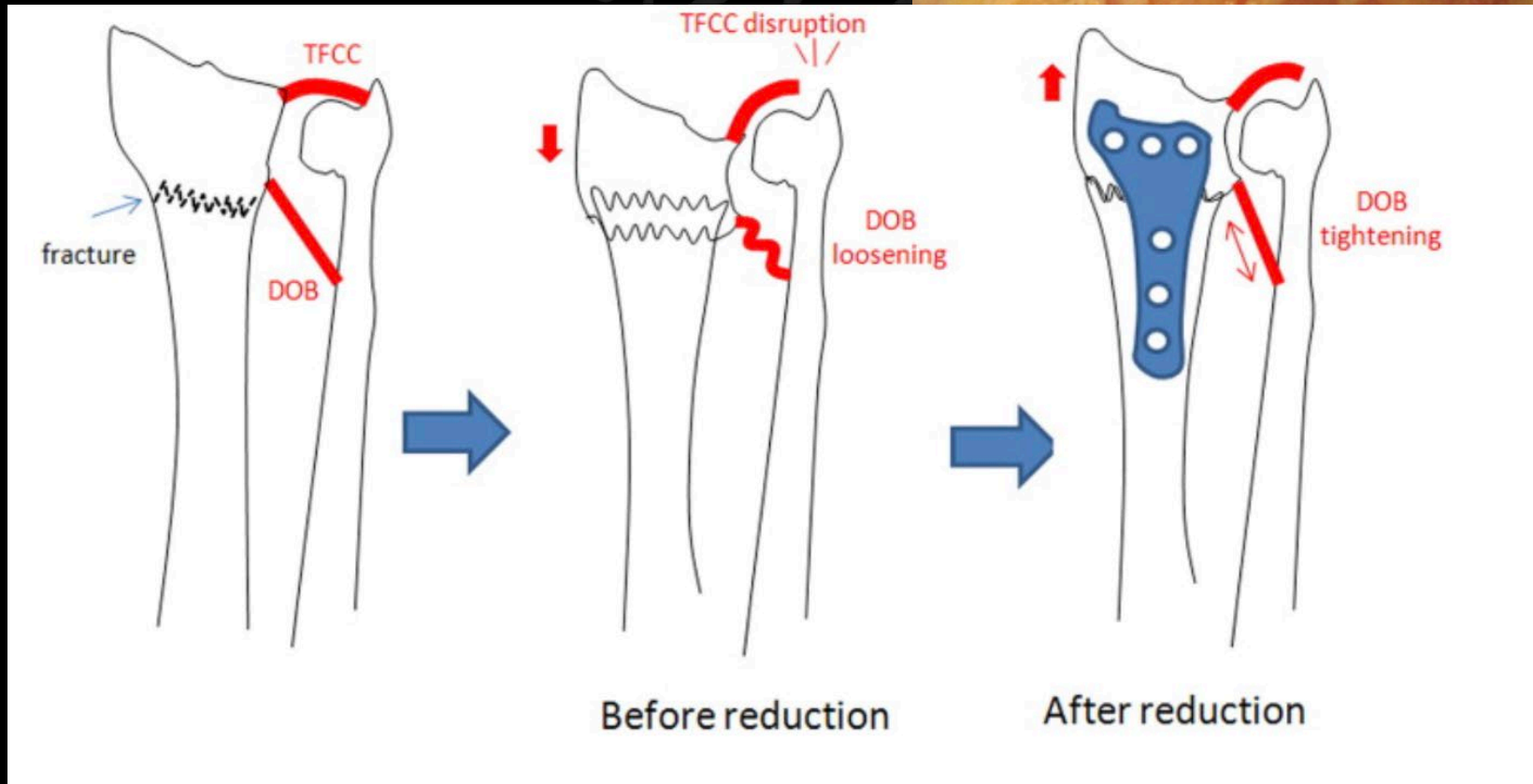
# What else could it be? DRF characteristics

- **Radial translation and loss of radial inclination**
  - Predictors of foveal TFCC tear
- **Dorsal or volar angulation**
- **Radial shortening**
- **Volar or dorsal lunate facet fracture**
- **DIOM/DOB**



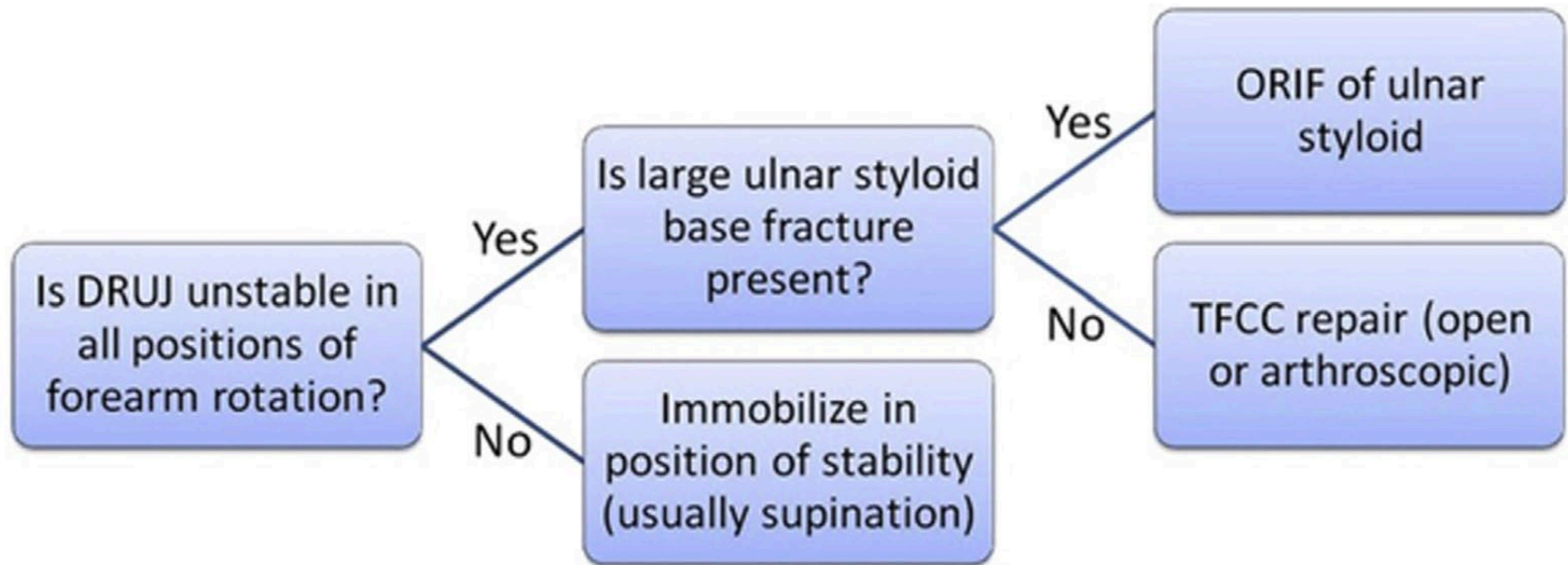
# Dorsal Intraosseous Membrane and Dorsal Oblique Bundle

- secondary stabilizer of DRUJ



# Algorithm for DRUJ Instability

- 1. Check your distal radius alignment







Thank you!

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