DRIVING CHANGE 2023
THE URGENT CARE CONVENTION

# Evaluation and Treatment of Sports/MSK Injuries in an Urgent Care Setting


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AlphaMeD
WALK-IN MEDICAL

# Ortho Can Be Exciting

Some things can really get the adrenaline going.

Some Injuries make us collect our composure

While others really getting us thinking ….


And some we're just not sure what to think….

# Be alert
# Rule out/don't miss

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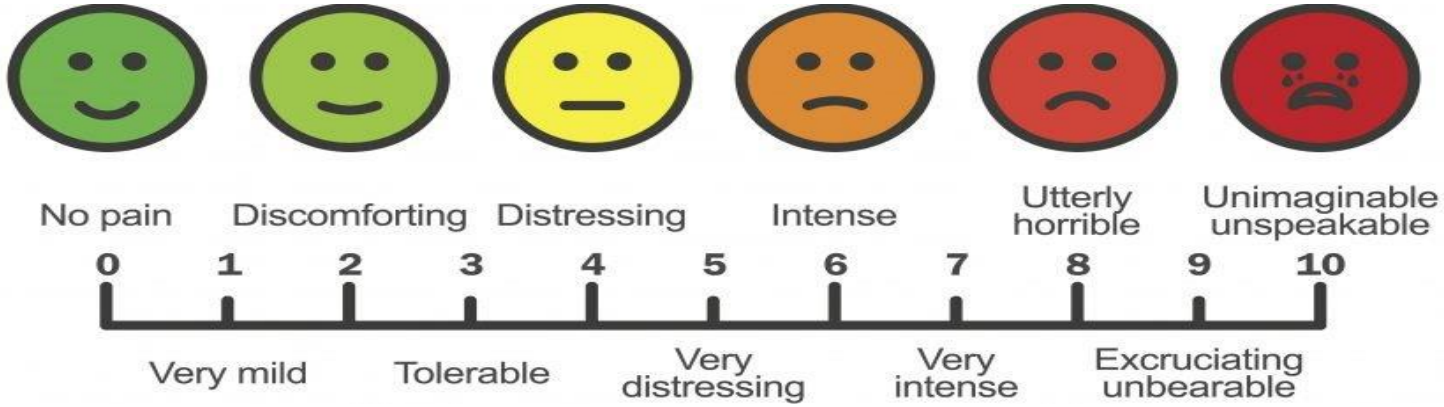
- Most Orthopedic/MSK injuries will require some sort of follow up
- It is important to have a good understanding of how quickly that follow up needs to occur
- Routine: sprains/strains (weeks)
- Urgent Referral (days)
  - Tendon avulsion
  - Intra-articular/Unstable fracture
- Emergent Referral (now)
  - Open Fracture
  - Dislocation (elbow, ankle, etc)
  - Compartment Syndrome

coming in HOT!!!

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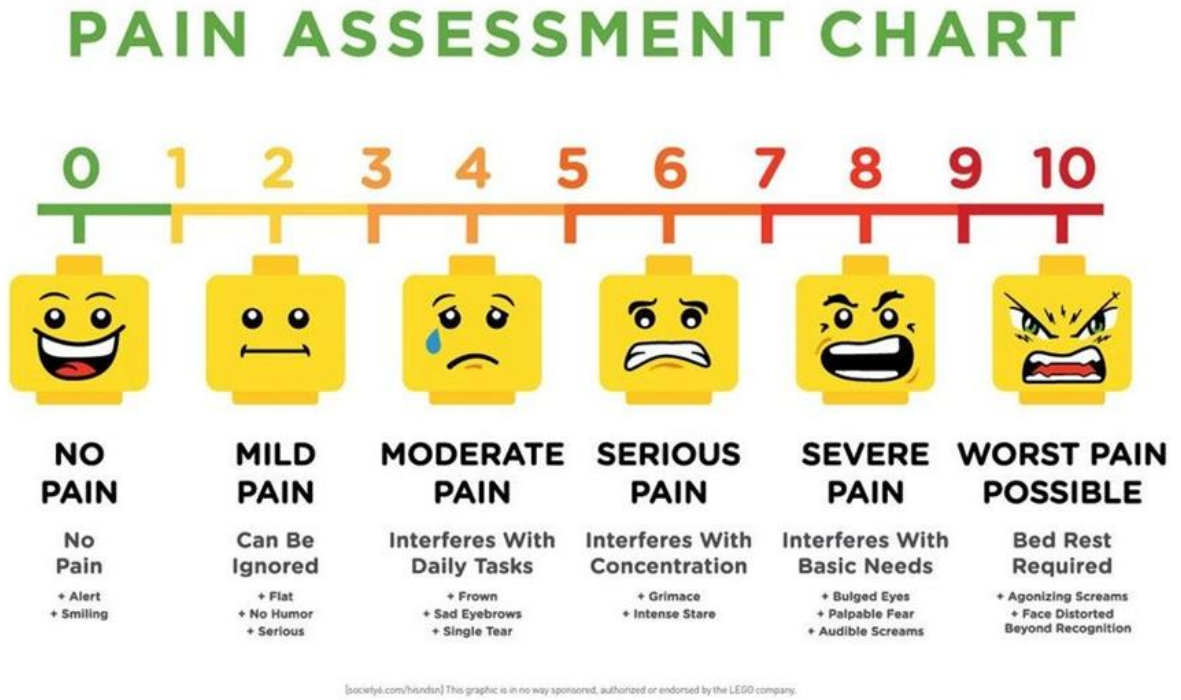
# Exam:

-Location
-Soft tissue involved vs Bone
    -Point with one finger
-Neuro-Vascular status
-Joints above and below



# Hand/fingers

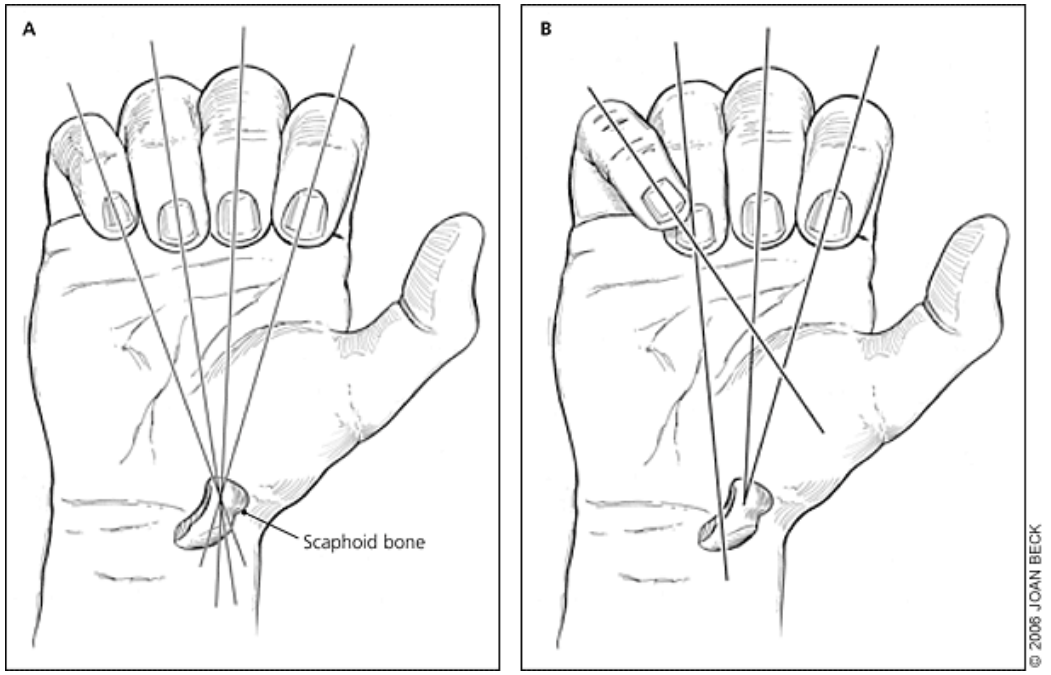
- Soft tissue
- Dislocations
- Fractures
- Dorsal injury = extensor tendon injury
- Deformity r/o dislocation
- **Subungual hematoma greater than 50% = open fracture**

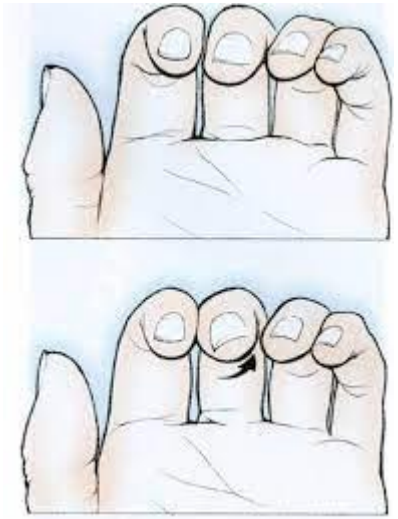
# Hand: Phalanx Fractures

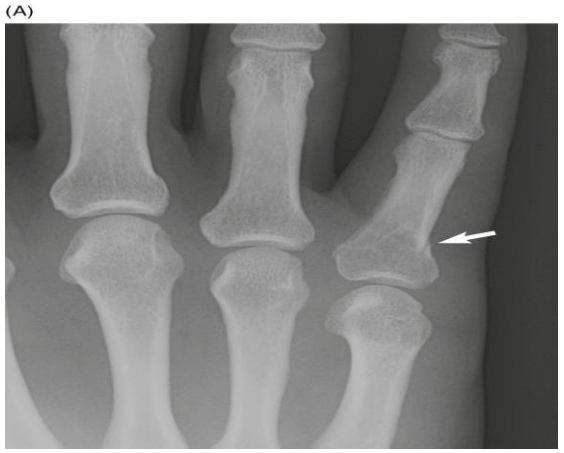
- Mechanism: jammed, crushed, twisted
- Exam: angulation, rotation, stability
- Nail  involvement
- Stable/Unstable: proximal/middle often unstable
- **Splint: comfort and buddy taped**
  - **MCP 80-90, PIP 30, DIP 30**
  - **Unless central slip/mallet**
- Follow up: high rate of noncompliance

# Fracture evaluation








Fingers should converge toward the scaphoid tubercle with MCP and PIP flexion
… if not … refer to Ortho Hand & Wrist

# Fractures: Phalanx/Metacarpal

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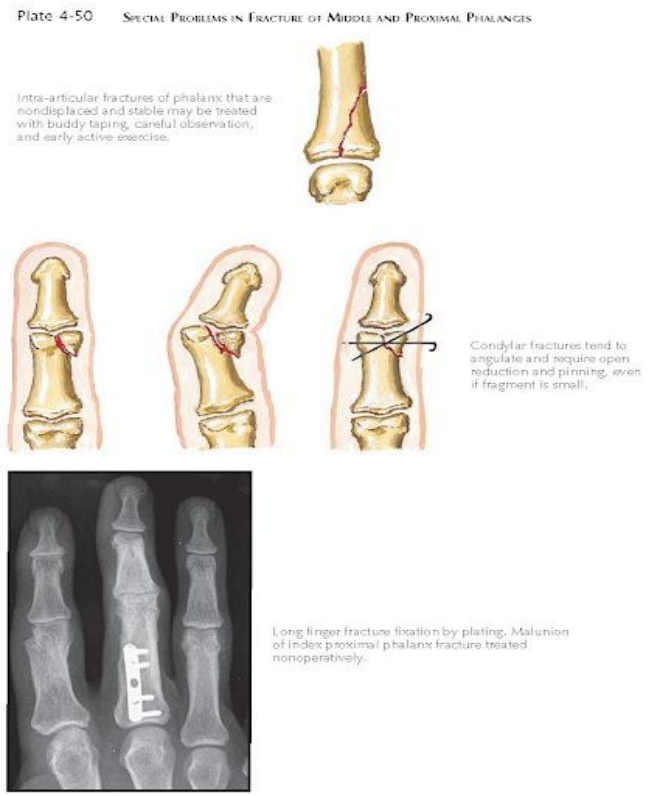
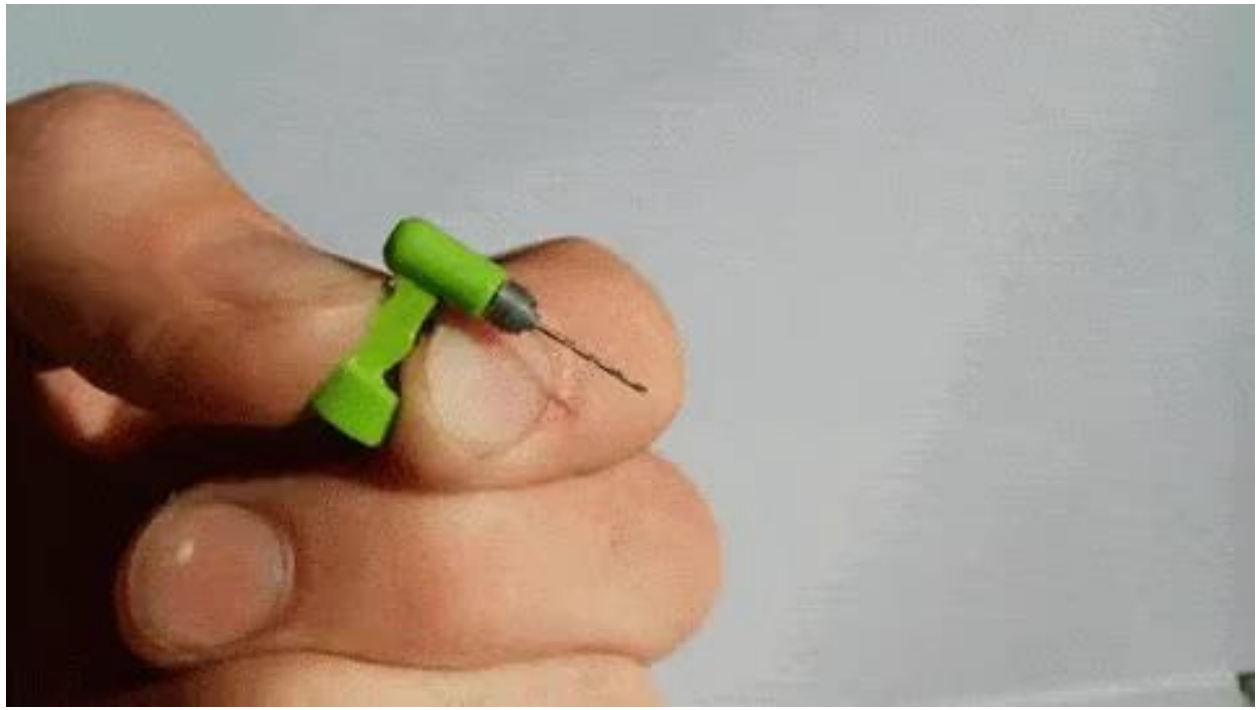
## Stable

- Non-displaced
- Long spiral fractures
- Minimally displaced intra-articular MCP fractures (close follow up)



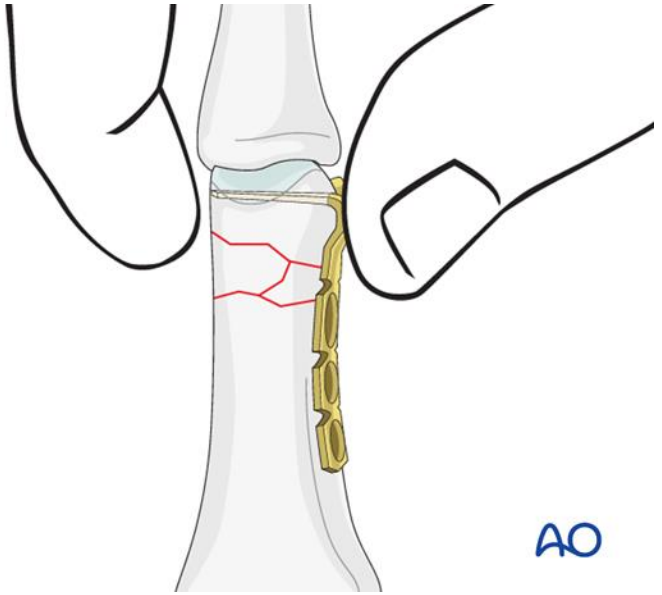

## Unstable

- Comminuted
- Long oblique
- Transverse
- Displaced intra-articular fractures



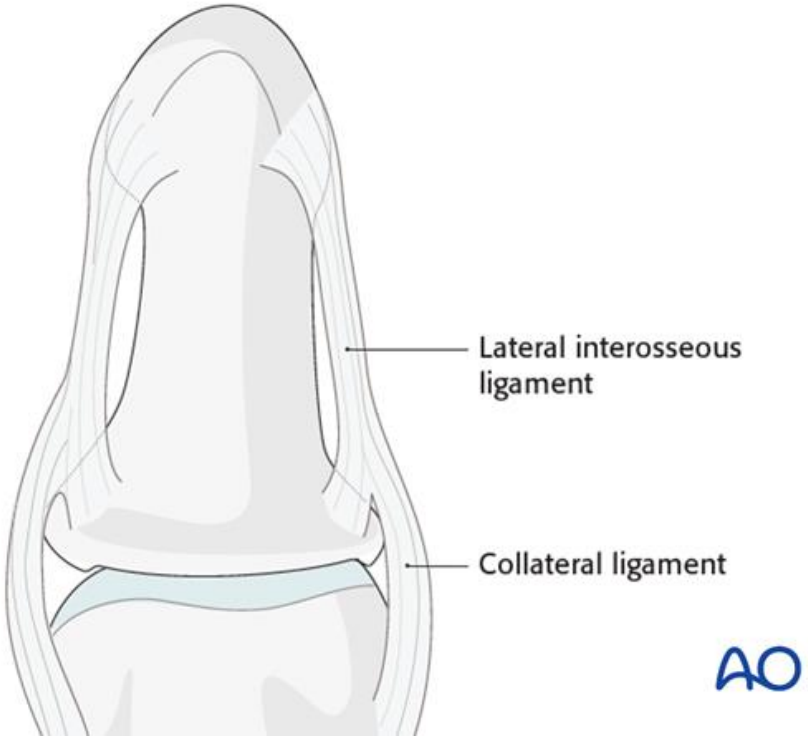
Techniques and instrumentation are so progressed that surgery is highly effective at restoring anatomy and preserving function

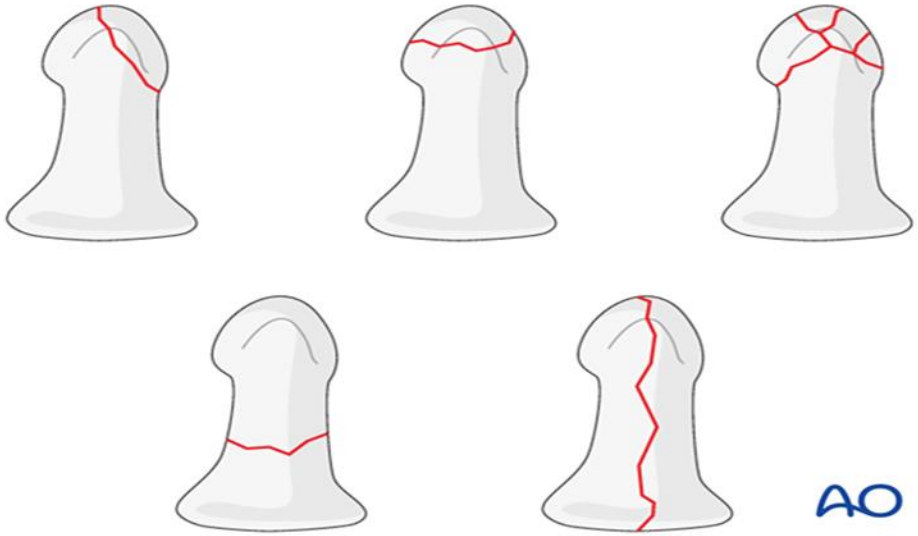
Example of the small screws that can be placed for long oblique fractures or plates for comminuted fractures




# Distal phalanx:

- Typically stable
- **Rule out open fracture; subungual hematoma >50%**
- Absorbable suture and comfortable with closure; refer out.
- Immobilize alumofoam splint x 3-4 weeks (until can tap)



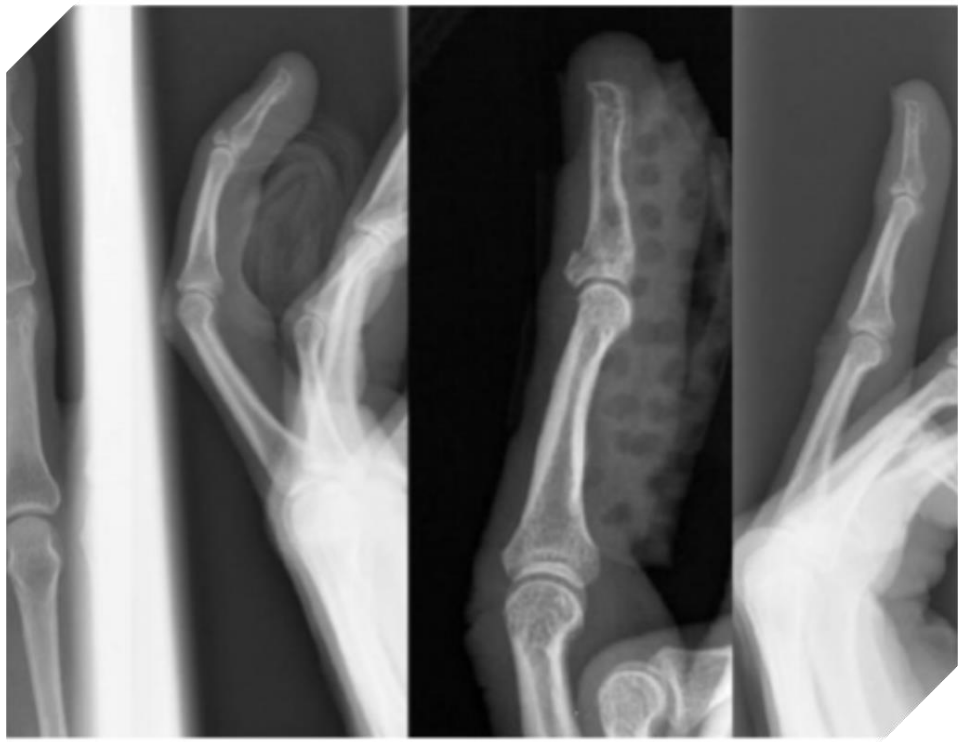

- Inherently stable
- Alumafoam anchored to middle phalanx
- Do not use Coban
- Elevate and Ice often first 48 hrs

# Seymour Fracture



open, displaced juxta-epiphyseal fractures of the distal phalanx, with an overlying nail bed laceration that occur in children and adolescents with an open physis

REFER TO ORTHO - often needs K-wire fixation and nailbed repair



# Mallet finger

- Avulsion extensor tendon
- Preserve anatomy and restore function
- Xrays rule out fracture
- Extension splint x 6 wks full time, then part-time x 4-6 wks
- Follow up 3-5 days

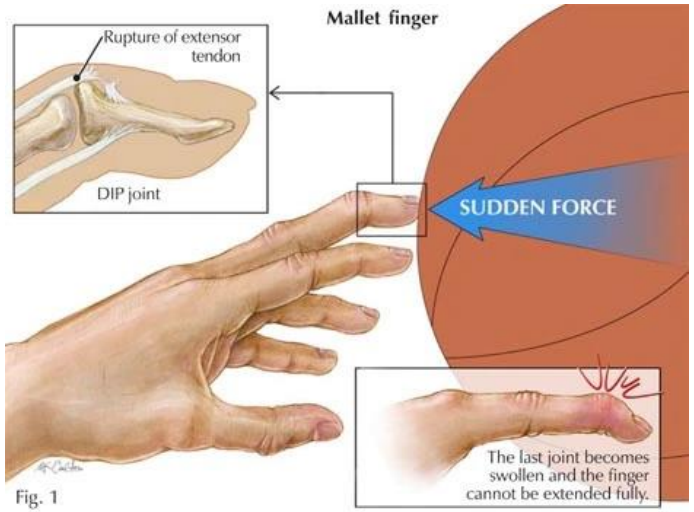
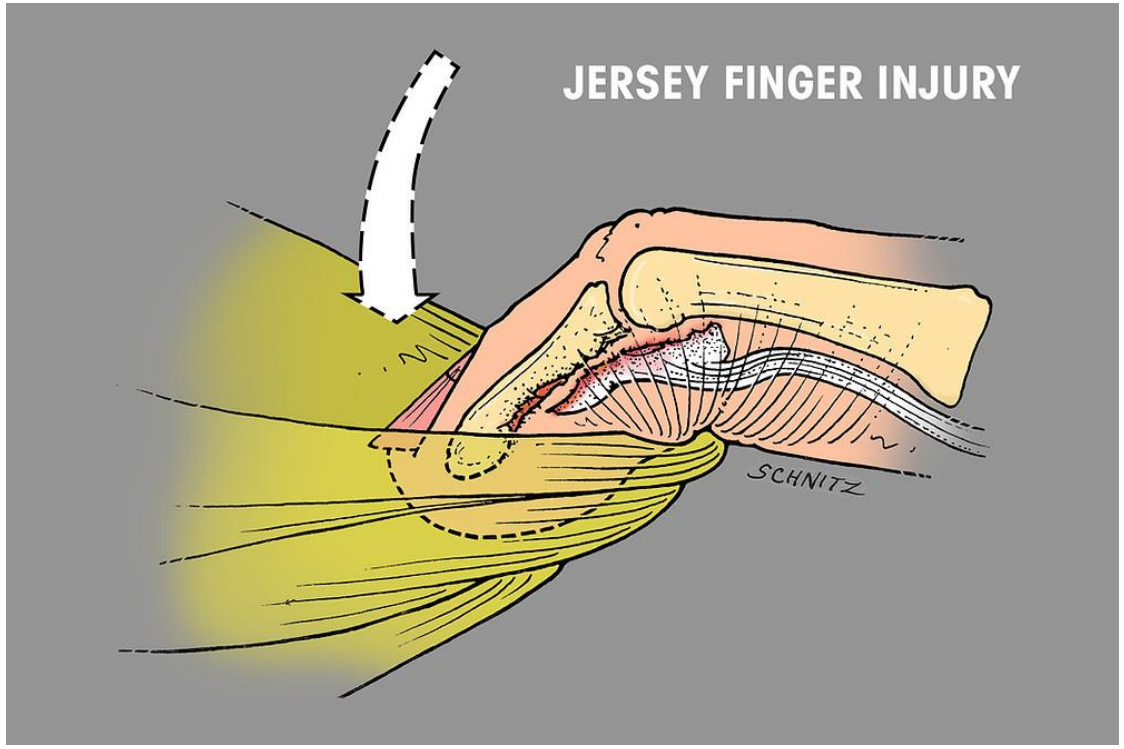


Fig. 1




# Jersey finger

- FDP avulsion from DIP
- Ring finger most common
- Unopposed extensor holds DIP in extension, no tonic flexion
- Requires surgery, best within 7-10 days

# Hand/finger: Dislocation

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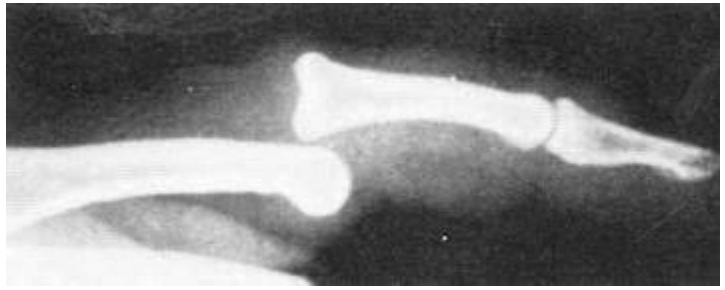
- **PIP and DIP**

**Dislocations**



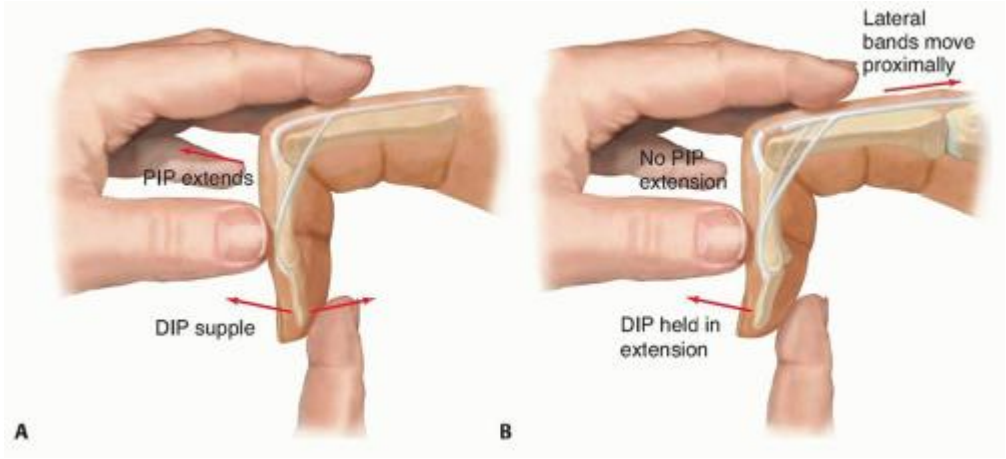
Want to Learn More…..

Then attend the Learning Lab

- Orthopedic Procedures

Tue 4/4/2023 10:15 AM -

11:00 AM Room 125




# Hand/Finger: Soft tissue

- Central Slip Injury
  - Hyperflexion/Laceration/ Crush common mx
  - Boutonniere Deformity
  - Extension splint 6wks fulltime; 4-6 wks parttime


# Thumb UCL Tear (gamekeepers or skiers' thumb)

- Pain at ulnar side of MCP
- Laxity with valgus stress of MCP
- X-ray could reveal Stenar  lesion
- Thumb spica splint
- Referral to Ortho Hand & Wrist


# Bennet and Rolando Fracture

Fracture at base of 1st metacarpal

Thumb spica splint

Refer to Ortho Hand & Wrist


# Boxers Fracture

Ulnar gutter splint.  Remember MCPs/PIPs/DIPs should be in flexion (60-90 degrees of flexion)

Some angulation is OK to proceed with conservative management, some would argue up to 40 degrees

Refer with angulation > 30-40 degrees, malrotation, shortening or any other deformities.

# Metacarpal fractures

- Oblique fractures can be unstable – referral to Ortho Hand and Wrist
- Ulnar gutter splint ($4^{th}$/$5^{th}$)
- Radial gutter splint vs Burkhalter splint($2^{nd}$/$3^{rd}$)
- Angulation
    - Index < 10 degrees
    - Middle < 10-20 degrees
    - Ring < 20-30 degrees

Figure 1 Provided by John Copeland, D.O.



So long to pinky here comes the thumb


# Scaphoid fractures

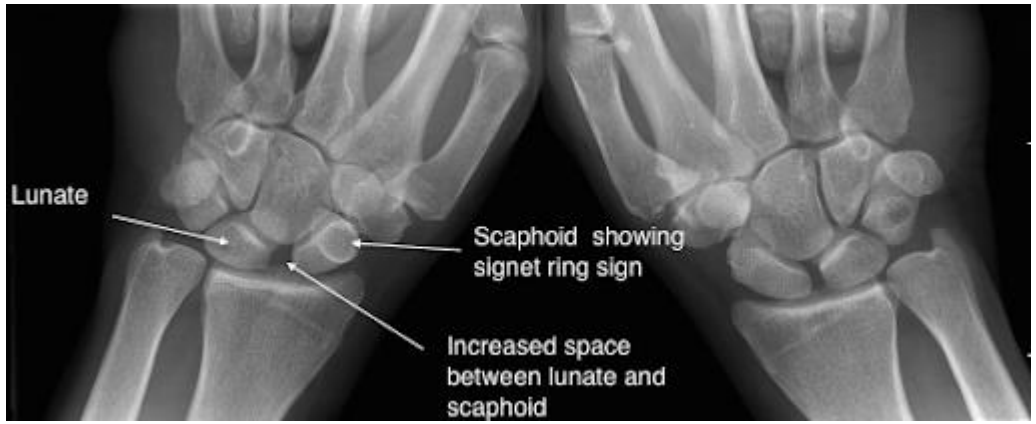
Distal: Typically do quite well. Short arm thumb spica splint and OK to manage conservatively

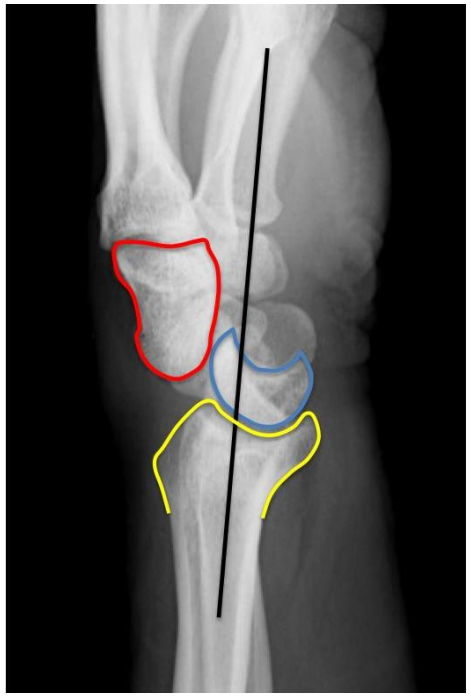
Waste: Error on side of caution, long arm thumb spica splint and refer to Ortho Hand to discuss best treatment options on an individual basis

Proximal: Long arm thumb spica splint and refer to Ortho Hand, often require ORIF

# Scaphoid/scapholunate injury

## Consider MRI arthrogram
## And refer to Ortho Hand/Wrist



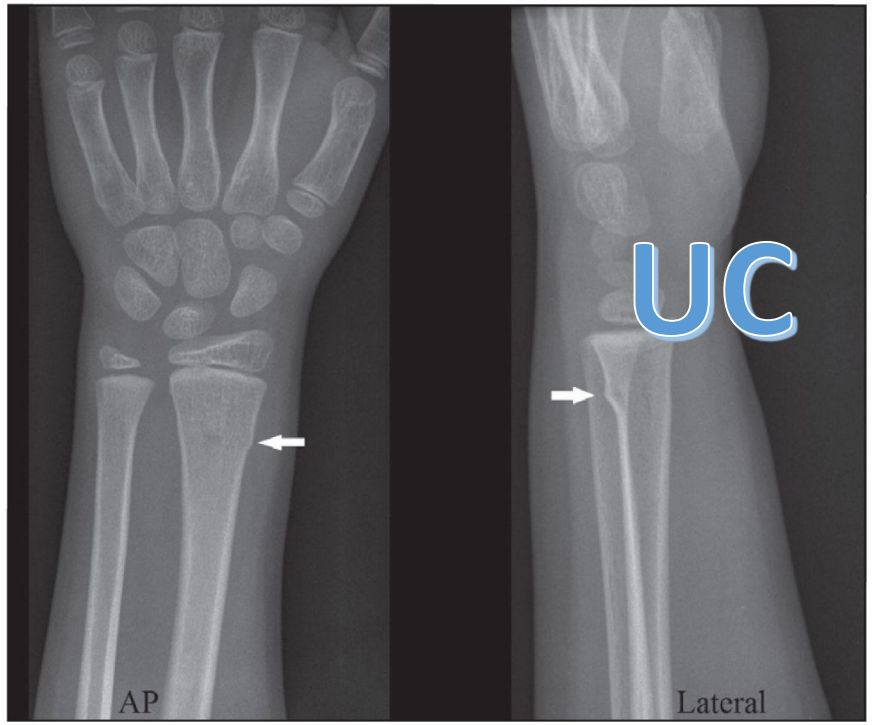



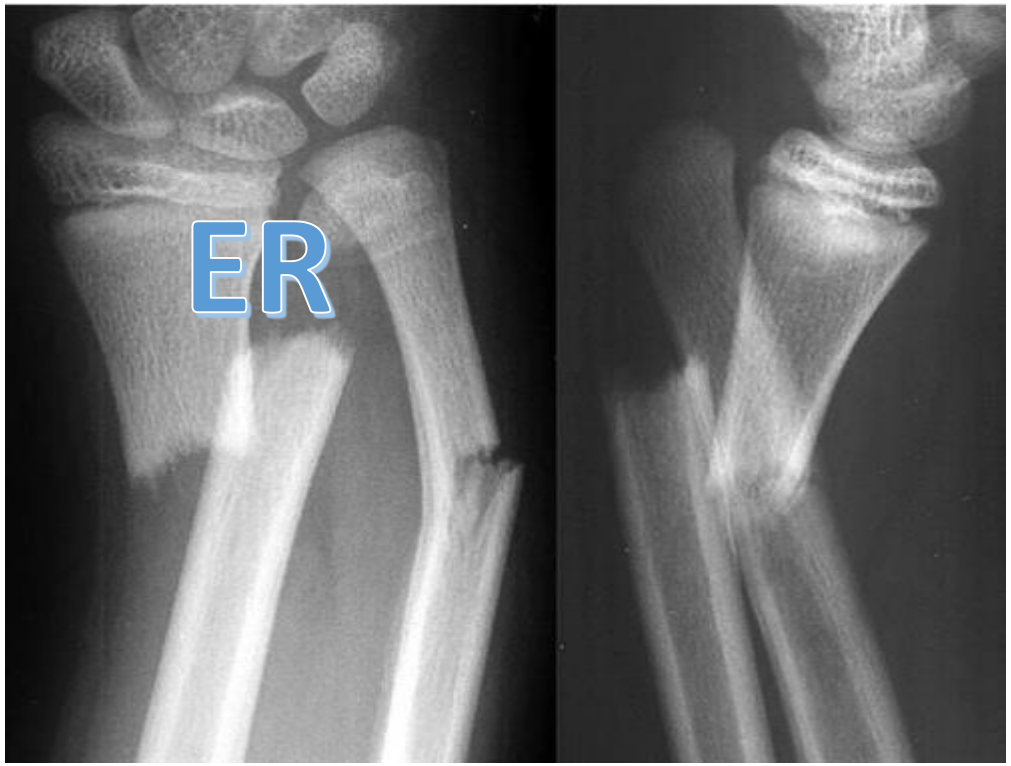

# Lunate dislocation

Immediate Reduction
Typically requires sedation
and referral

I know we have all seen this kid in clinic……maybe some of you have seen this kid at home.

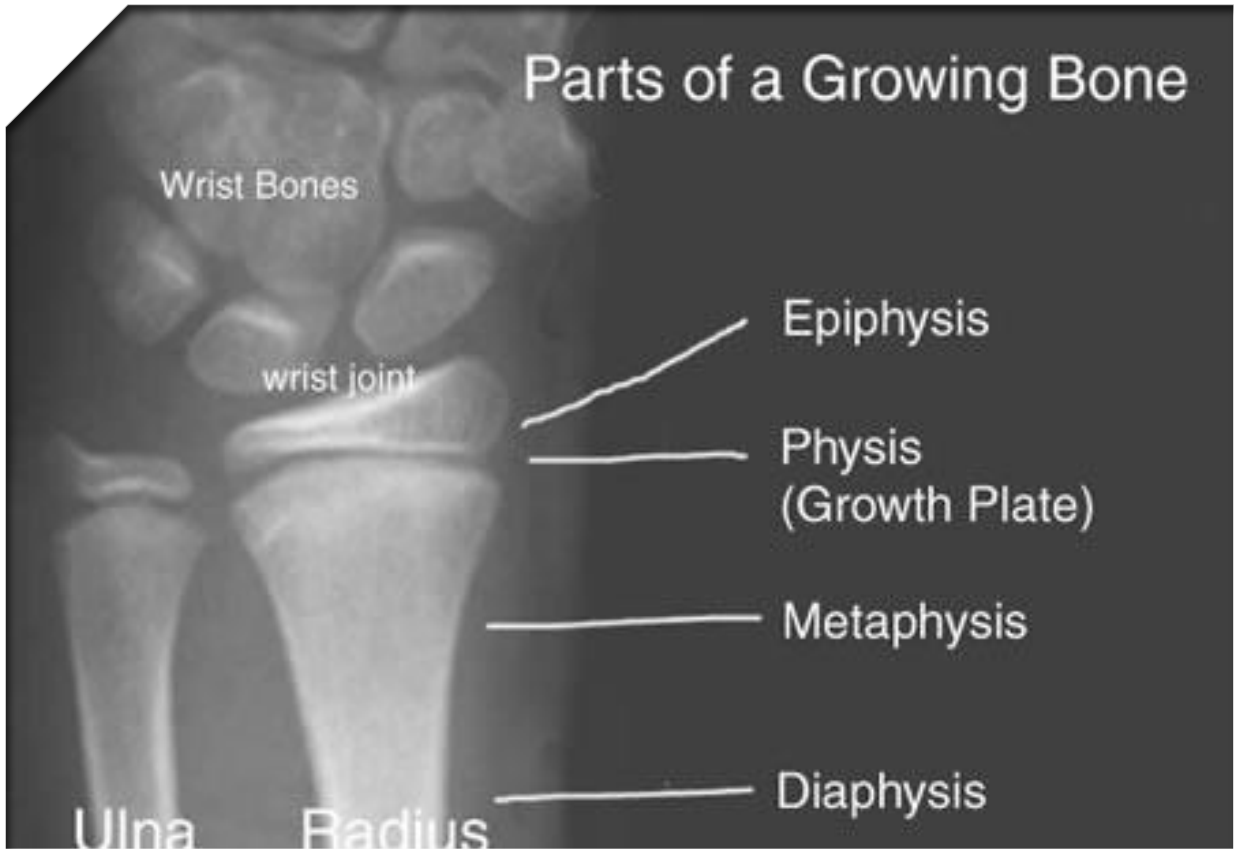
# Pediatric Distal radius fractures

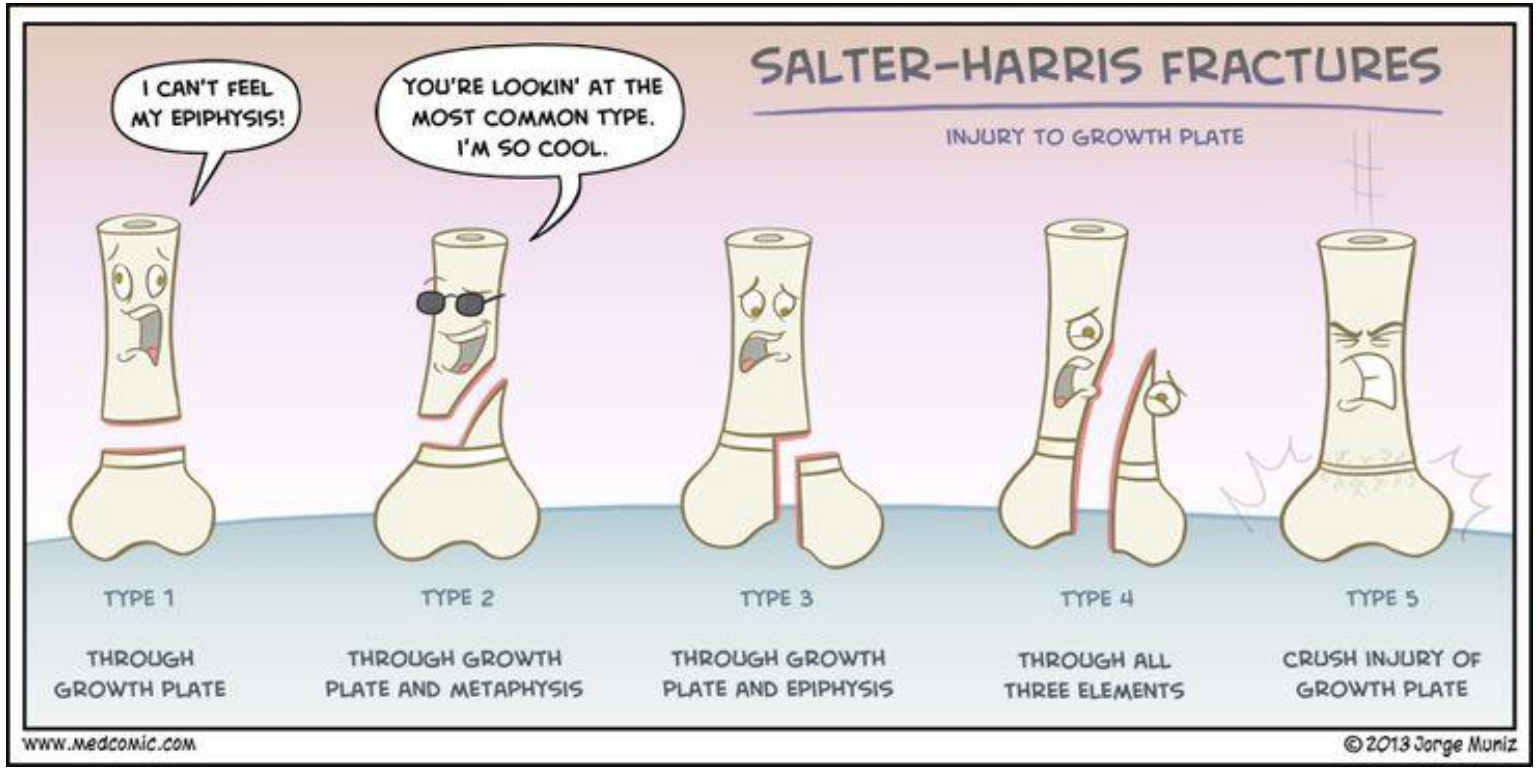


# DISTAL RADIUS PHYSIS

- 75% GROWTH OF THE RADIUS
- 40% OF UPPER EXTREMITY GROWTH
- APPROX 5.25MM PER YEAR

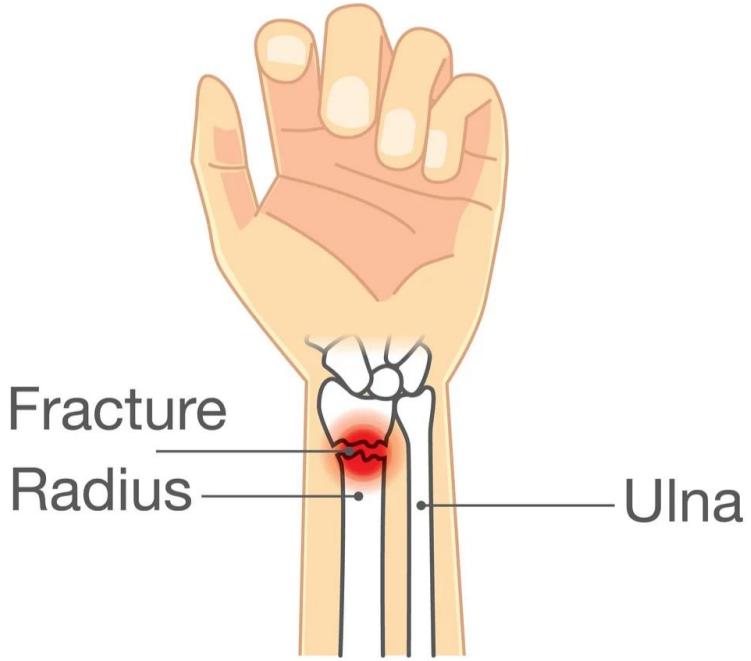





# Salter Harris

- S: slipped/separated
- A:  Above/Away
- L: Lower/beLow
- T:Through/Two/Together
- R: Ruined/Rammed

# Wrist Fracture




## Exam:

- “Point with one finger”
- Best exam finding is point tenderness
- Wrist sprains are rare in kids
- Xrays; contralateral side if xrays are equivocal

# PEDIATRIC DISTAL RADIUS

Buckle  Greenstick

- SALTER HARRIS: Physeal related
- TORUS/BUCKLE: Compressive load failure involving one cortex. Fracture lines not seen
- GREENSTICK: Partial thickness involving cortex/periosteum on one side, with deformation of opposite side
- COMPLETE FRACTURES > ED

# Stable vs Unstable?

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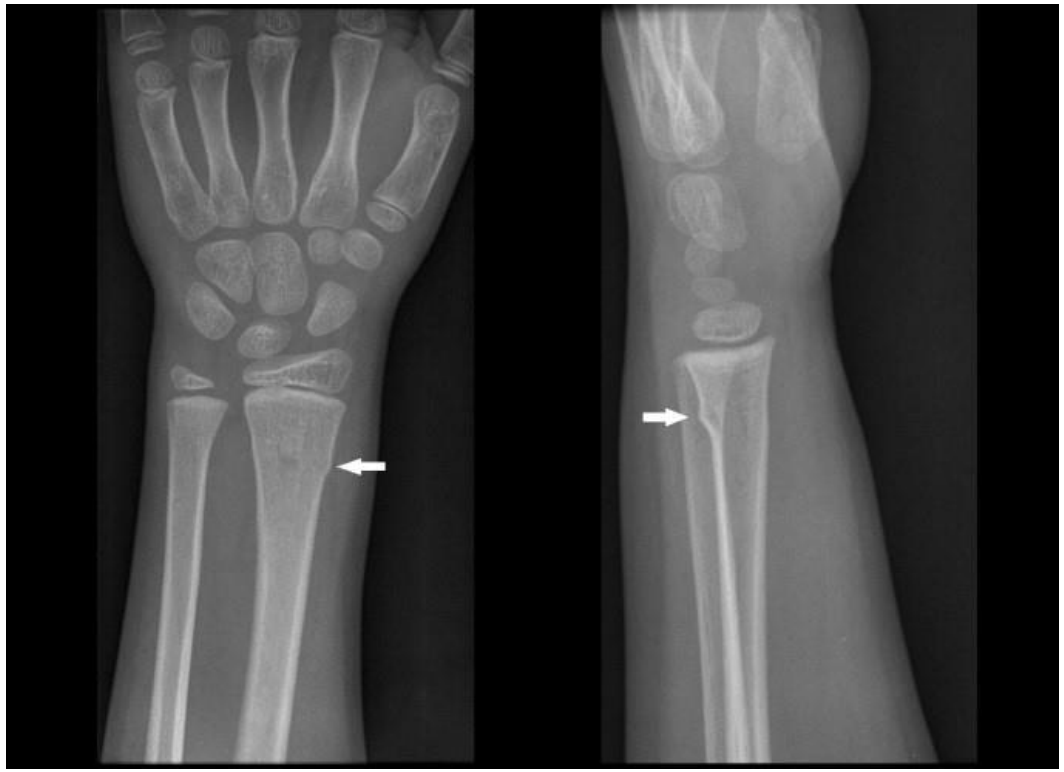
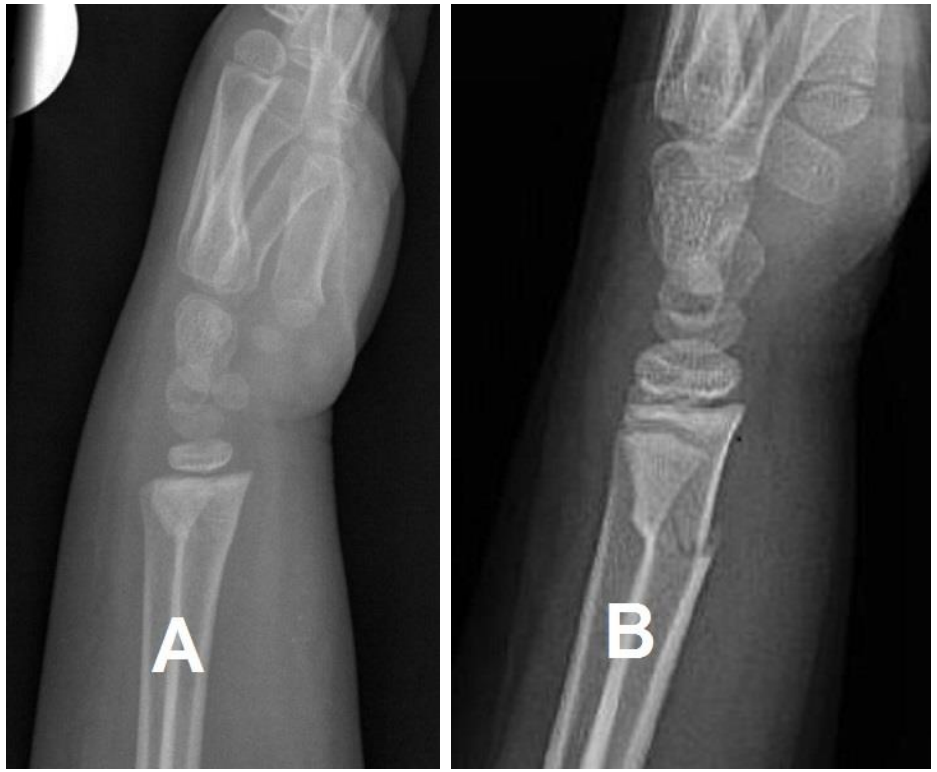
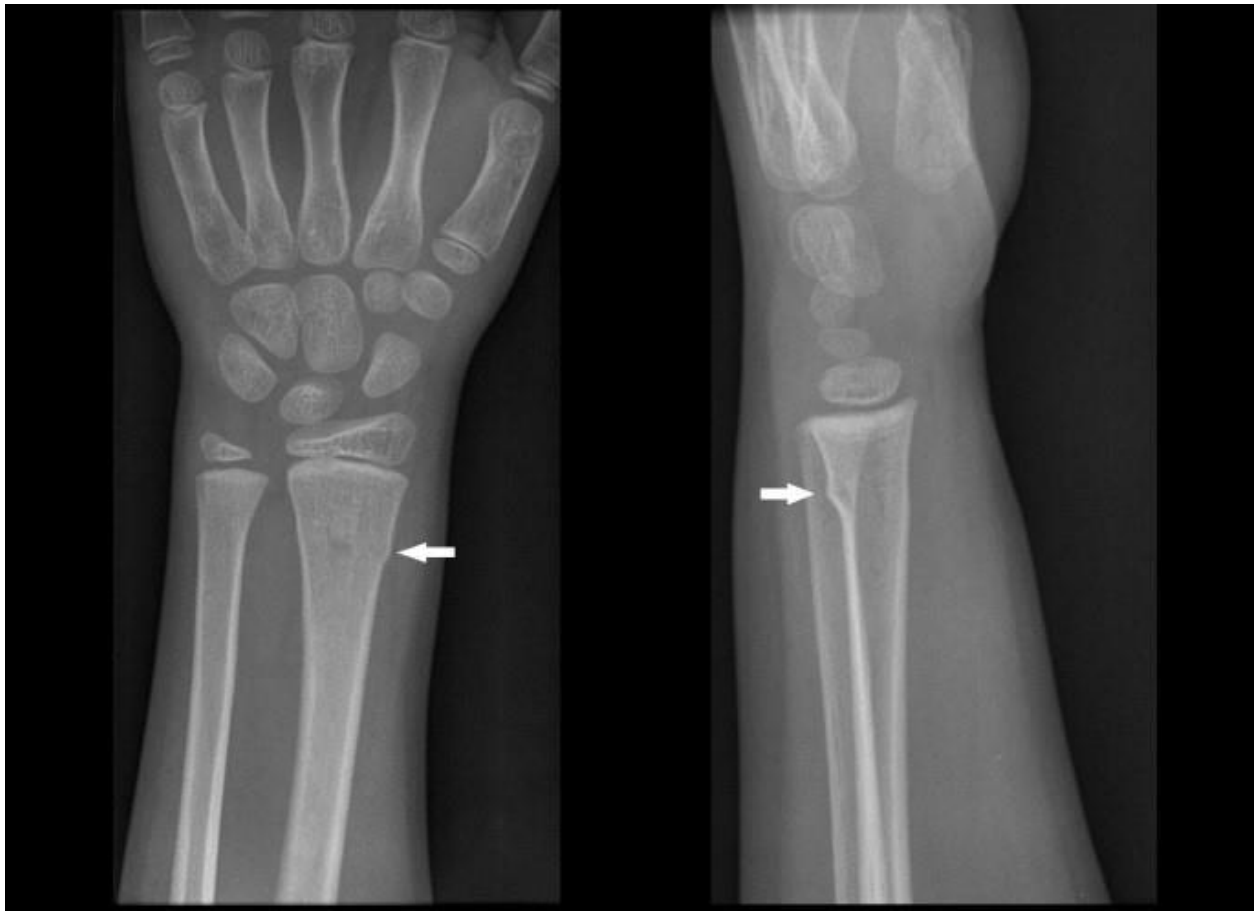
## Stable



## Unstable





# Stable Buckle

- FOOSH
- Immobilization removable wrist splint/brace (3 weeks)
- RICE
- Follow up 3 weeks (ish)





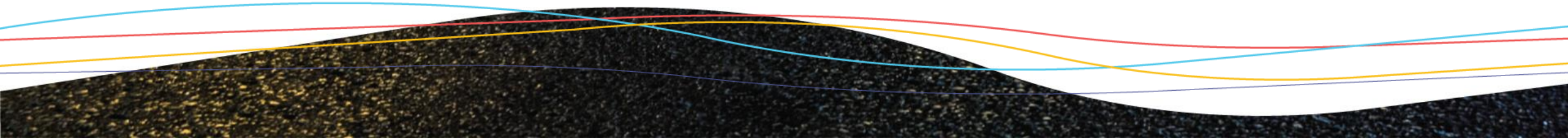
# Unstable/Greenstick

- “Doorformed” If deformed from the door, needs reduction
- <15 deg if < 10 yrs old
- <10 deg if > 10 yrs old
- Immobilize according to angulation/periosteal hinge/deforming forces
- Follow up 5 days (cast)

# Above/below elbow splint

- Unstable: above elbow to limit forearm rotation and maintain reduction
- Stable: above elbow only if pain with supination/pronation
- <2yrs old:  above elbow

| | Volar Splint | Ulnar Gutter | Long Posterior | Sugar Tong | Double Sugar Tong |
|---|---|---|---|---|---|
| Indications | Soft tissue injury; Carpal fractures; 2nd-5th MC head fractures | 5th digit fracture/soft tissue; Fx of neck, shaft and base of 4th-5th MC | Supracondylar distal humerus, olecranon, proximal-midshaft radius/ulnar fractures | Distal radius and ulna fractures | Complex and unstable forearm and elbow fractures |
| Pointers | Start in palm at MCP heads/distal palmar crease along volar forearm to proximal | Mid forearm along ulnar arm distal to DIP; includes 4th and 5th digits | Posterior proximal arm toward the ulnar aspect of the forearm down to distal palmar crease | From distal palmer crease on volar side to metacarpal heads on dorsal hand | Forearm splint: from metacarpal heads on dorsal hand to distal Palmer crease. Arm splint: anterior to posterior prox humerus |
| Positioning | Forearm neutral, thumb up, and wrist slight extension | Forearm neutral; wrist slight extension; PIP/DIP slight flexion (15 deg); MCP at 50-90 deg flexion | wrist neutral to slight extension at 20 degrees, elbow flexed at 90 degrees | Elbow at 90 degrees, forearm in neutral position and wrist slightly extended to 20 degrees | Elbow at 90 degrees, forearm in neutral, wrist slightly extended to 20 degrees |
| | | | | | |

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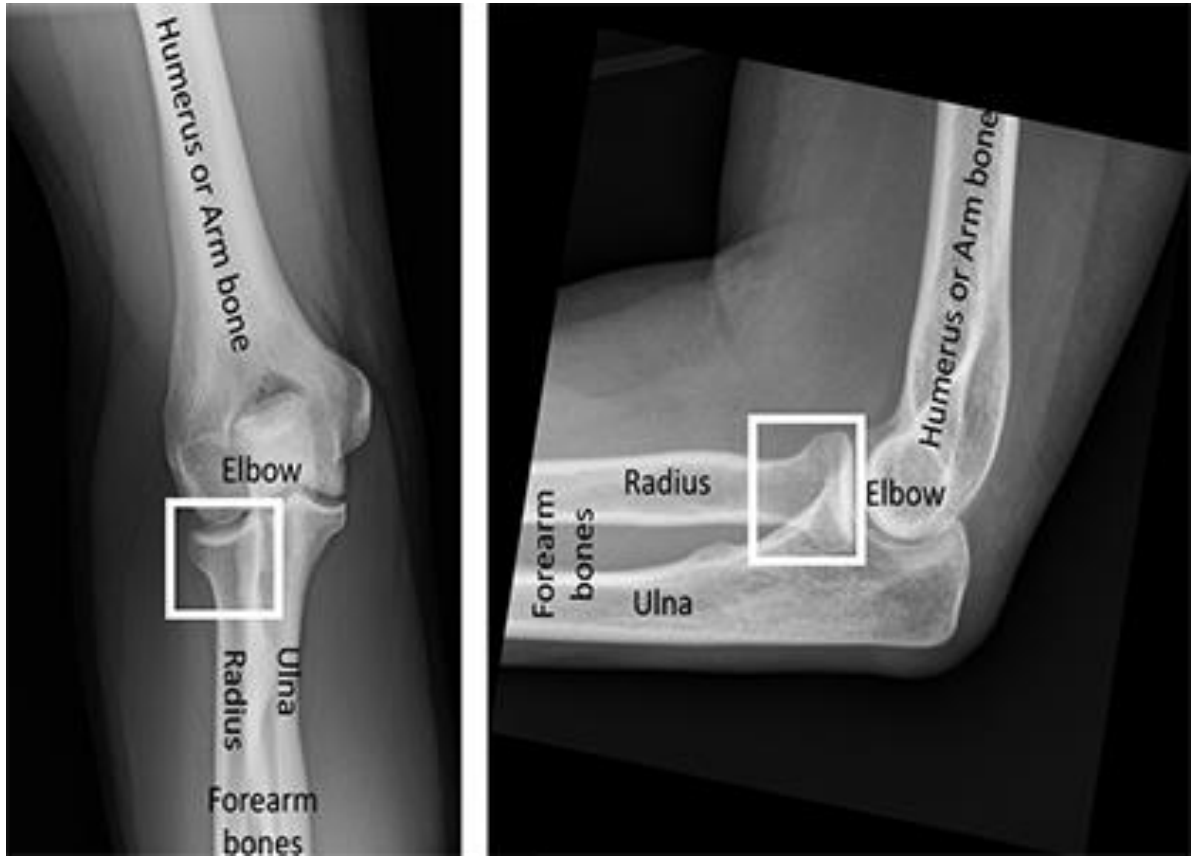
Serial xrays:

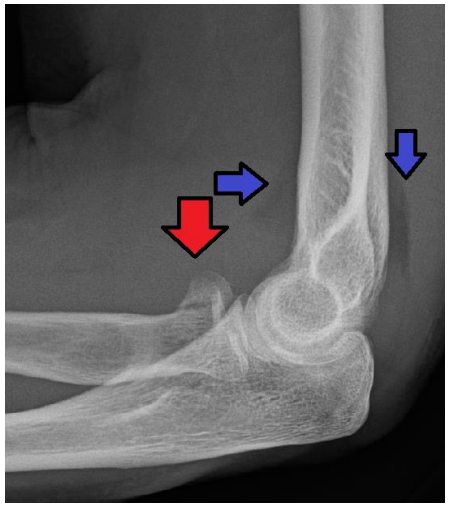
- Stable: debatable
- Reduced: 4-7 days and then 10-14 days; 3 weeks if subtle drift
- Physeal involvement: 4-6 months
- Refracture: 7% at 6.5 months

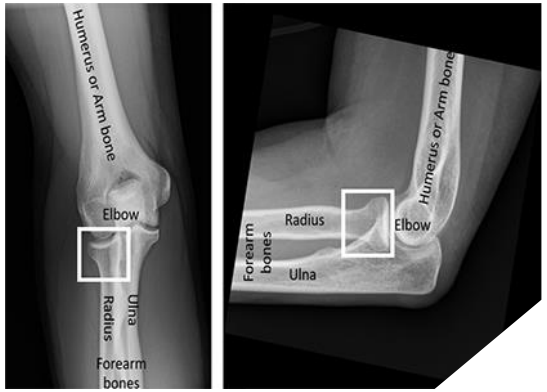



# Elbow: Radial head/neck fractures

- Mechanism: FOOSH (extension/pronation)
- Check for DRUJ pain/instability; medial stress*; r/o block; hemarthrosis
- Imaging: Xray; CT if possible surgery
- Stable/Unstable
- Splint/sling: 48 hrs-10 days
- Follow up as they will get stiff

# Elbow: Radial head/neck fractures






- Xrays: standard AP and lateral ; high suspicion or not visualized add oblique or Greenspan view
- Positive fat pad sign (post > ant)
- Additional forearm/wrist views if clinically appropriate.
- Type I – OK to proceed conservative and follow
- Type II-IV – Refer to Orthopedics

| Type | Definition | |
|---|---|---|
| I | Fracture of the radial head or neck within 2 mm displacement |  |
| II | With displacement more than 2 mm and involving more than 30% of articular surface of radial head |  |
| III | Comminuted fracture of radial head or neck |  |
| IV | Dislocation of elbow joint with any fracture of radial head or neck |  |

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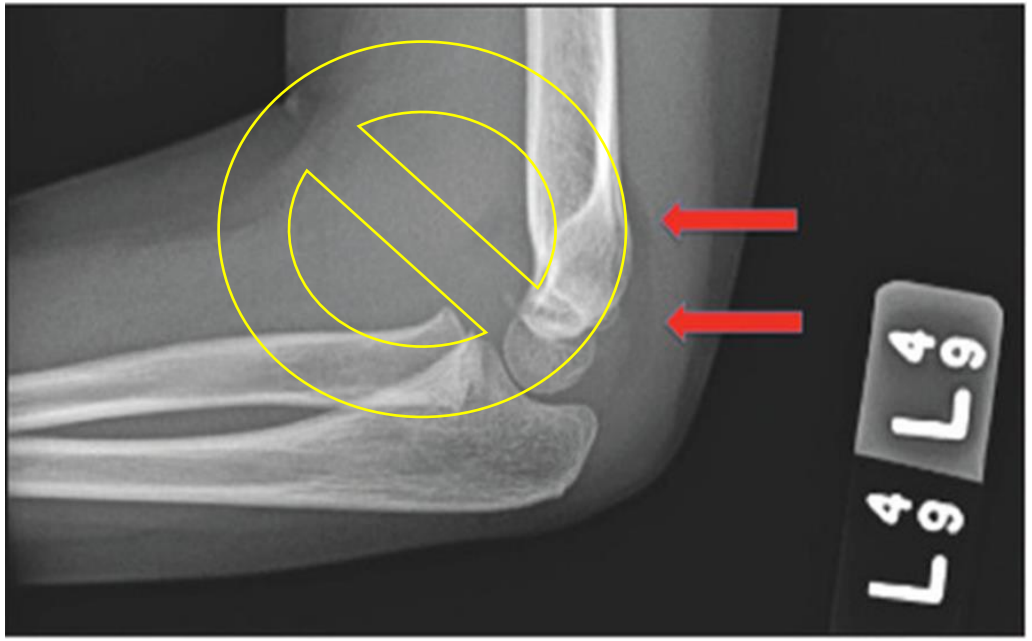
# Nursemaid/Radial head subluxation

Want to Learn More…..

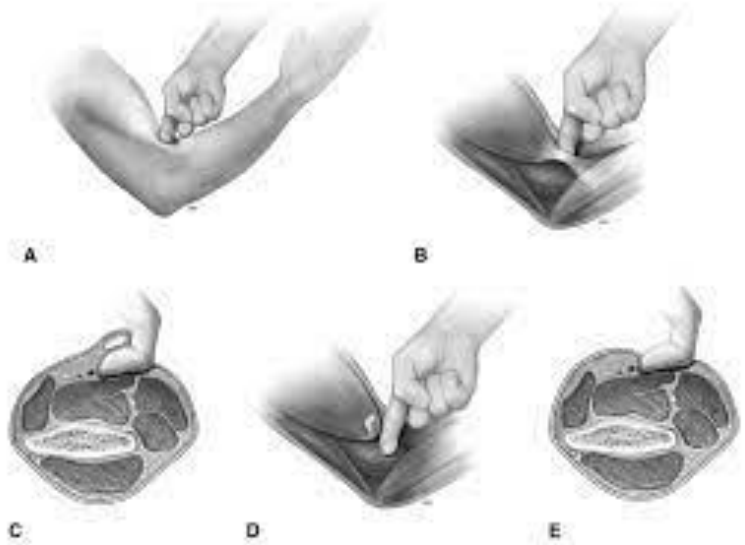
Then attend the Learning Lab - Orthopedic Procedures

Tue 4/4/2023 10:15 AM - 11:00

AM Room 125



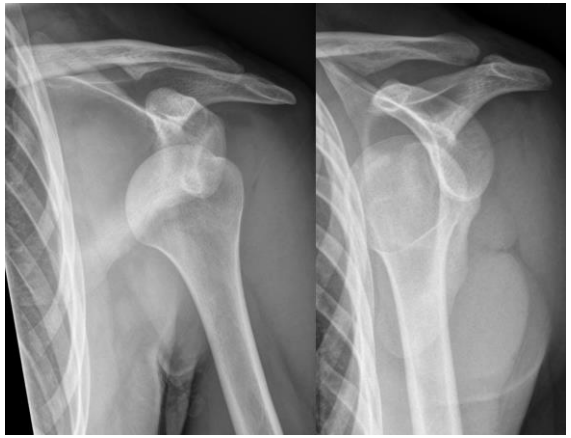
# Elbow: Distal biceps rupture

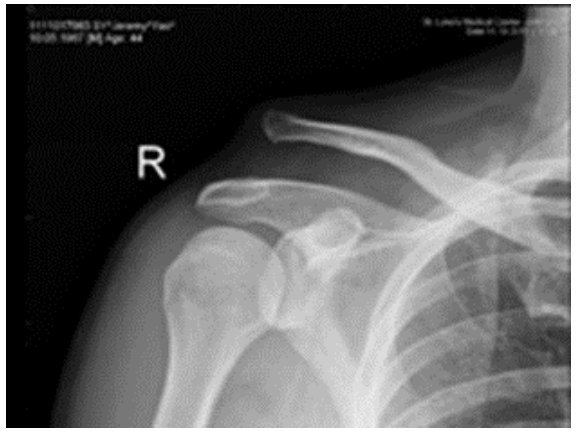



- Mechanism: painful pop with eccentric load to biceps
- Exam: proximal deformity; positive hook test
- Imaging: xray and consider MRI
- Sling
- Follow up with Orthopedics typically surgical

# Back to Bones & Joints

# Shoulder Trauma:


# AC separation

- Direct blow to shoulder (cycling/fball/skiing)
- Pain localized; can be more diffuse
- Visible swelling
- Tolerate PROM fairly well
- XRAYS: no weights needed. Bilateral AP of shoulder to compare displacement
- Sling, Ice, Rest, Gentle ROM as tolerated
- Grade I –Typically conservative
- Grade II and beyond - Orthopedic follow up to discuss surgical vs nonoperative options

# Clavicle fracture

- Direct blow
- Visible swelling.  Pain to palpation.  Ensure no skin compromise.  NVI
- Decrease motion both A/P
- Xrays: AP/cephalad views
- Sling
- Orthopedic follow up as surgical approach more and more common

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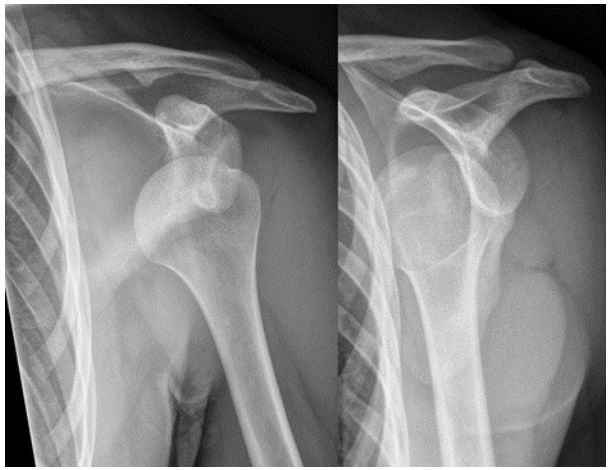
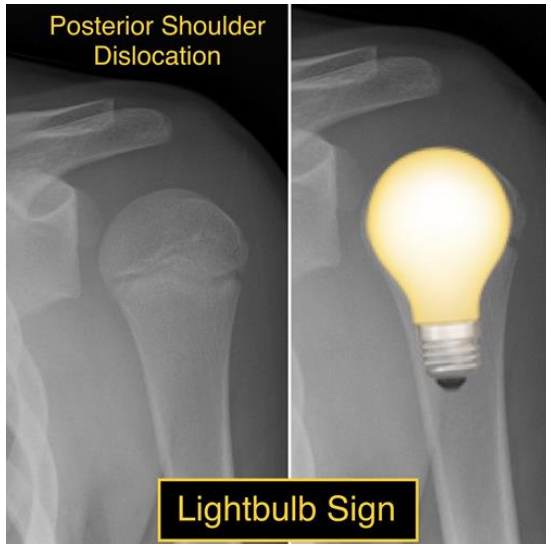
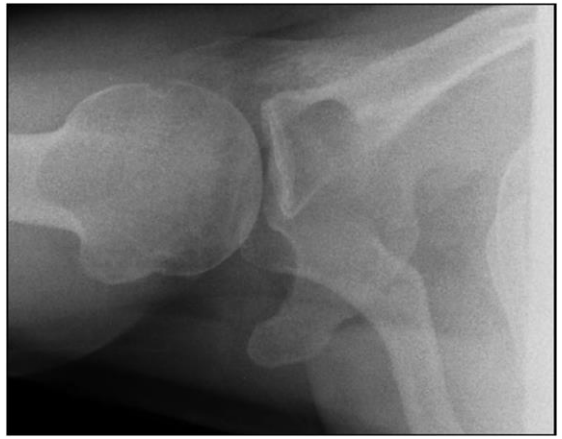




# SHOULDER DISLOCATIONS

Want to lean more….

Then attend: Learning Lab - Orthopedic Procedures

Tue 4/4/2023 10:15 AM - 11:00 AM Room 125

## Lesser toe fractures

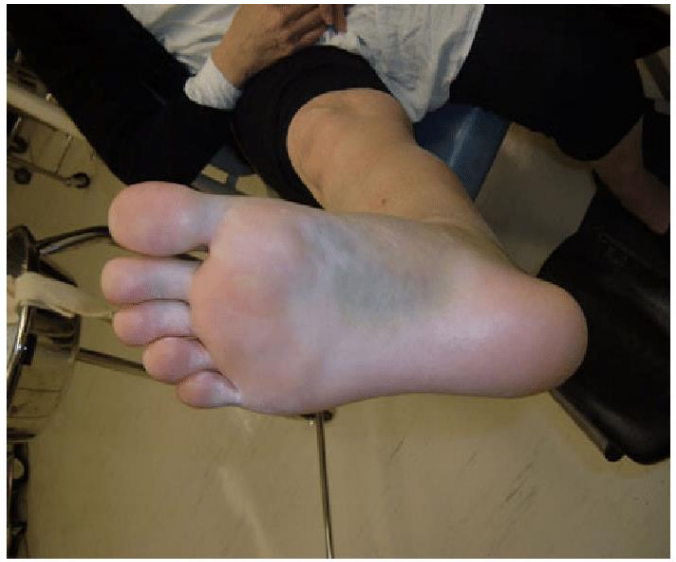
- Stable, nondisplaced fractures should be treated with buddy tape and rigid shoe; advance as tolerated
- Displaced fractures should be reduced and buddy tape/shoe
  - Traction to reduce +/- block
  - Trephinate if >25% and less than 24 hrs
  - Buddy tape splint until comfortable

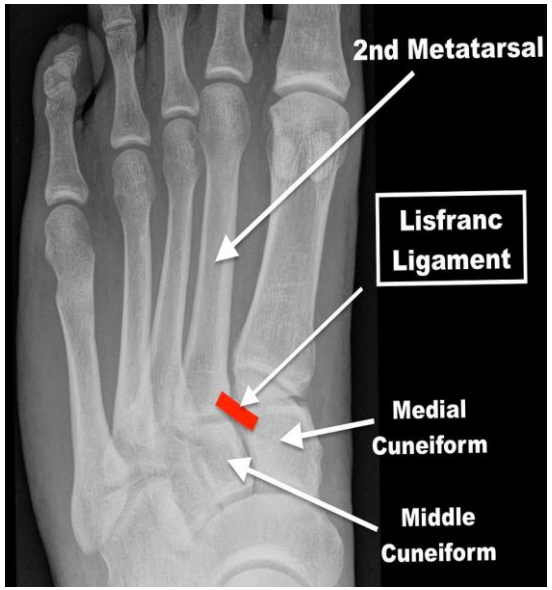
# Great toe fractures

Stable

Unstable

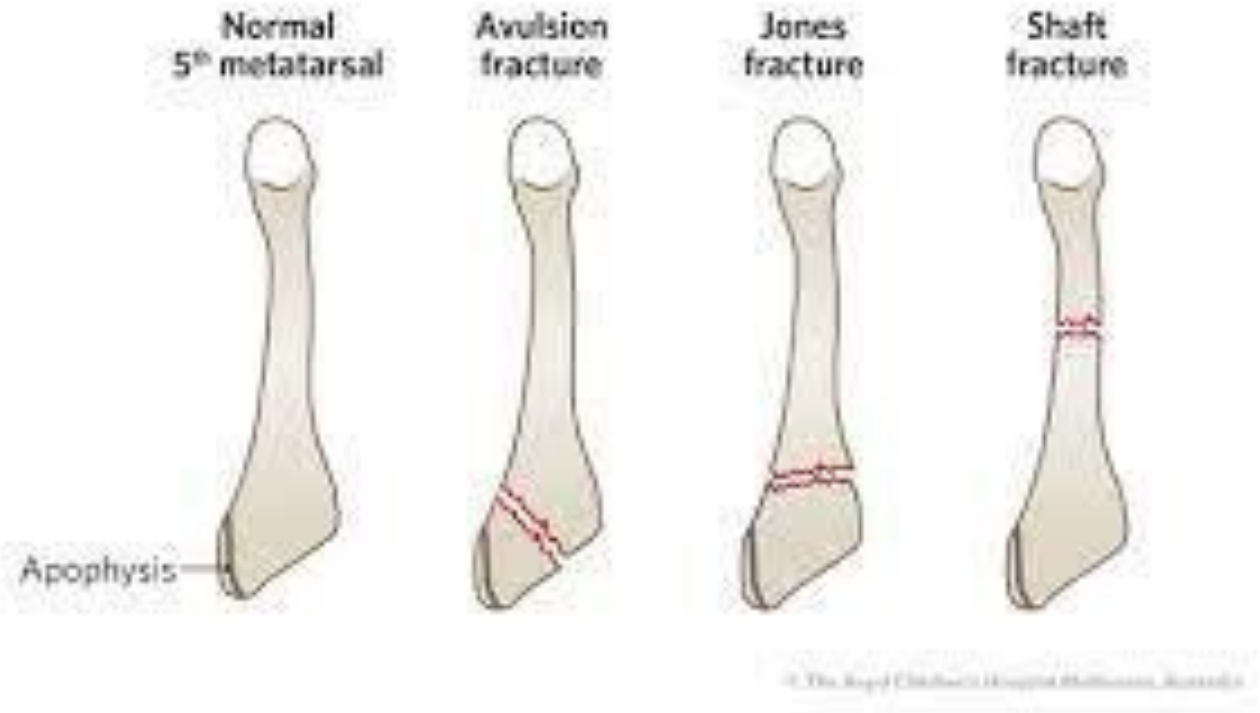
- Nondisplaced: Boot, protected weight bearing
- Any displacement: Gait, weight bearing, balance involved therefore referral due to potential for complications/functional change
- Particularly, intraarticular fx, fracture-dislocation, and unstable displaced fractures.






# LISFRANC

- Suspect with foot pain/swelling after injury
- Direct blow (MVA) or Hyper plantar flexed foot
- Plantar ecchymoses
- TMT pain/ pain with pronation/abduction
- Xray neg 20% of the time
- Posterior splint/boot with Orthopedic referral




# 5TH METATARSAL FRACTURES

Location is essential to directing management

Avulsion fractures typically treated conservatively with boot and weight bearing progression as tolerated

Jones fractures should be immobilized, non-weight bearing and referred to Ortho




# Lower extremity injuries

- Ankle injuries likely most common injury seen in urgent care
- Remember, mechanism is important to the story
- Inversion sprains most common


# Lower extremity injuries

Mechanism:

Although inversion is most common it's important to be alert for other mechanisms as they may be indicators to more significant injuries, such as eversion.

# Ankle sprain

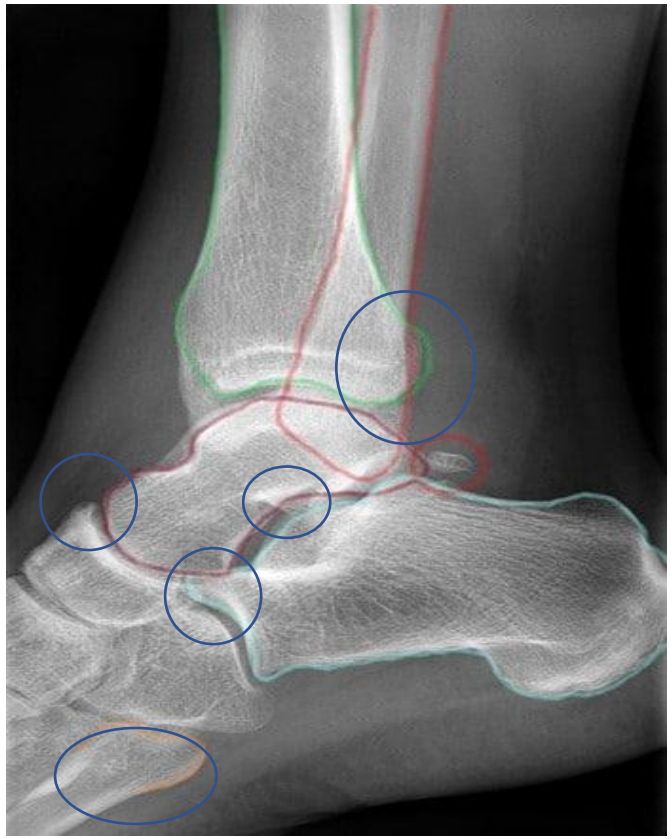

- Most common reason for missed sport
- High sprain: suspicious with external rotation injury (foot planted often) syndesmotic pain/ ER stress test/squeeze
- Lateral: inversion;  anterior drawer/talar tilt; focal pain/swelling
- Xray: r/o fracture; OCD lesions in kids
- Boot: high grade/high sprains; crutches (wean)
- Associated injuries

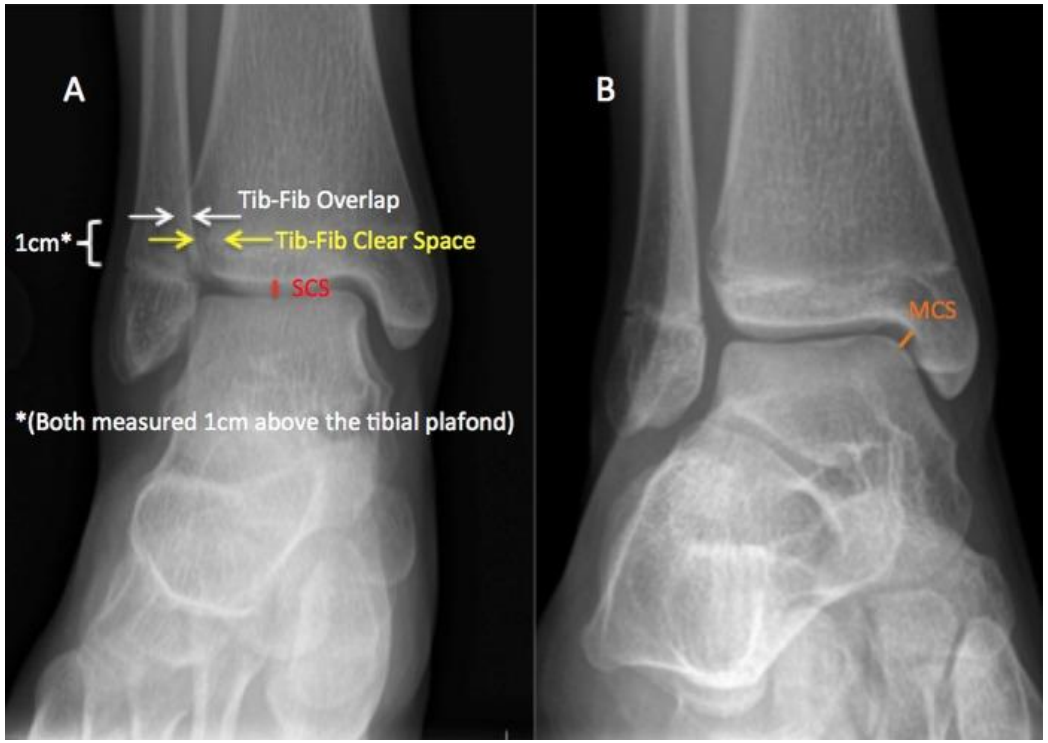

# Ankle xrays

- AP
- Lateral
- Oblique
- Stress views
- Tib-Fib
- Foot views

# Ankle X-rays

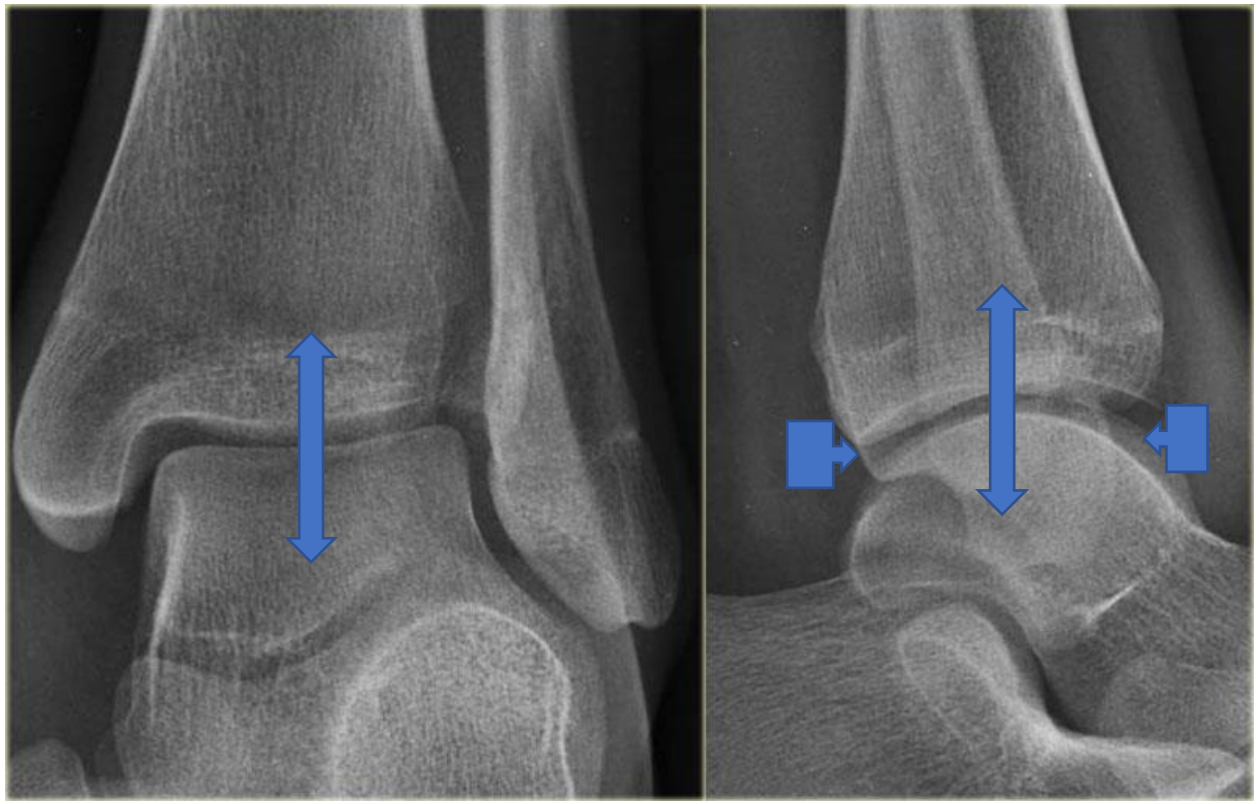






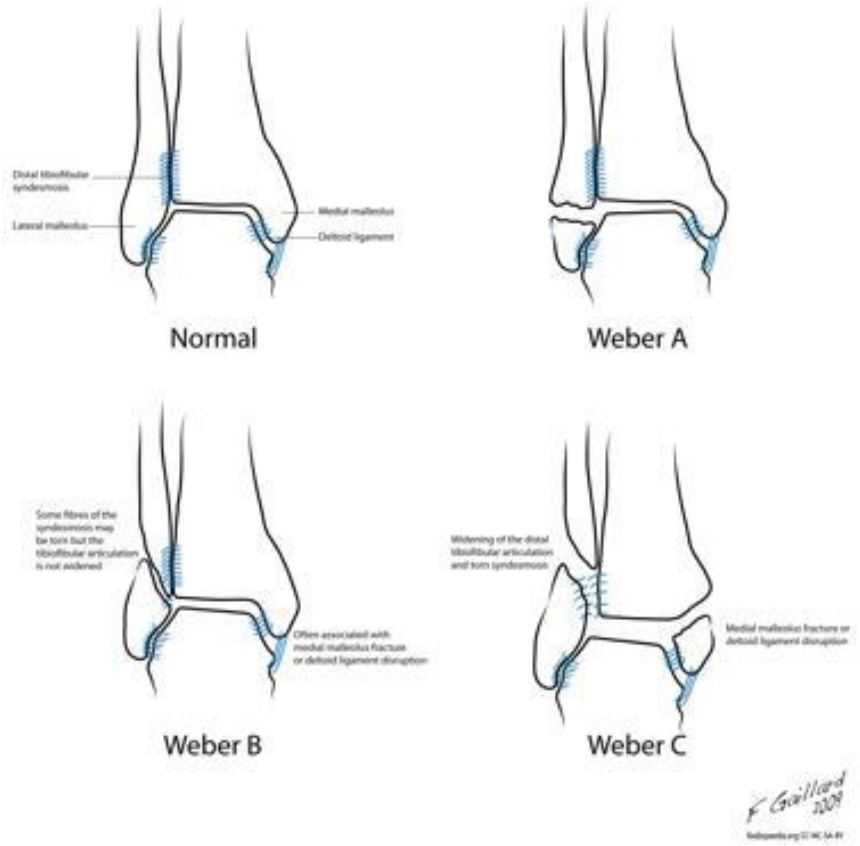

Associated injuries:
-post malleolus
-lateral talar process
-anterior calc process
-dorsal talar/nav avulsion
-base of fifth MT

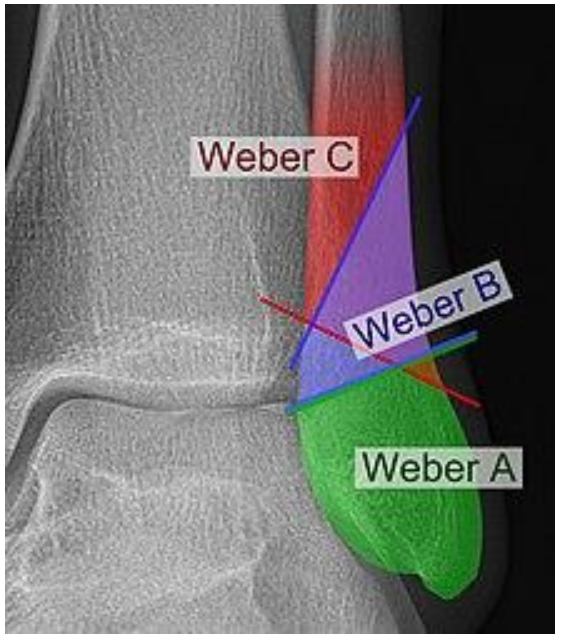
Checkpoints:
-Tib-Fib Overlap
-tib-Fib clear space
-Superior Clear space
-Medial Clear space



# Ankle Alignment

- Center of tibial plafond should align with center of talus
- Talar dome shoulder sit under Tibial plafond




# Ankle fractures

- A: Stable. Surgery rarely indicated. MCS >4-5mm on stress views may need ORIF
- B: Non-Op and ORIF common
- C: Unstable. Maissoneuve. Indicative of syndesmotic injury. Surgery
- All should be splinted. Placed on crutches. Advised to elevate over level of heart as often as possible. Ortho follow up.

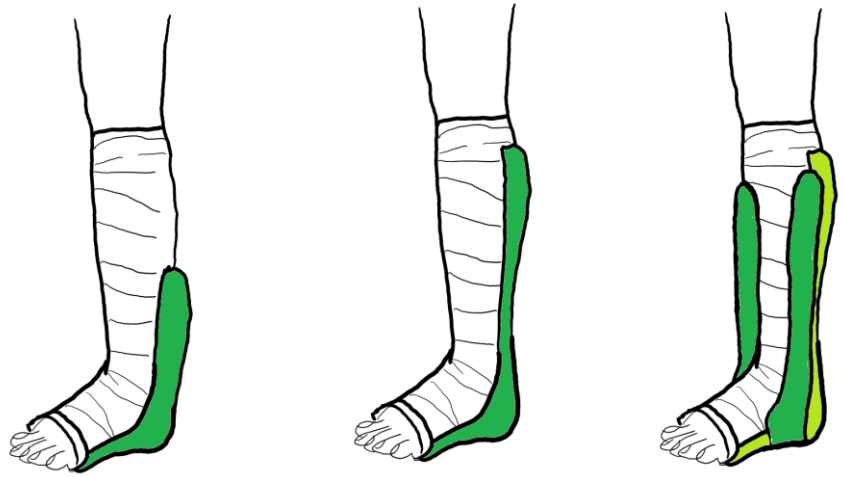
# Ankle Fractures
# Weber Class

A: below
- Avulsion from supination
- May have associated medial oblique/vertical fracture

B: at/near level
- oblique/spiral
- External rotation
- 50% ant syndes injury
- May have associated medial or post mall injury

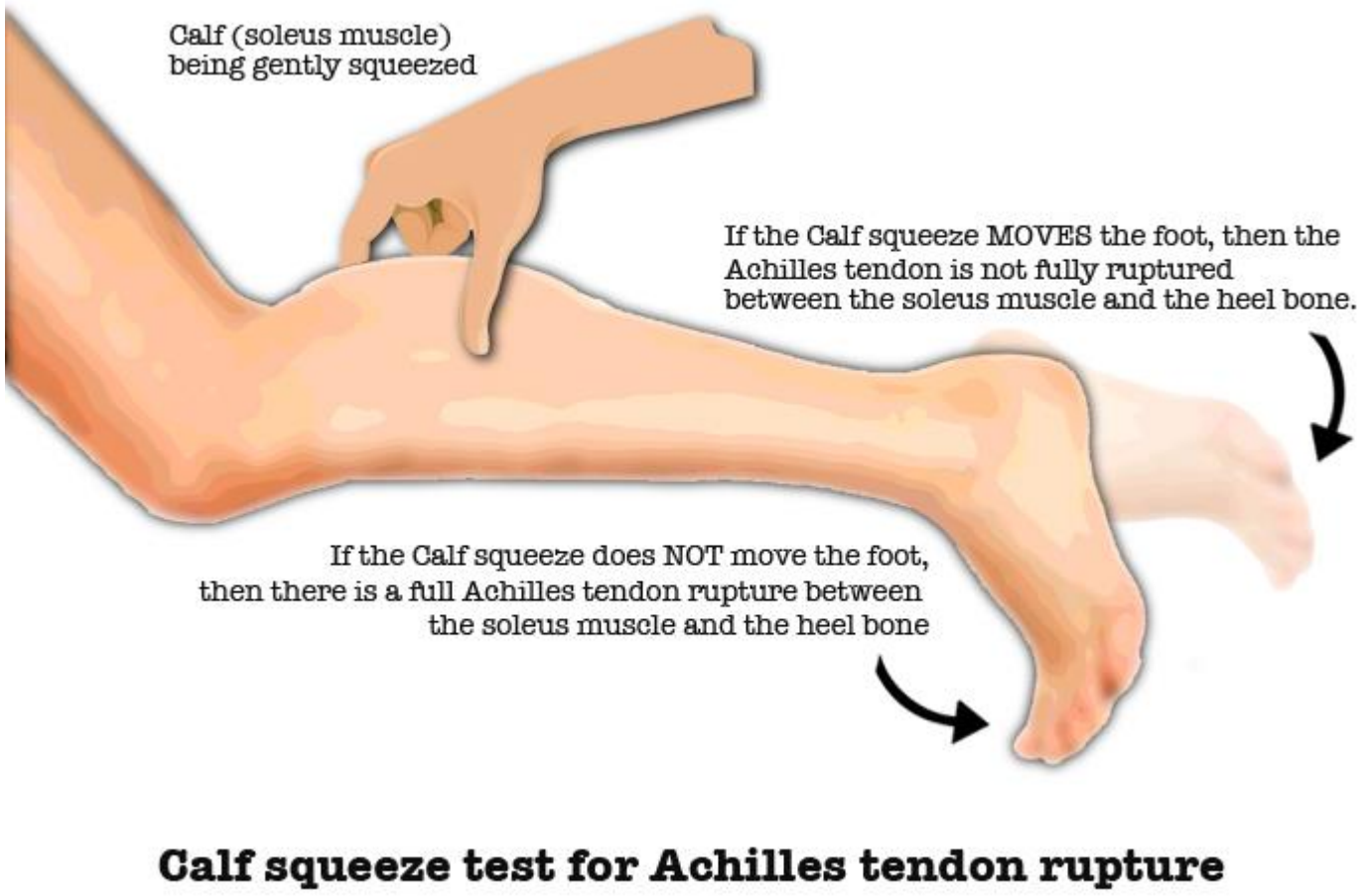
C: above level
- Syndesmotic disruption
- Almost always medial injury

# Lower Extremity Splint



Half-Posterior Splint | Posterior Ankle Splint | Sugar-Tong Splint (U–splint)

- Half Posterior: Jones fracture, metatarsal fracture
- Posterior splint: malleolar fractures, ankle sprains
- Sugar-tong: unstable fractures (bimalleolar), distal tibia fractures

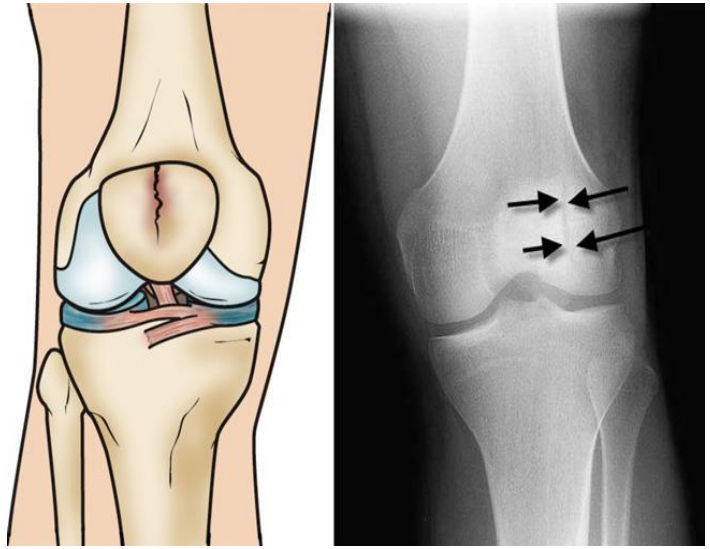



# Achilles tendon rupture

Mechanism:  Typically sudden stress or explosive movement to already weakened tendon

Thompson Test: Positive finding indicative of rupture

Posterior Splint or Boot and referral to Orthopedics





# Knee: patellar fracture

- Mechanism: direct and indirect
  - Rule out open
- Exam: little to NWB; effusion; extension lag; SLR
- Imaging (consider bipartite patella)
- Aspirate for comfort
- Immobilization: immobilizer
- Ortho follow up:
  - Nonoperative: nondisplaced (<3mm)
  - Op: loss of extension; articular incongruity; displaced (>3mm); open fractures

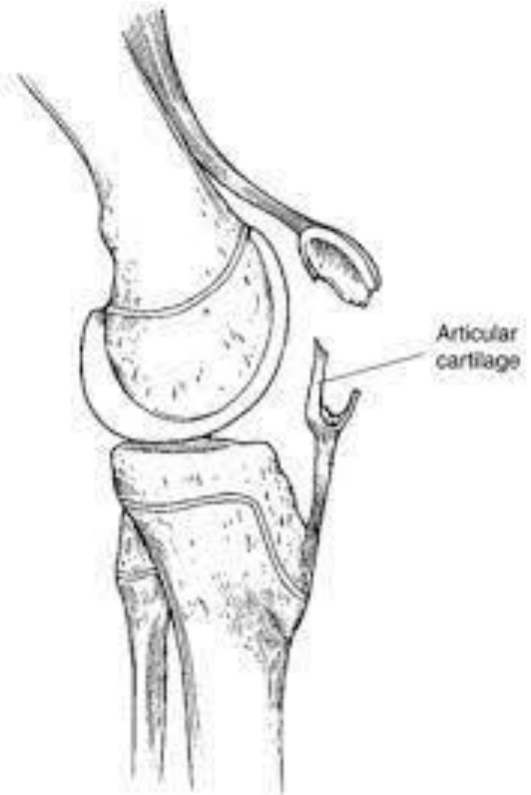



# Knee: quadriceps rupture

- Mechanism: eccentric load to quad with knee flexion; sudden pop
- Exam: effusion; palpable defect; no SLR; lag; partial tears may be intact
- Imaging: patella baja; lower pole of patella
- Immobilization
- Ortho follow up to discuss nonop vs op

# Pediatric Patellar Fracture

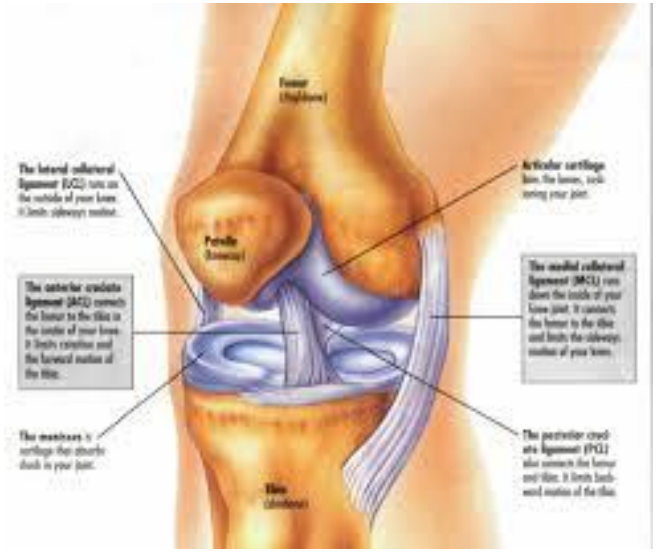





- High suspicion with effusion
- Presents with high-riding patella, +/- WB
- Extension lag
- Small ossified fragment with large articular cartilage surface avulsed
- Immobilizer
- MRI
- Ortho follow up


# MCL sprain

- Most common ligamentous injury of the knee
- Sudden valgus force
- Exam with valgus laxity at 30 degrees; valgus laxity at 0 deg and hemarthrosis>suspect ACL
- Xray/MRI
- Hinged knee brace
- Ortho follow up to help guide RTP




# ACL INJURY

- Pop at time of injury
- Valgus blow/deceleration-pivoting
- Effusion, positive Lachman, difficult exam
- Crutches/Brace:
  - Maintain ROM, decrease swelling
- MRI/Ortho Followup

# Be alert
# Rule out/don't miss

- Urgent Referral
  - Tendon avulsion
  - Intra-articular/Unstable fracture
- Emergent Referral
  - Open Fracture
  - Dislocation
  - Infection (not always)
  - Compartment Syndrome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THE URGENT CARE CONVENTION

# IT'S LUNCH TIME!!!

- Have fun: Enjoy ortho and the brief adrenaline rush it can bring sometimes. Just try to be confident in what requires immediate attention vs relatively quick follow up vs conservative low-key approach
  - Stay off of bikes!
  - Stay out of high heels!

# Session Evaluation

DRIVING CHANGE 2023
THE URGENT CARE CONVENTION

- Your feedback is valuable, take a moment to complete the survey for this session.
- To claim CME, you must complete a separate survey available after the convention.