All Hands on Deck: Atypical Hand, Wrist, & Finger Injuries

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DISCLOSURES

I have no personal or financial interests to declare.

I receive no financial support from industry sources.

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OUTLINE

1. Kienbock's Disease
2. DeQuervain's Tenosynovitis
3. Ganglion Cyst
4. Mallet Finger
5. Jersey Finger
6. Gamekeeper's/Skier's Thumb

Hand/wrist special tests (we'll come back to these later)

PRE-TEST QUESTION #1

Definitive treatment for a Jersey finger injury…

A. is always conservative: 6-8 weeks of splinting typically does well.
B. may be conservative or surgical, it depends on the location of the injury.
C. is always surgical (primary tendon repair or fracture fragment repair). Long-term splinting is rarely an option.
D. is a corticosteroid injection at the site of injury.

PRE-TEST QUESTION #2

When evaluating a patient with a suspected skier's thumb injury…

A. it is best to obtain radiographs prior to assessing the UCL.
B. radiographs are not necessary – it is a clinical diagnosis.
C. it is best to obtain radiographs after assessing the UCL.
D. MRI is the gold standard imaging that is needed.

PRE-TEST QUESTION #3

Why is it important to diagnose Kienböck's disease as early as possible?

A. The disease course can be reversed with early pharmacologic intervention
B. To prevent the spread of necrosis to adjacent bones
C. Because ultrasound can be both diagnostic and therapeutic for the condition
D. To intervene before bony collapse of the lunate occurs

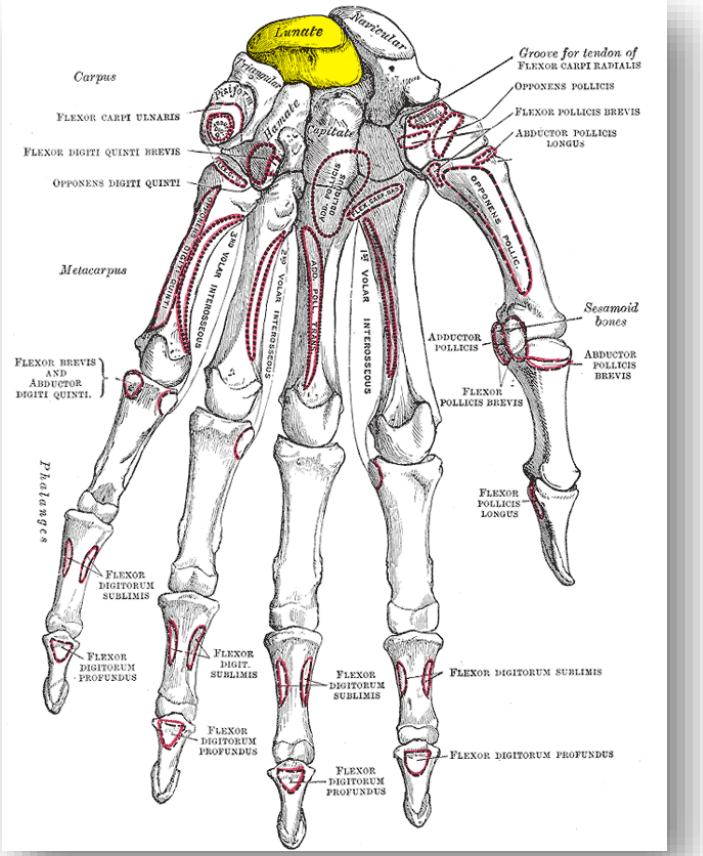
INTRODUCTION

- Hand & wrist susceptible to injury & overuse
- Abnormal hand function = disability
- Approximately 11.3% of all ED visits in the U.S. involved injuries to the hand, wrist, or fingers

KIENBÖCK'S DISEASE

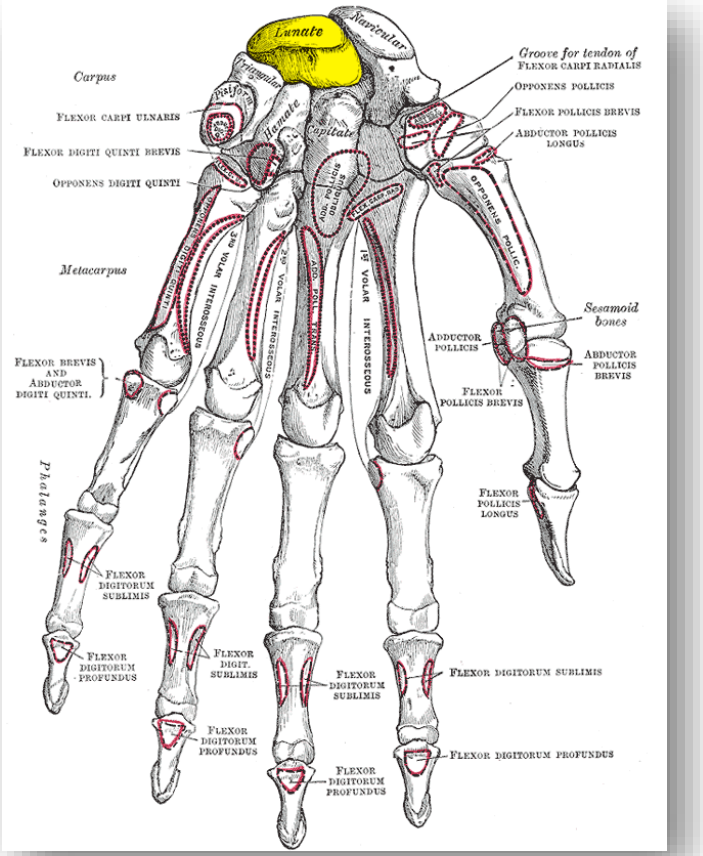
- avascular necrosis of lunate
  - leads to progressive collapse

- etiology unknown
  - disruption of ***blood supply***
  - undiagnosed fracture?
  - repetitive trauma?



KIENBÖCK'S DISEASE

- more common in males
- dorsal wrist pain
- vague complaints
  - wrist swelling
  - wrist stiffness



KIENBÖCK'S DISEASE

Over time…

- crepitus
- decreased ROM
- weakness with grip

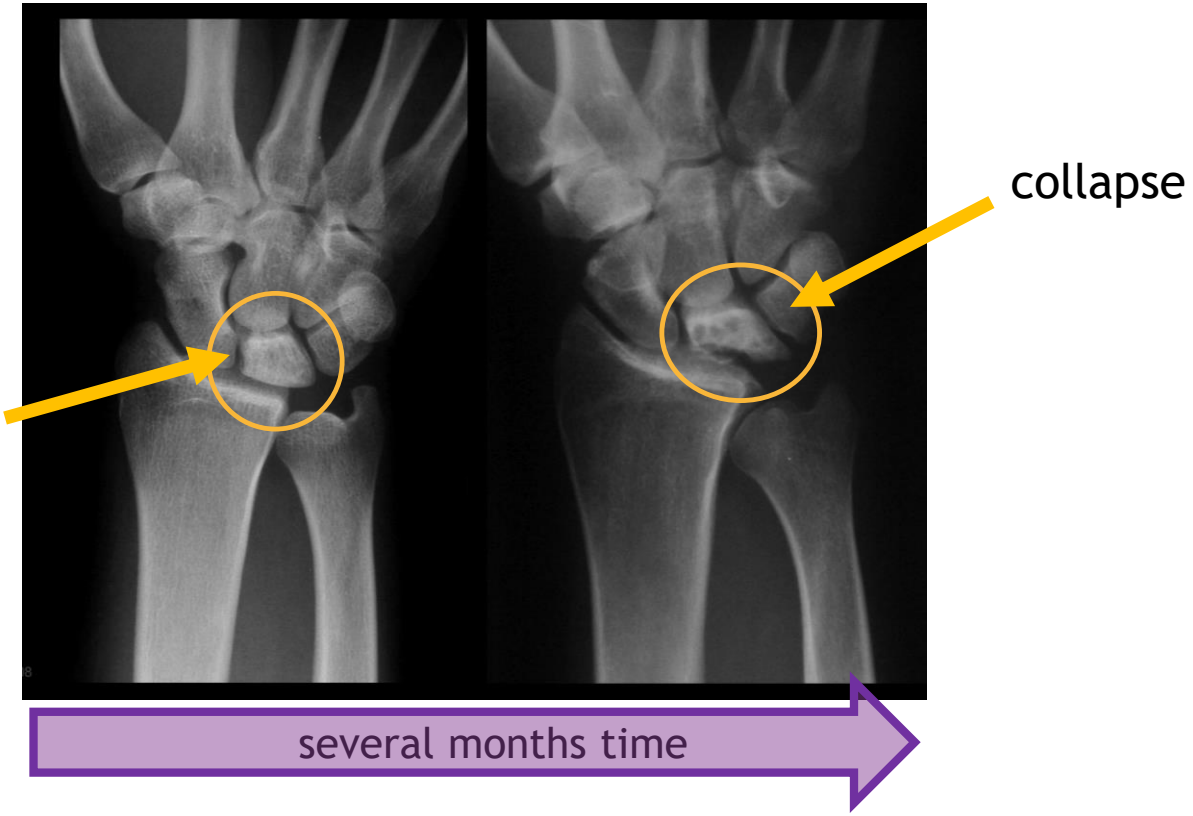
Progression varies

- typically over several years

KIENBÖCK'S DISEASE

Radiographs

- shows increased density of lunate
- not very sensitive



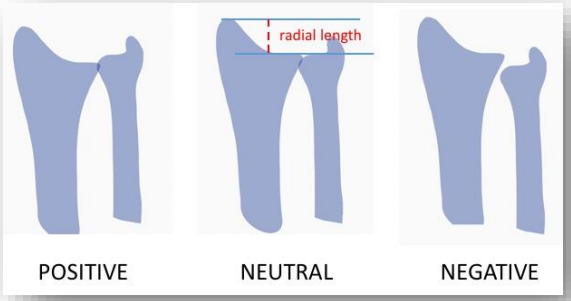
KIENBÖCK'S DISEASE

- MRI: ***more sensitive***, helpful for early disease
  - decreased signal on T1 image

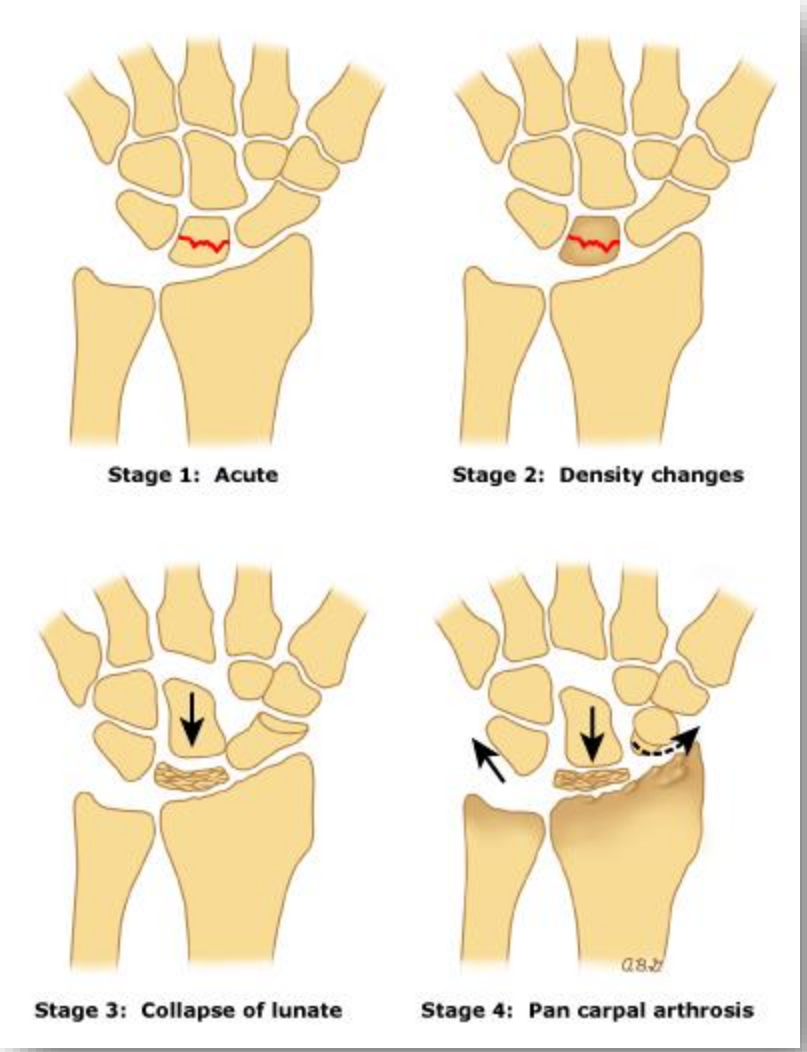
KIENBÖCK'S DISEASE

Radiograph considerations:

- "ulna positive variance" vs "ulna negative variance"



KIENBÖCK'S DISEASE



KIENBÖCK'S DISEASE

Treatment (conservative):

- immobilization

KIENBÖCK'S DISEASE

Treatment (surgical):

First Line Options:

- radial shortening osteotomy
- vascularized bone graft

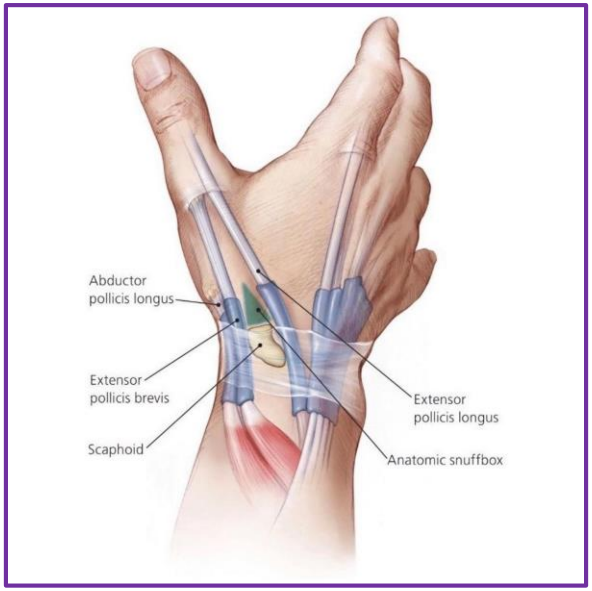
"Salvage Procedures":

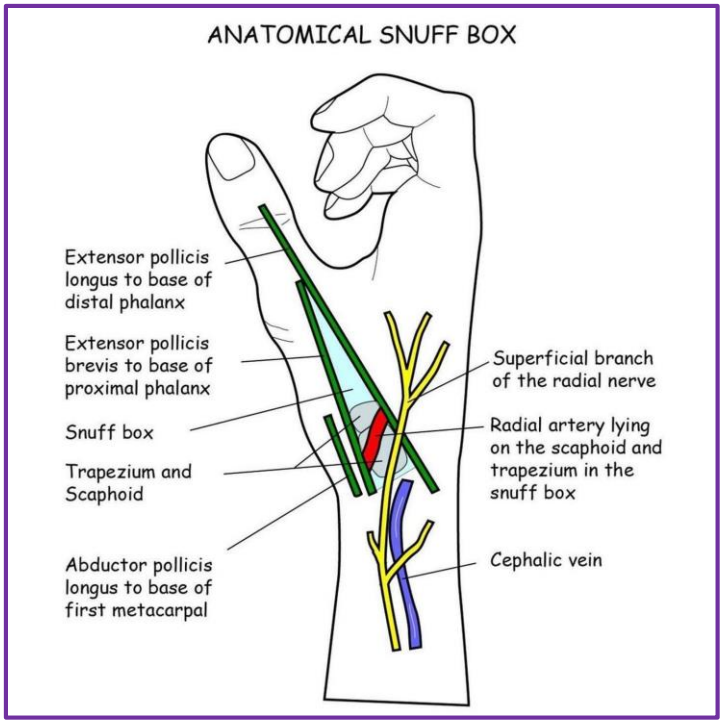
- proximal row carpectomy
- wrist arthrodesis

DEQUERVAIN'S TENOSYNOVITIS

Background:

- Affects the 1st dorsal extensor compartment
  - abductor pollicis longus
  - extensor pollicis brevis

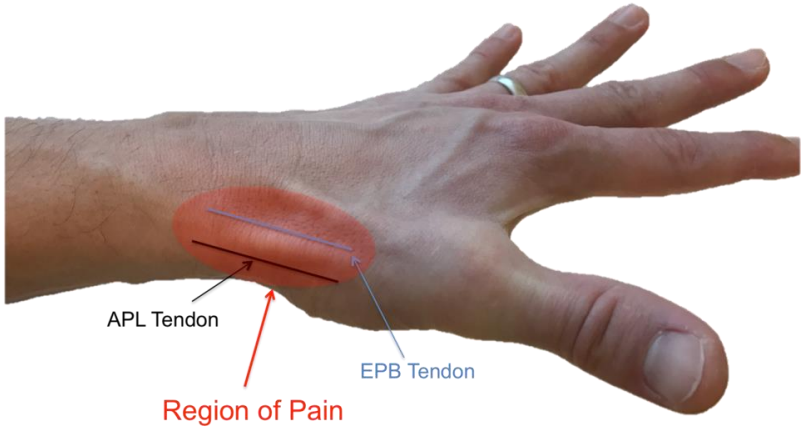




DEQUERVAIN'S TENOSYNOVITIS

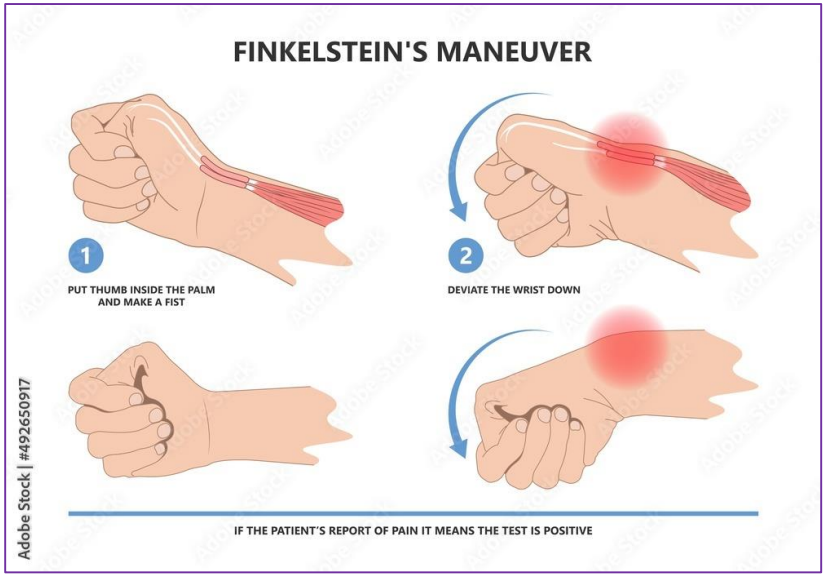
History & Physical Exam

- pain at wrist & base of the thumb
  - lifting a baby from the floor? ("new mommy syndrome")
- TTP along tendons near radial styloid
- "snowball crepitus"
- pain with ROM…
  - which motions?



DEQUERVAIN'S TENOSYNOVITIS

Special Test: Finkelstein's test



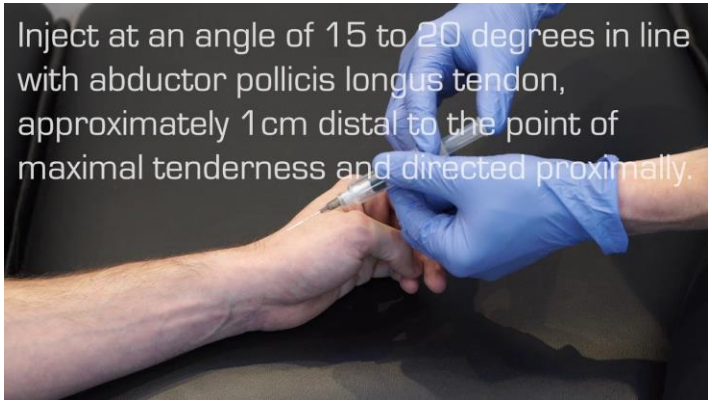
Sens	Spec
81%	50%

Workup: none, no imaging is necessary

DEQUERVAIN'S TENOSYNOVITIS

Management

- NSAIDS, RICE
- ***thumb spica splint***
- PT/OT referral
- corticosteroid injection into ***sheath***



GANGLION CYST

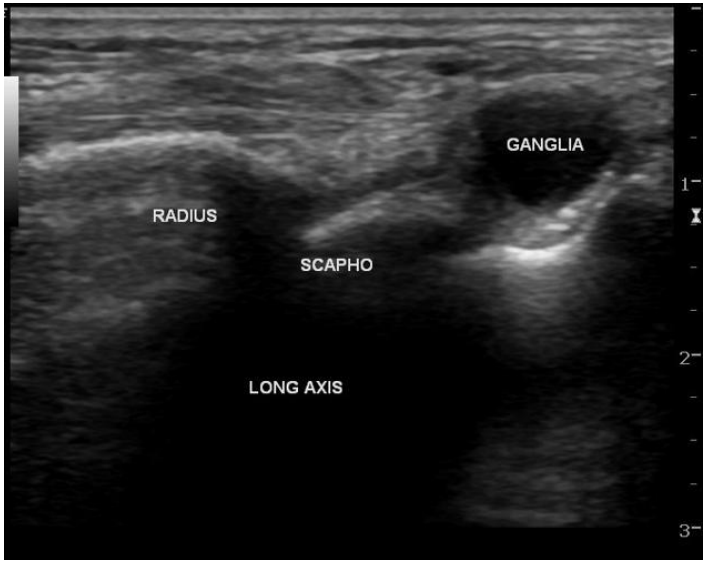
Background, History, & Physical Exam

- most common soft tissue mass of hand/wrist
  - some are painful, not always
- more common in women, more common dorsally
  - ***70% are dorsal, near scaphoid or lunate***
- weakness in tendon sheath capsule
  - previous trauma?

GANGLION CYST

Workup: none (a clinical diagnosis)

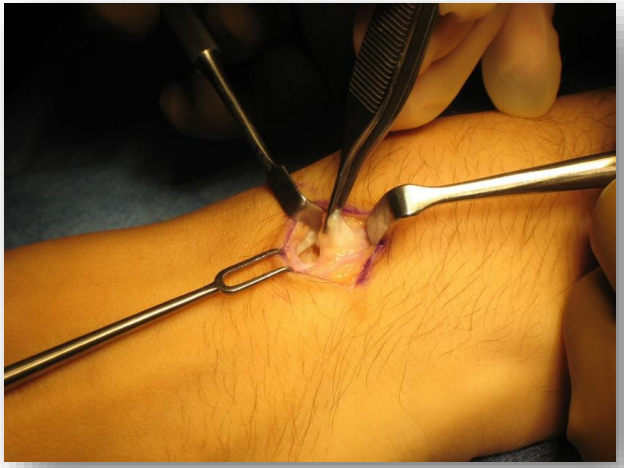
- +/- radiographs
- trans-illumination
- bedside ultrasound?



GANGLION CYST

Management

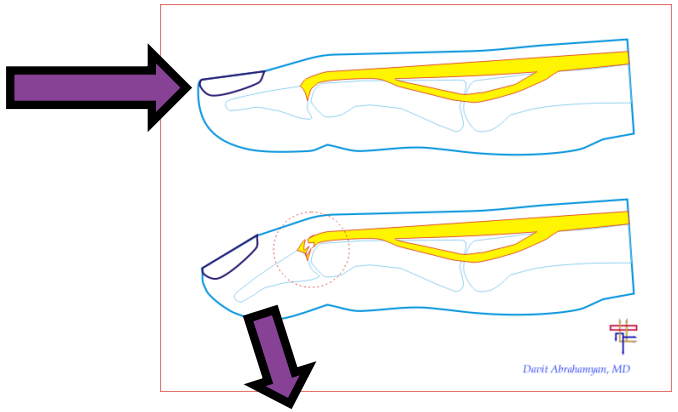
- splint
- aspiration
- *surgical excision*



"Bible Bump"

MALLET FINGER

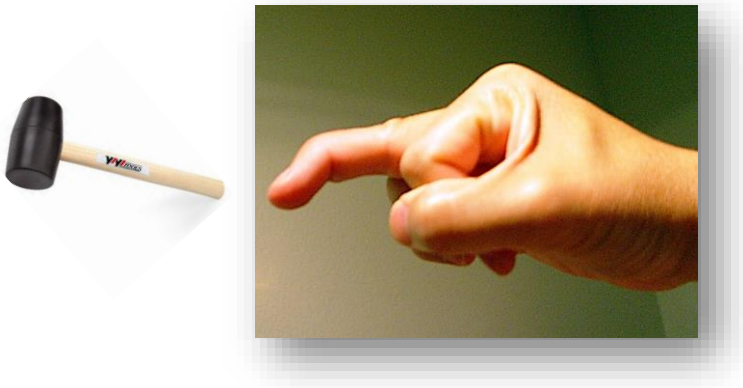
MALLET FINGER



Mechanism of Injury

- sudden flexion force -
  - typically from object

- causes ‘flexion deformity’ (extensor lag) at the ***DIP***

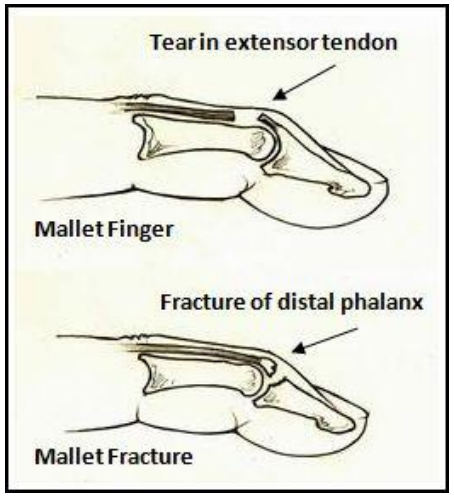


MALLET FINGER

Background

- Injury to ***extensor*** tendon @ dorsal ***DIP*** joint

- Two types:
  1. tendon rupture (aka ‘soft tissue mallet finger’)
  2. avulsion fracture (aka ‘bony mallet finger’)



MALLET FINGER

History & Physical Exam

- pain at DIP, especially with motion
- ecchymosis, swelling over DIP
- tender to palpation at DIP
- flexion deformity/extensor lag

MALLET FINGER

Finger specific X-rays (not just hand XR)

- AP, lateral, oblique

MALLET FINGER

Management: Soft Tissue Mallet

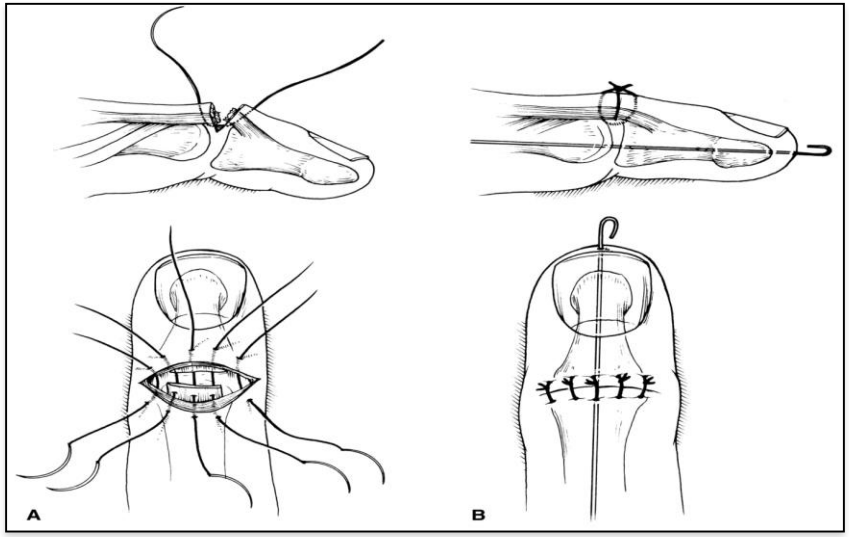
- 6-8 weeks of extension splinting
- may initiate within 3 months of injury

Do not immobilize PIP

MALLET FINGER

Management: Soft Tissue Mallet

- if conservative treatment fails…

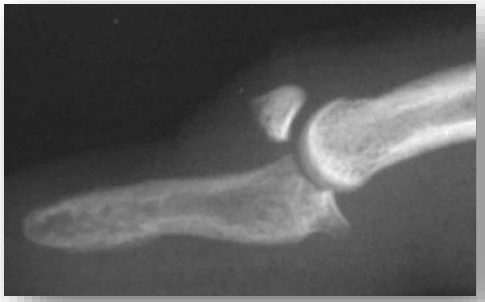


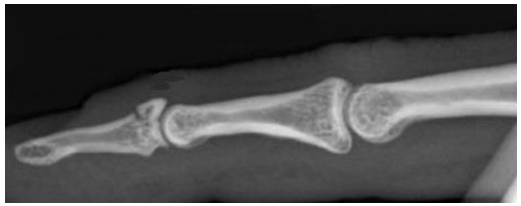
Extensor Tendon Repair

MALLET FINGER

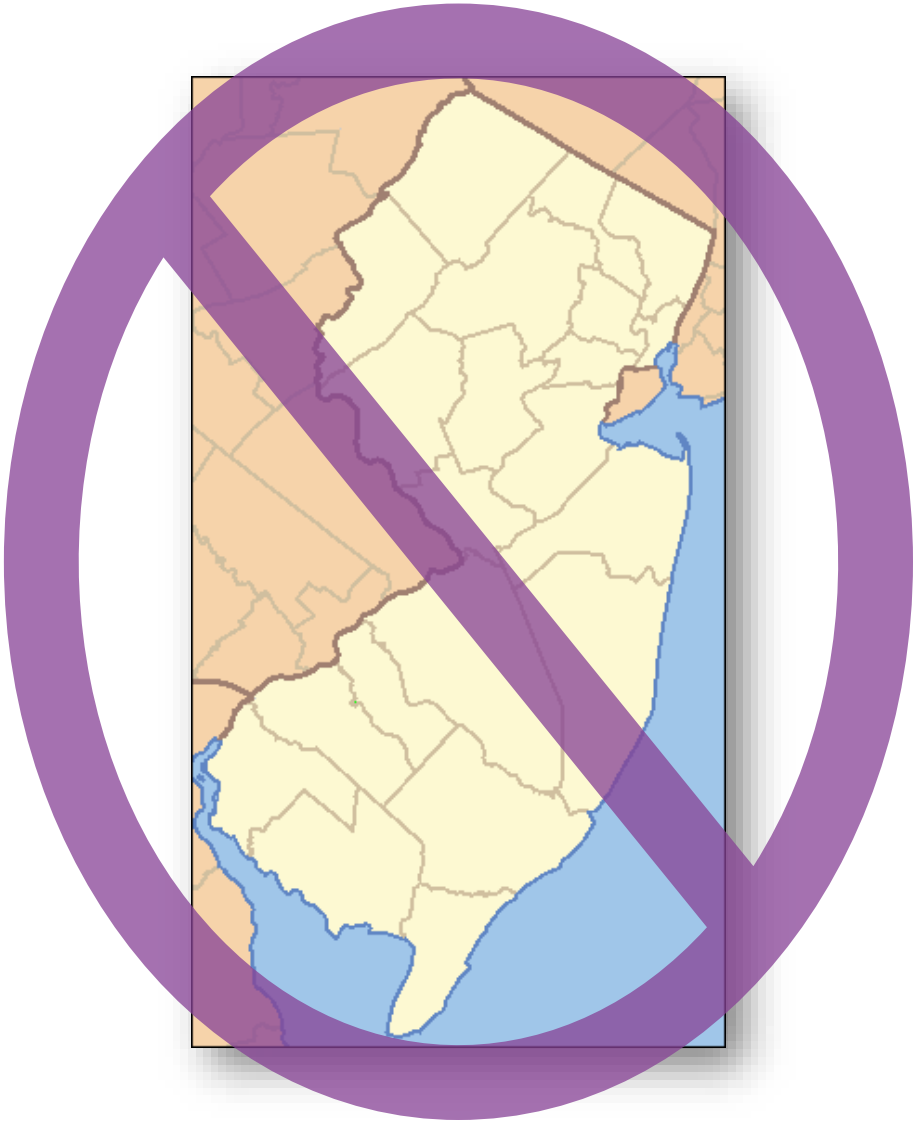
Management: Bony Mallet

- treat with 6-8 weeks of extension splinting unless…
  - fracture fragment > 50% articular surface
  - dislocation with fracture





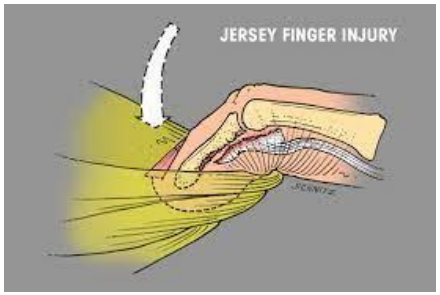
JERSEY FINGER



JERSEY FINGER

Mechanism of Injury

- sudden hyperextension of DIP ***during active flexion***
  - i.e., finger caught in shirt/jersey
  - common in football, ring finger most common

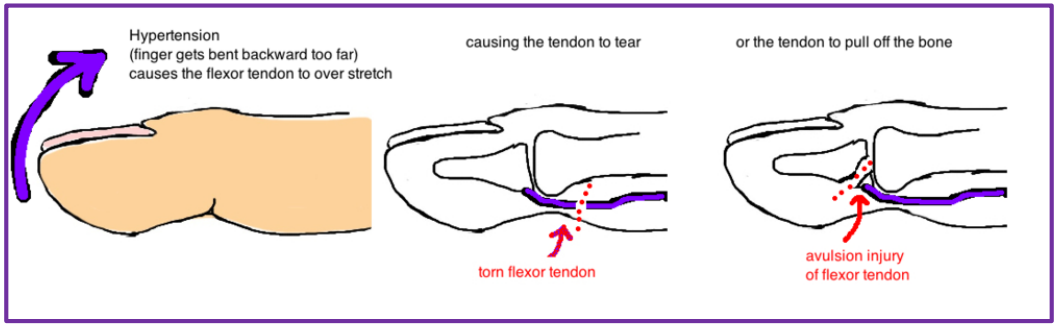


JERSEY FINGER

Background

- Injury to ***FDP tendon*** @ volar distal phalanx

- Two types:
  1. tendon rupture (aka ‘soft tissue jersey finger’)
  2. avulsion fracture (aka ‘bony jersey finger’)

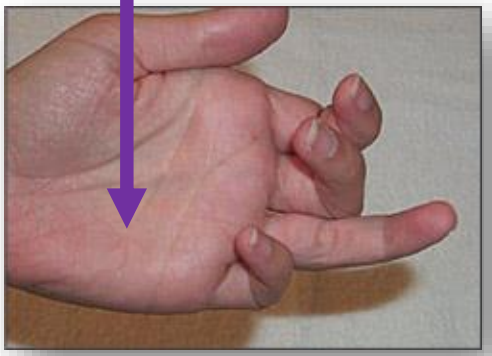


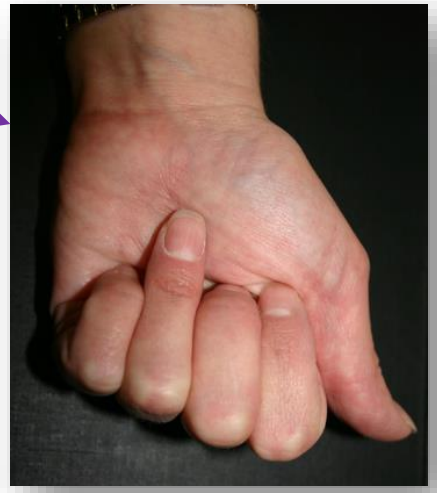
Note: bony jersey finger not as common as bony mallet finger

JERSEY FINGER

History & Physical Exam

- ecchymosis, swelling over volar finger
- TTP at distal finger, especially volar
- slight flexion deformity
- *may* palpate ***lump in palm***





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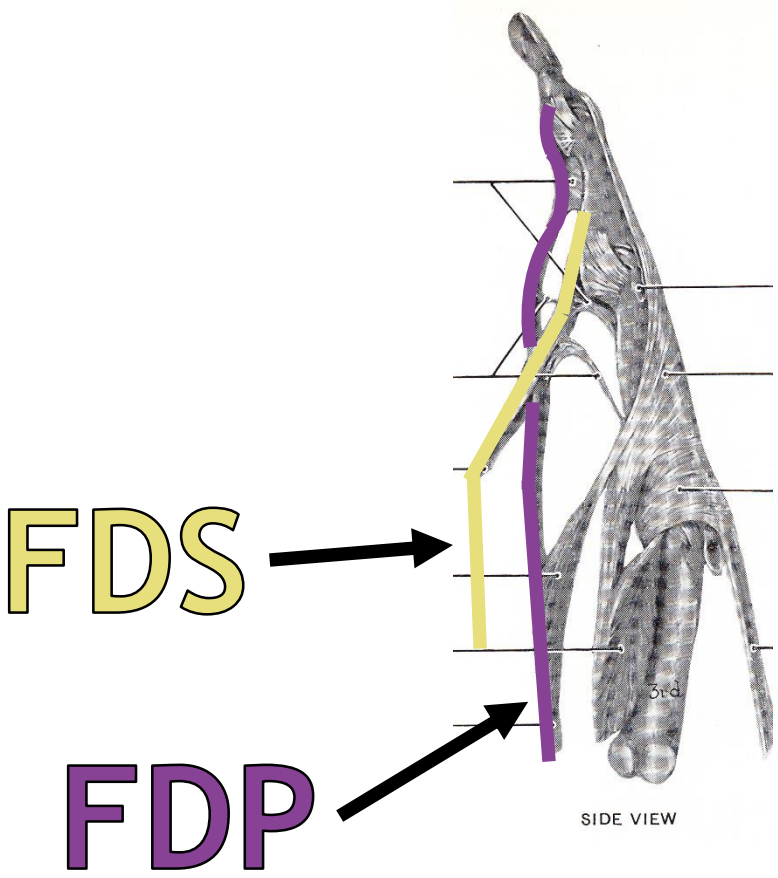
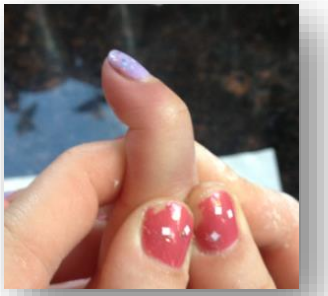
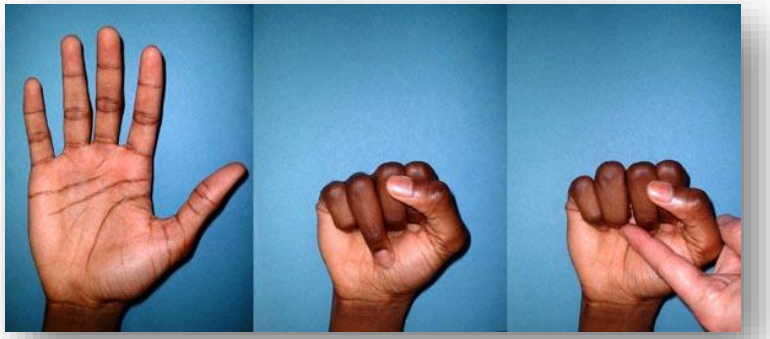
JERSEY FINGER

Cannot flex the ***DIP*** (yet can still flex PIP)

- must evaluate DIP flexion in isolation!







JERSEY FINGER

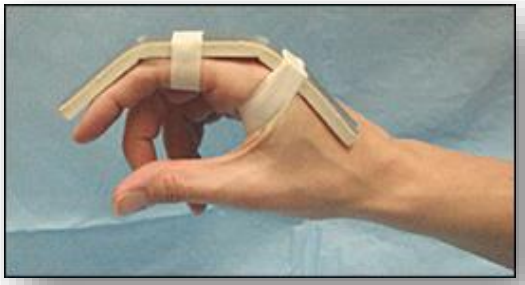
Finger specific X-rays (not just hand XR)

- AP, lateral, oblique

JERSEY FINGER

Acute Management: splint in flexion

- “extension block splint”



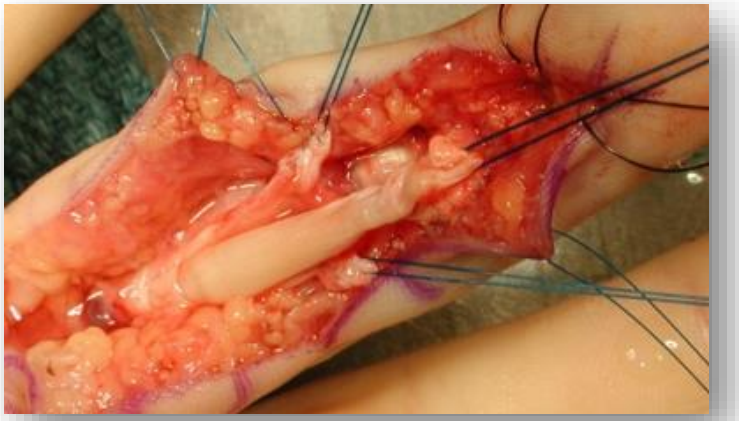
JERSEY FINGER

Definitive Management:

- typically there is no conservative treatment
  - long term splinting is ***rarely*** an option. WHY??

Surgery options:

- tendon repair
- fracture fragment repair



GAMEKEEPER'S THUMB - SKIER'S THUMB

GAMEKEEPER'S THUMB & SKIER'S THUMB

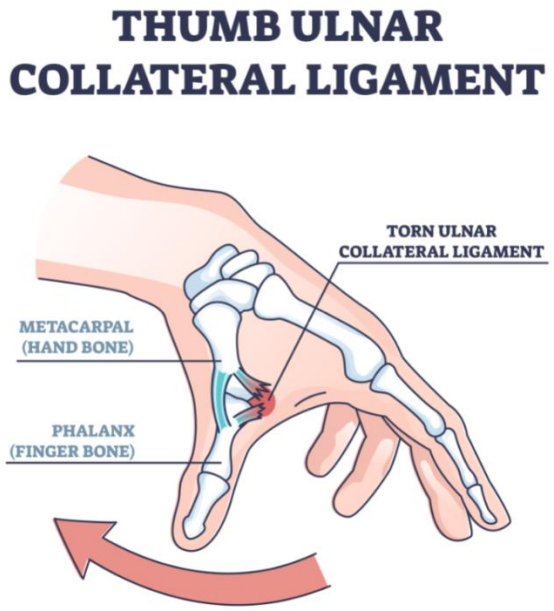
Background:

- first recognized in Scottish "gamekeepers"
- ***repetitive*** neck wringing of game between thumb & index finger: "gamekeeper's thumb"

GAMEKEEPER'S THUMB & SKIER'S THUMB

Definition (Gamekeeper's):

- ***Overuse*** injury to ulnar collateral ligament (UCL) of the thumb
  (base of the proximal phalanx at the 1st MCP)



GAMEKEEPER'S THUMB & SKIER'S THUMB

"Skier's thumb" injury

- from acute injury, usually a fall

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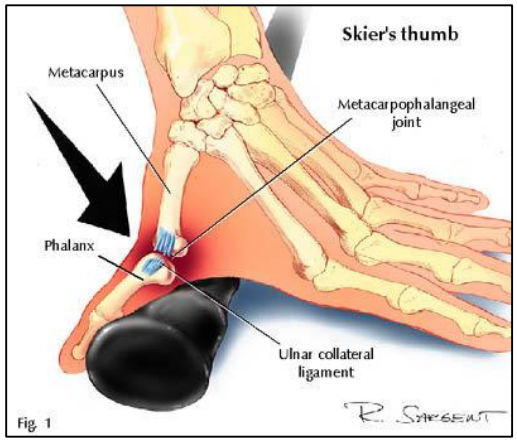
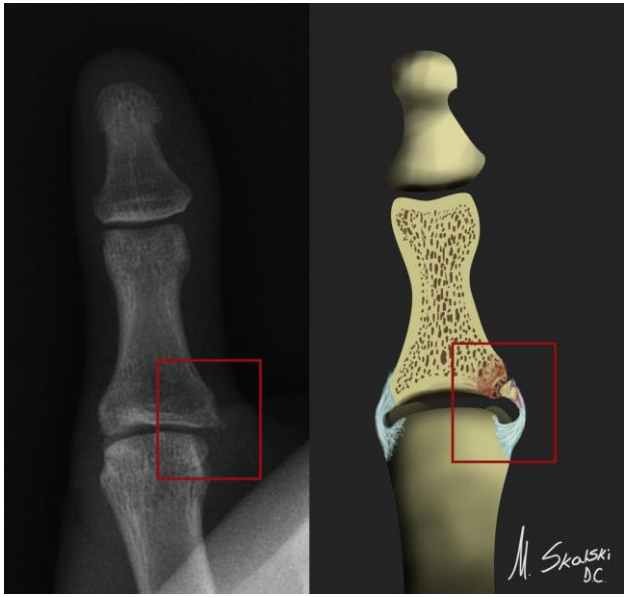


GAMEKEEPER'S THUMB & SKIER'S THUMB

Types:

- partial or complete tear
- with or without fracture



GAMEKEEPER'S THUMB & SKIER'S THUMB

Mechanism of Injury:

- valgus & hyperextension force to thumb
  (repetitively or acutely)

Common in:

- skiers
- football lineman
- potentially any FOOSH

GAMEKEEPER'S THUMB & SKIER'S THUMB

History & Physical Exam

- "jammed thumb"
- pain, swelling at 1st MCP
- ***ecchymosis of thenar eminence***
- painful thumb ROM

GAMEKEEPER'S THUMB & SKIER'S THUMB

Do NOT stress MCP joint ***prior*** to X-rays!

- must rule out fracture first
- do not want to displace bony fragment

GAMEKEEPER'S THUMB & SKIER'S THUMB

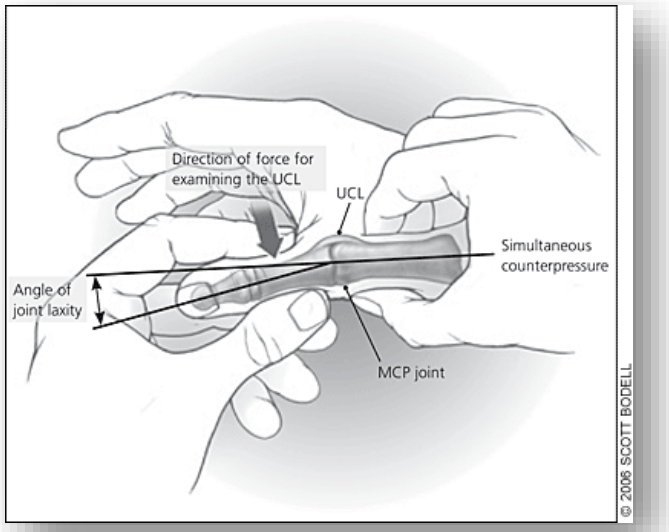
If fracture is present; orthopedic referral…

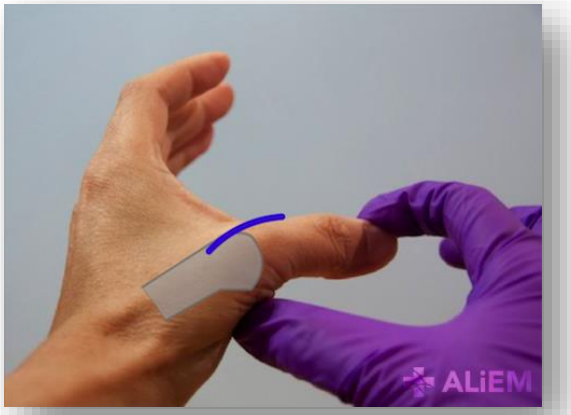
- do not stress the ligament during physical exam
  (i.e., do not apply valgus force)

GAMEKEEPER'S THUMB & SKIER'S THUMB

If fracture ruled out…

- ***Valgus stress test***
  - increased laxity? definitive endpoint?
  - compare to other side





Sens	Spec
94%	46%

GAMEKEEPER'S THUMB & SKIER'S THUMB

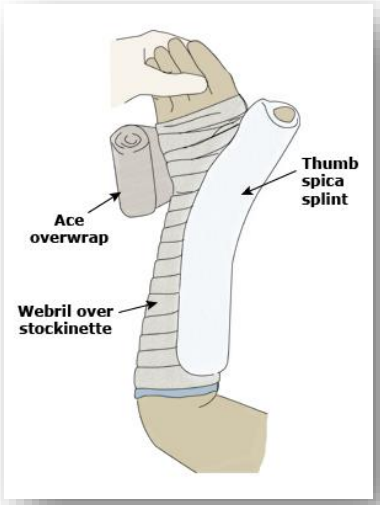
If physical exam is ***equivocal***…and standard radiographs have already demonstrated no fracture:

- stress radiographs
- MRI may be necessary
- bedside ultrasound?

GAMEKEEPER'S THUMB & SKIER'S THUMB

Initial Management

- thumb spica splint
- refer to Orthopedics



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GAMEKEEPER'S THUMB & SKIER'S THUMB

Definitive Management

- partial tear or non-displaced fracture: cast/splint

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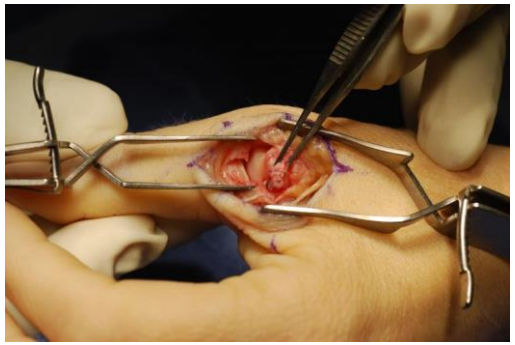
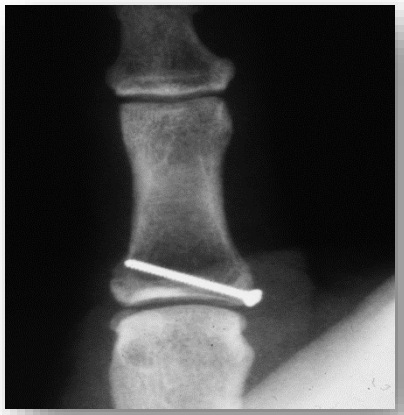
GAMEKEEPER'S THUMB & SKIER'S THUMB

Definitive Management

- partial tear or non-displaced fracture: cast/splint
- complete tear or displaced fracture: surgery





LESSONS FOR PRACTICE

- **Keinböck's:** MRI needed to see early density changes
- **DeQuervain's:** snowball crepitus, Finkelstein test
- **Ganglion cyst:** trans-illumination, ultrasound
- **Mallet finger:** extension splint, +/- surgery
- **Jersey finger:** check DIP flexion, all will need surgery
- **Gamekeeper's/Skier's:** no ligamentous testing until after X-rays

POST-TEST QUESTION #1

Definitive treatment for a Jersey finger injury…

A. is always conservative: 6-8 weeks of splinting typically does well.
B. may be conservative or surgical, it depends on the location of the injury.
C. is always surgical (primary tendon repair or fracture fragment repair). Long-term splinting is rarely an option.
D. is a corticosteroid injection at the site of injury.

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When evaluating a patient with a suspected skier's thumb injury…

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B. radiographs are not necessary – it is a clinical diagnosis.
C. it is best to obtain radiographs after assessing the UCL.
D. MRI is the gold standard imaging that is needed.

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Why is it important to diagnose Kienböck's disease as early as possible?

A. The disease course can be reversed with early pharmacologic intervention
B. To prevent the spread of necrosis to adjacent bones
C. Because ultrasound can be both diagnostic and therapeutic for the condition
D. To intervene before bony collapse of the lunate occurs

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CITATIONS

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