ORTHOPEDIC PEARLS & PITFALLS

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Introduction

-Why are you here?
-General Tips
-Pearls and Pitfalls from head to toe
-Summary of really important stuff

Why Are You Here?

MISSED INJURIES = bad patient outcomes
MISSED INJURIES = $$$$$

Gwynne, Barber and Tavener: J Accident Emerg Med 1997
105 consecutive negligence claims in the United Kingdom
54 claims involved missed fractures

Karcz et al: Am J Emerg Med 1996
549 Malpractice claims against EPs in Massachusetts
17% involved fractures
35% payed out

Child Abuse
Incidence 0.5 to 4%
1200 annual deaths
50% will be seen for a musculoskeletal injury

Those at risk:
Age <3, premature, handicapped, drugs or EtOH at home
Suspicious
Fractures in < 15 months, unknown mechanism
Highly specific injuries
Posterior rib, spinous process, scapula, sternum, corner fractures

General Tips

Use Nerve Blocks When Possible

Less painful than local infiltration

Don't distort the anatomy

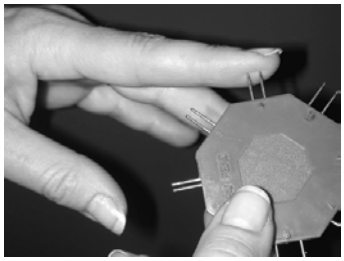
If they are not complete, more distal infiltration is less traumatic.

Physical Exam

Do good sensory and motor exam BEFORE using anesthetic.

2 point discrimination is the gold standard

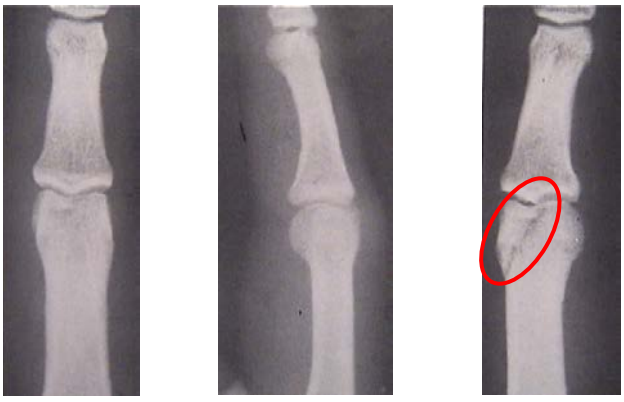
4-5 mm in fingers



bupivicaine vs. lidocaine

	Onset	Duration	No Epi	Epi
Lidocaine	Seconds	1 hr	5mg/kg	7mg/kg
Bupivicaine	Seconds +	> 6 hrs	2mg/kg	3mg/kg

Get at least 2 views – and often 3



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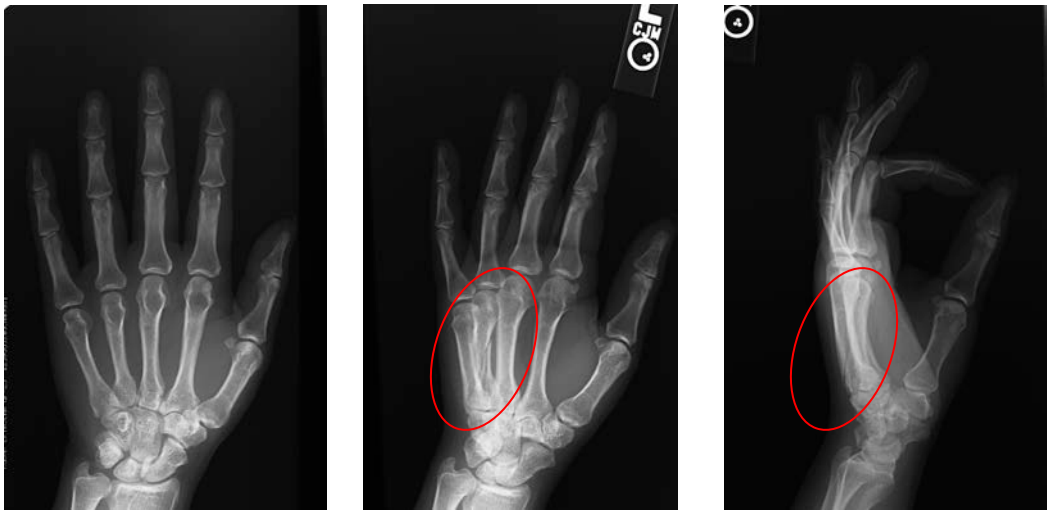


If you would think ligamentous injury in an adult, think growth plate injury in a kid.

Be liberal with plaster.

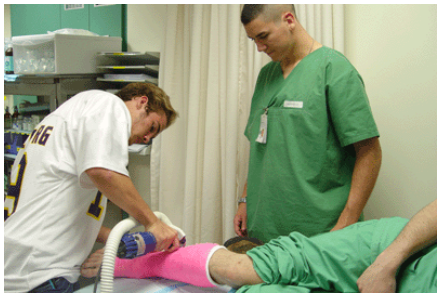
- Relieve pain
- Prevent fracture displacement
- Satisfy patients/parents
- Assure follow-up.

What about comparison x-rays?

- comparison X-Rays are probably not as useful as additional x-rays of the injured side
  - Chacon D et al.: Ann of Emerg Med - 1992.
  - Fifty sets of radiographs from 25 children with elbow injuries
  - CONCLUSION: Comparison radiographs of the uninjured elbow did not improve diagnostic accuracy

Beware fractures with overlying lacs – open fractures should go to the OR within 6 hrs.

Remove cast for any symptoms under it.



Compartment Syndrome

External compression

Cast, burn

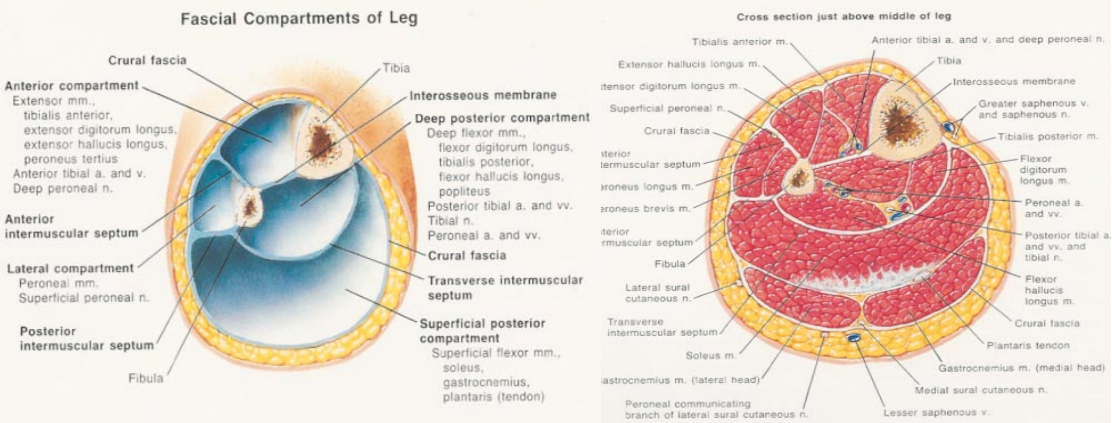
Internal compression

Edema, hematoma

75% of cases are due to fractures.

Most of these are the tibia with the anterior compartment involved.

Tx: is emergent fasciotomy



5 P's

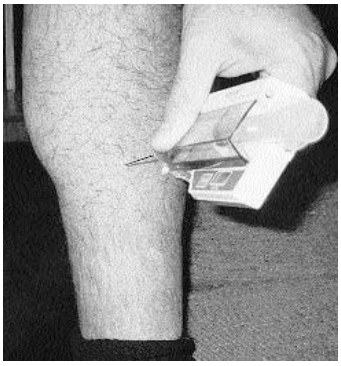
Pain (earliest)

Paresthesia (most reliable)

Paresis

Pallor

Pulselessness (too late)



Pressures

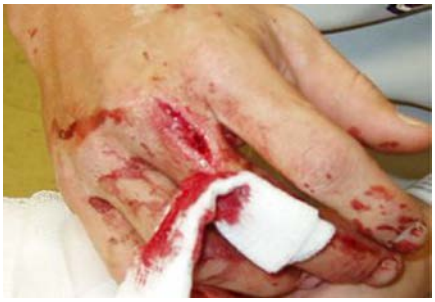
0-10 mm Hg	normal
>20	compromised cap flow
>30	ischemic necrosis of muscles/nerves

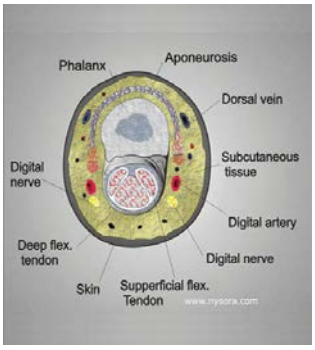
Pearls and Pitfalls From Head to Toe

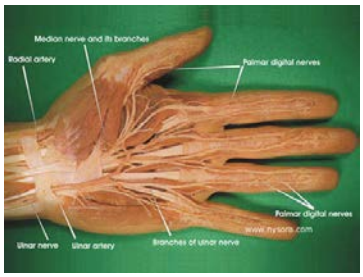
HAND

Digital Nerve injuries

Don't miss



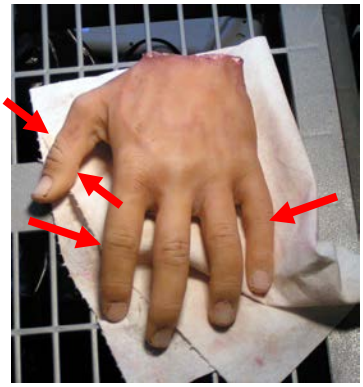




Mostly repair contact surfaces (see arrows below) unless profession requires more

Pianist, Pitcher, Surgeon, Etc

Can be repaired after 2-3 weeks



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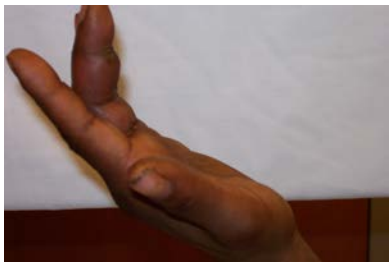
45 yo male c/o finger pain



Flexor Tenosynovitis

Kanavel's signs

1) held in flexion
2) pain with passive extension
3) fusiform swelling
4) tenderness along tendon sheath

Tx is surgical & abx

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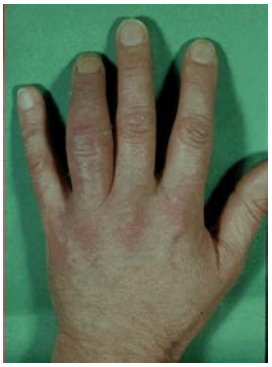
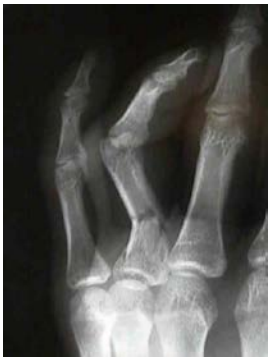
45 yo s/p hurt his finger at work





Middle and Proximal Phalanx Fractures

< 10 deg angulation and no rotation can be accepted and splinted.
Closed reduction can be attempted for greater displacement, many will be unstable.
Re-X-ray all injuries at one week.
Tendons can become adherent to fracture site – all should follow up

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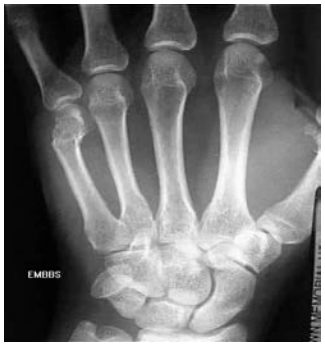
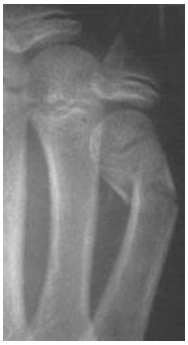
30 yo male was in a bar fight. c/o hand pain.





Boxer's Fracture

Easy to reduce difficult to maintain reduction.
Flexion deformity up to 45 deg is acceptable
NO ROTATIONAL DEFORMITY →

Treat with buddy-tape (to maintain rotation)
Ulnar gutter splint

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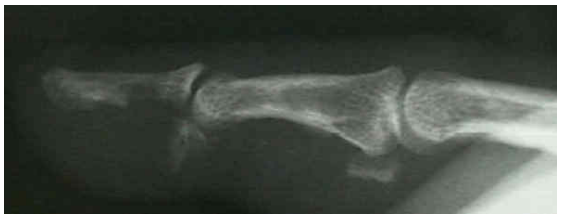
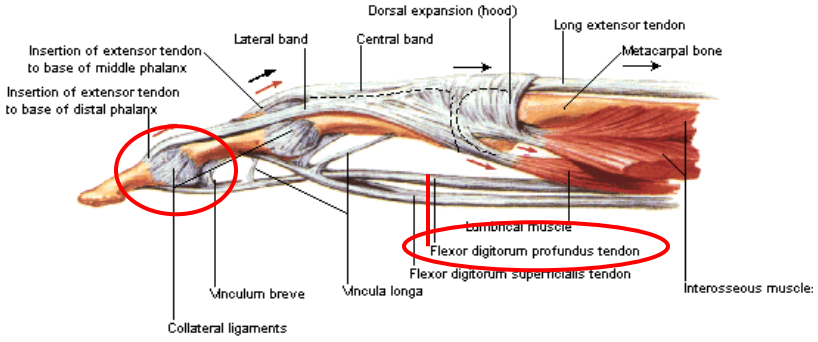
25 yo rugby player c/o finger pain after a tackle.



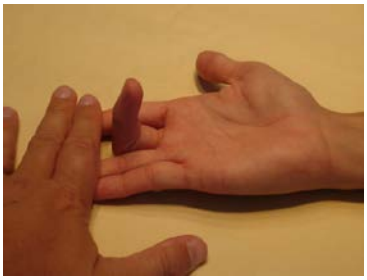
FDP rupture ("Rugby jersey" injury)

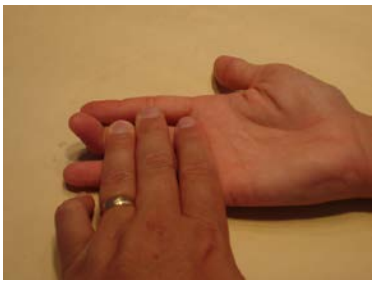
- X-rays often normal, can't make complete fist
- Ring finger 75% of the time
- All should be considered surgical candidates
  - Avulsed tendon can withdraw all the way to the palm (and anywhere in between)
  - FDP is difficult to repair if tendon retracts into palm for longer than 7 days because tendon becomes swollen
- Splint and f/u <7d
  - Splint 30 deg wrist flexion, 70 deg MCP flexion, 30-45 deg IP flexion



Exam of the Flexor Digitorum Profundus & Superficialis tendons (FDP & FDS)

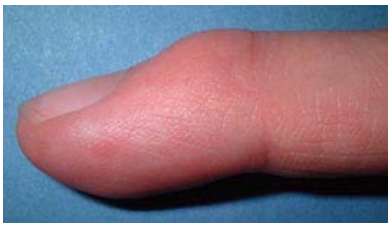
FDS	FDP
Hold all other fingers in extension	Hold PIPJ in extension
Flex PIPJ of finger to be tested	Flex DIPJ

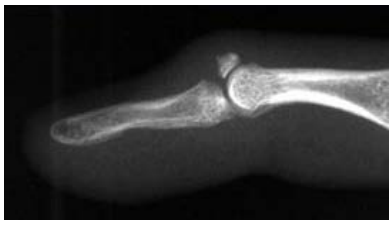




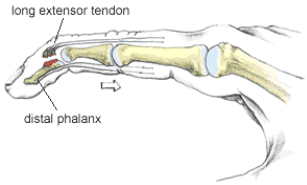
This gentleman c/o jamming his finger.

This is what you see:

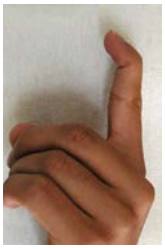


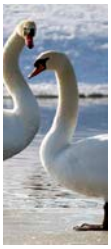


Mallet Finger (baseball finger or cricket? finger):
Stretch or disruption of tendon, or avulsion of a fragment of bone.



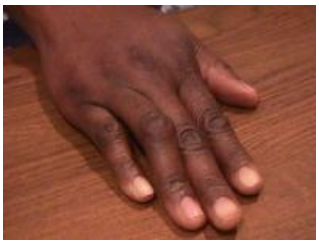
If untreated can develop a swan neck deformity



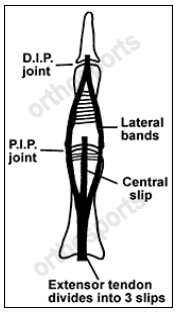


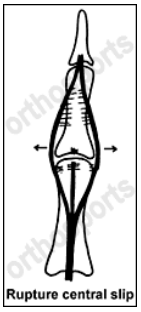
Distinguish from a locked trigger finger by passively extending without difficulty
Full time extension splint of the DIP for 8 weeks.
Follow with night splint for 6 weeks.
Don't hyper-extend the DIP past the point of skin blanch, or skin necrosis may occur
Every time they flex the joint the healing clock starts from 0.
Refer to hand
Volar subluxation associated with a large fracture requires surgery.

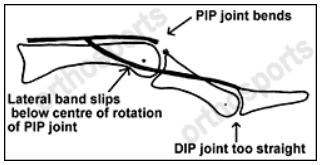
26 yo c/o jamming his finger while playing basket ball.



Dx: ?
Central Slip Rupture

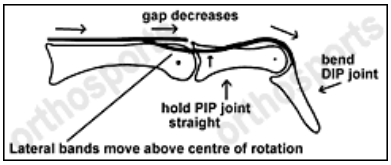


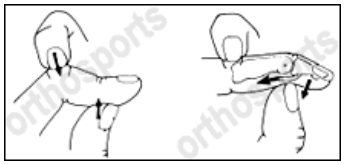




If no boutonnière deformity exists acutely, maximal tenderness over the central slip at the dorsal PIP may be only clue to the injury.
May still be able to extend PIP acutely due to lateral bands.

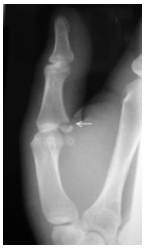
Splint with PIP in extension and DIP in flexion for 3 weeks (or DIP free to move).

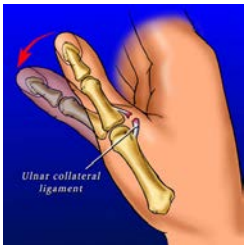




This gentleman c/o pain in his thumb

Gamekeeper's thumb (skiers thumb) – originally described as an occupational hazard in gamekeepers from wringing the necks of rabbits.
It is a stretch or tear of the ulnar collateral ligament of the first MCPJ which may avulse a fragment of bone with it.

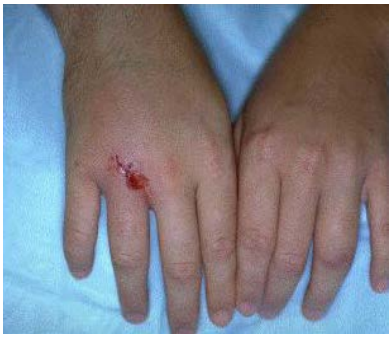




Get x-ray. If fragment present, don't stress the joint as you may displace it.
Tx: thumb spica and refer to surgeon if complete

Fight Bite

- Patients may not tell the whole truth (i.e. lie)
- Depth of penetration is often greater than appreciated, (skin, tendon, capsule).
  - Must examine through full ROM
- Infection is a frequent sequela
- If joint or tendon involved
  - Hand consult
- If no joint or tendon involvement:
  - Irrigation, secondary closure
- All should receive antibiotics



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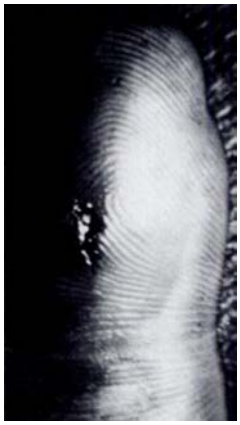
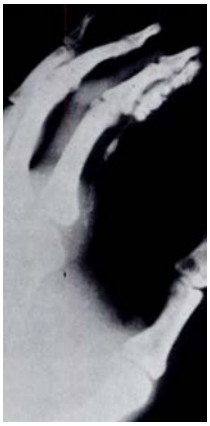
23 yo male crane operator was working on the crane when a hydraulic line sprung a leak.

He c/o minimal pain





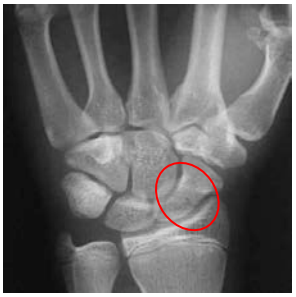
High Pressure Injection Injuries

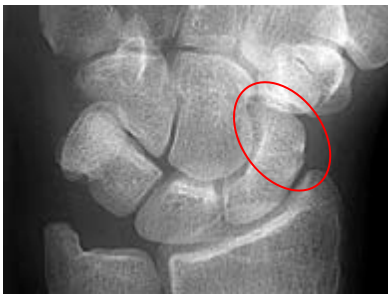
- Prognostic factors
  - material injected
    - grease (fibrosis)
    - paint (necrosis)
      - paint causes an immediate tissue necrosis that persists if the tissues are not completely debrided
  - pressure:
    - < 7,000 psi - non prognostic
    - > 7,000 psi - 100% amputation
  - site of injection:
    - digits: tendon sheath - poor prognosis
    - palm: not governed by fascial planes, better prognosis
- May or may not see anything on X-ray

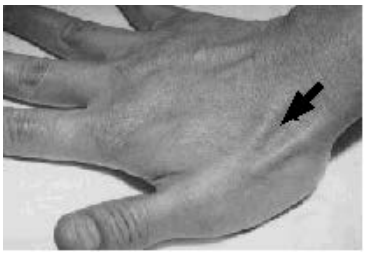
ALL GO TO THE OPERATING ROOM OR THIS HAPPENS

WRIST

22 yo female c/o right wrist pain s/p FOOSH (Fall On OutStretched Hand)







tender

Scaphoid fracture:

Examine snuff box- if tend then assume scaphoid fx and do thumb spica with f/u

Most common carpal fracture

60-70% of all diagnosed carpal fractures

If occult: thumb spica and f/u 7-10 d

15% ultimately have scaphoid injury

If non-displaced: thumb spica and f/u 5-7 d

If displaced or comminuted: consult ortho

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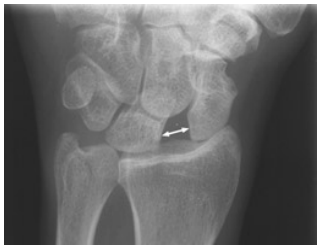
56 yo male s/p FOOSH.

X-ray shows this →

Terry Thomas sign.

British comedian with gap between his teeth

Normal scapho-lunate distance is <3mm



Tx: volar splint in neutral position and f/u

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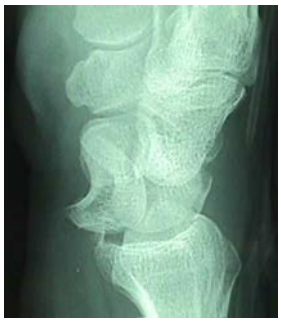
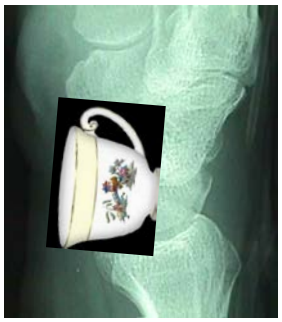
36 yo female s/p FOOSH

X-ray shows this:

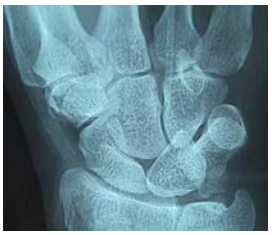
Lunate dislocation

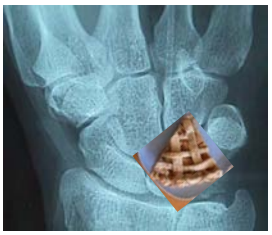




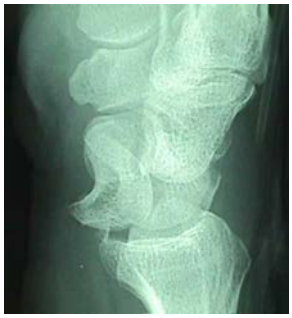
Spilled teacup sign

Tx: early reduction and then surgery
Check for acute carpal tunnel syndrome
Median N. passes volar to lunate

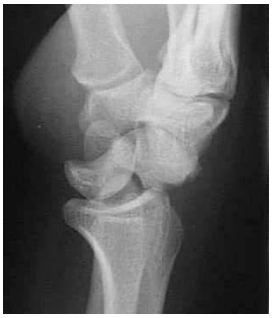




Piece of pie sign



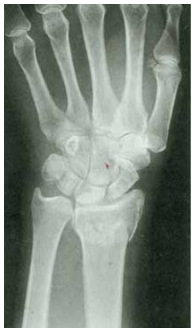
Lunate dislocation

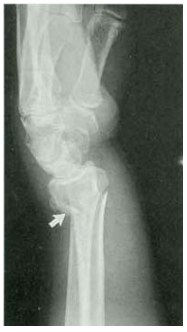


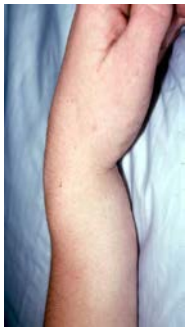
Perilunate dislocation

Lunate dislocation: capitate lines up with radius (lunate is out)
Perilunate dislocation: lunate lines up with radius (perilunate bones are out)
These are a continuum of the same process involving severe ligamentous disruption of the carpal bones.

Another FOOSH
Colles' fracture
Don’t miss acute carpal tunnel syndrome
Beware volar abrasions as being open fractures
0 to 15 degrees of dorsal angulation OK.
Otherwise reduce
Sugar tong splint

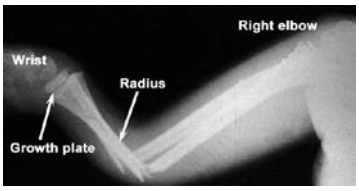






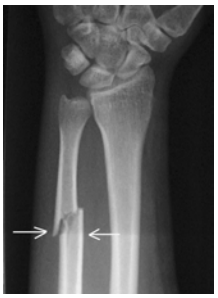
dinner fork deformity

FOREARM

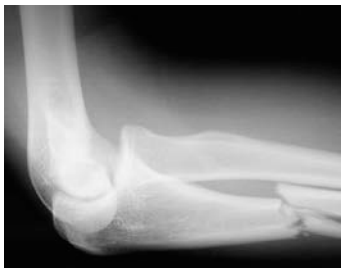


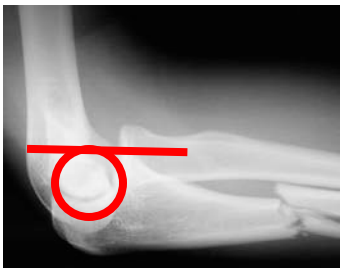
Forearm Fractures
All injuries need an orthopedist

One exception is a non-displaced crack in ulna from direct blow (nightstick fracture).
Tx: Posterior long arm splint if <10 deg angulation



Monteggia fracture
- Prox 1/3 ulna fracture and radial head dislocation
- Up to 50% miss rate (1940 study)
  - If miss radial head dislocation can become chronically unreducible
- Usually FOOSH with pronation but can be direct blow to ulna
- c/o elbow pain and swelling with decreased ROM
- can hit posterior interosseus N (deep branch of radial N) – b/c near radial head
  - get weakness in extension of fingers or thumb
- Tx: Children have been treated with closed reduction
  - Adults usually require ORIF

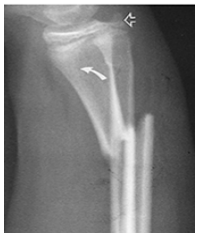


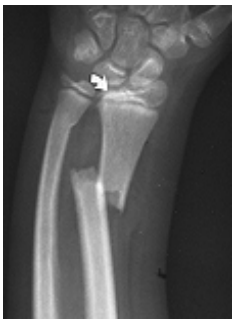


Always check alignment of radial head with capitellum!

Galeazzi:

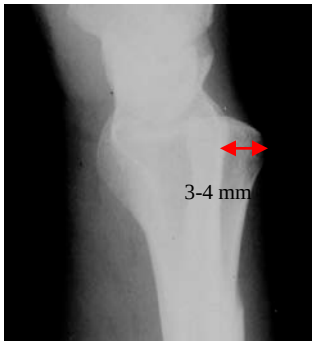
- 3 x more common than Monteggia
- Up to 50% miss rate (1940 study)
  - Can have problems with pronation/supination
  - Can have progressive subluxation of the distal radio-ulnar joint
- Neurovascular injury uncommon
- Tx: Surgery is usually needed for good outcome

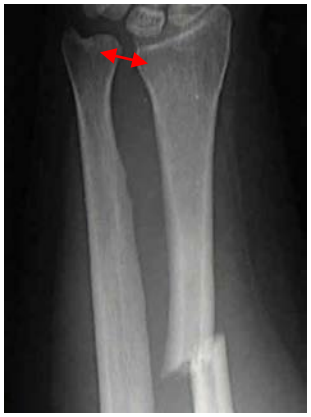




Normal radioulnar space is 1-2 mm on AP

Ulna should be no more than 3-4mm dorsal to radius on Lateral





PEARL: anybody with a radius fracture – make sure to r/o radio-ulnar dislocation
anybody with an ulnar fracture – make sure to r/o radial head dislocation

_____

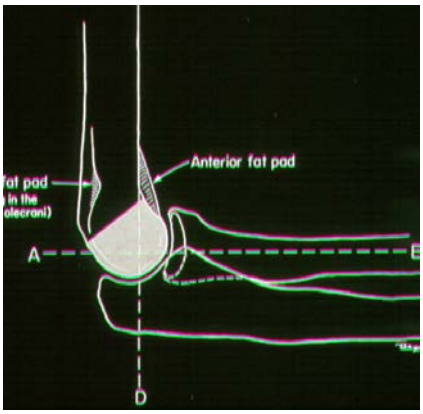
_____

ELBOW

If a child has swelling at the elbow – something is wrong
- Nursemaid's don't usually swell
- Think supracondylar fx or lateral condyle fx

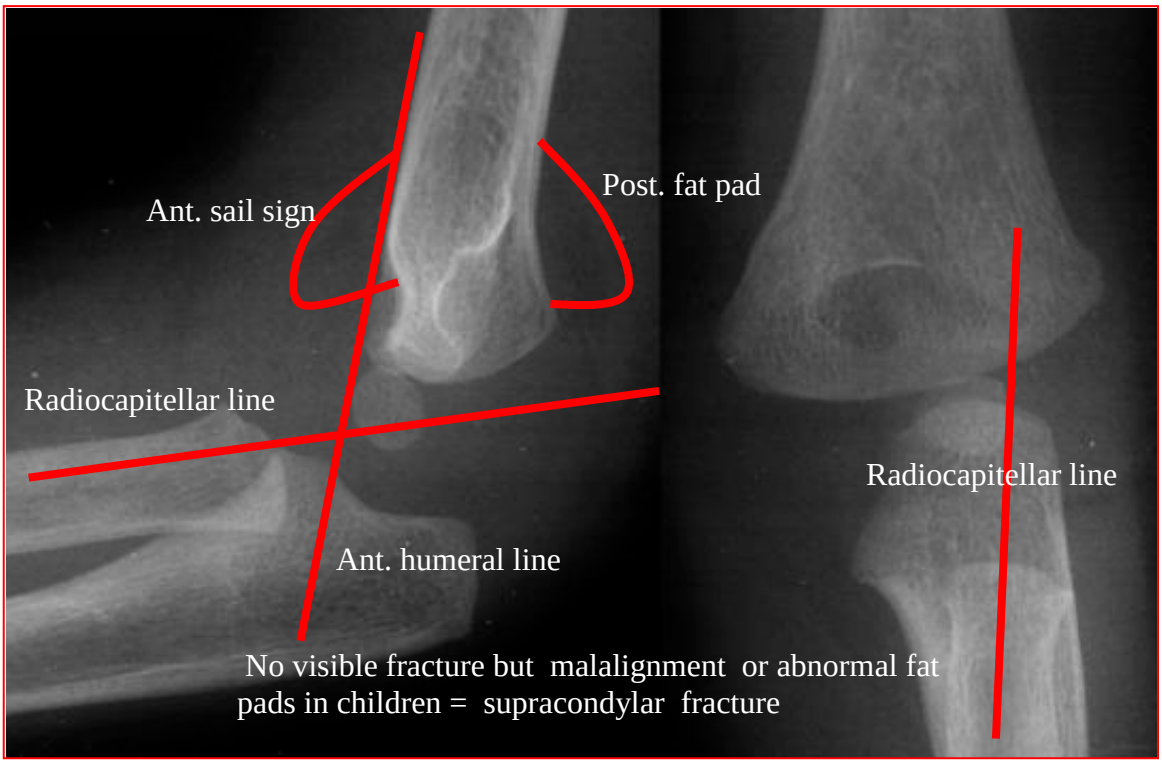
Get a good lateral
- Look at lines and fat pads

Normal: →



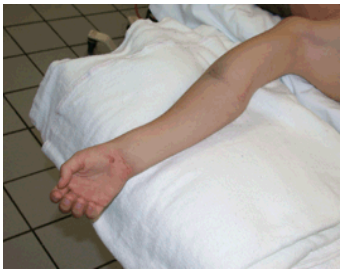
- Findings:
  - Anterior sail sign
    - Enlarged anterior fat pad
  - Posterior fat pad
    - Abnormal if seen (should be hidden in olecranon fossa unless enlarged)
  - Anterior humeral line
    - Line along anterior humerus should intersect middle third of capitellum
  - Radiocapitellar line - SHOULD HOLD TRUE IN ANY X-RAY VIEW
    - Line through middle of radius should intersect middle third of capitellum

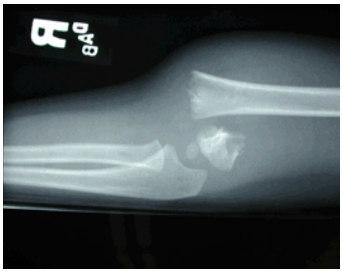
Abnormal →



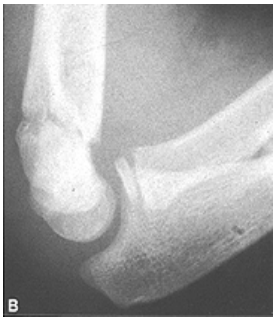
8 y/o fell off skateboard

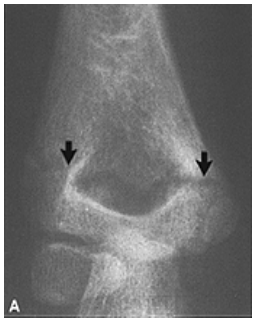
Obvious



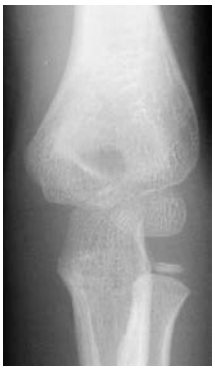


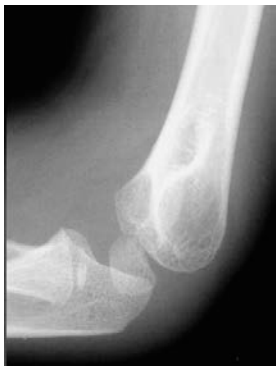
Still obvious





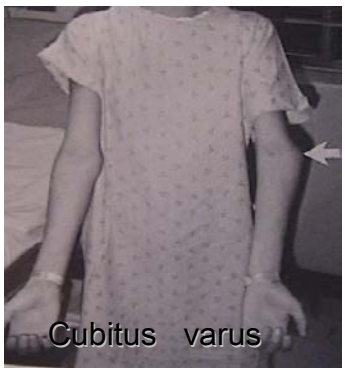
Better look at lines &
fat pads or you'll miss it!

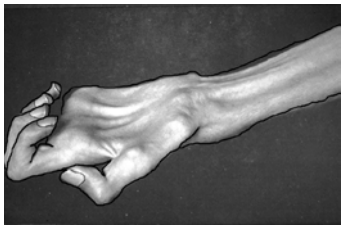




Supracondylar Fracture

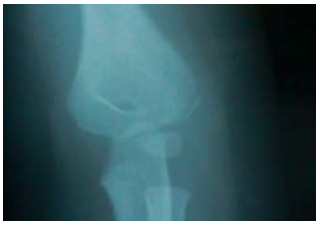
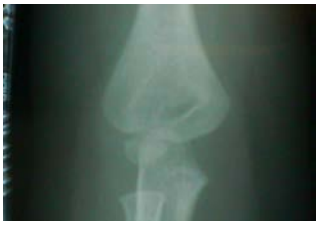
- May splint in long arm posterior splint if:
  - Looks like an elbow
  - Active finger motion
  - No vascular compromise
  - Anterior humeral line hits capitellum
  - Orthopedic evaluation within 5 days
- Cubitus varus is most common long term complication from inadequate reduction
- Beware Volkmann's ischemic contracture
  - Long term complication from vascular compromise.



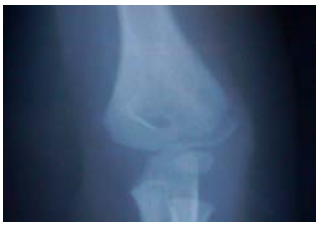
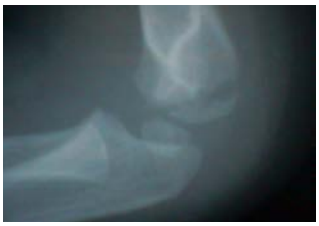


Lateral Condyle fracture

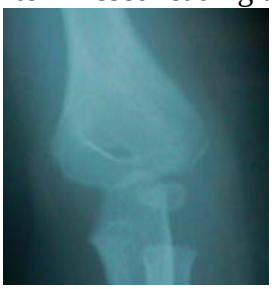
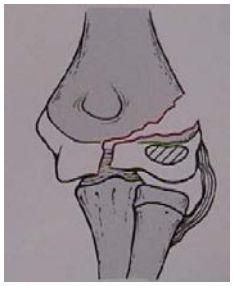
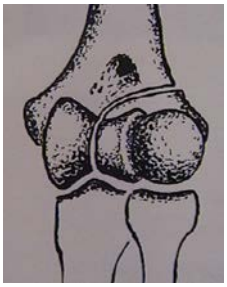
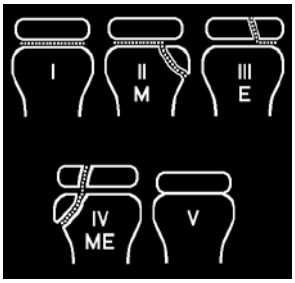
Pt. splinted and sent home

2 weeks later:

This is actually a Salter IV fracture!
It is often missed leading to malunion

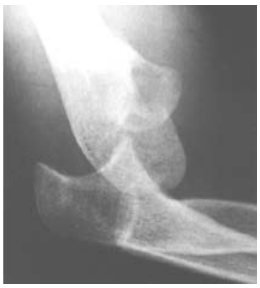
May splint and have follow up if:
- <2 mm displacement
- Neurovascularly intact
- Orthopedic evaluation within 5 days

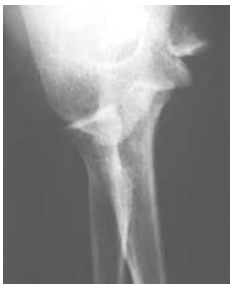
Surgery is recommended within the first 48 hours for all others

Supracondylar vs. Lateral condyle fractures:

	Supracondylar Fracture	Lateral Condyle Fracture
Frequency	70%	15%
Diagnosis	Displaced are obvious	Subtle
Worsening	Rare	May displace late
Non-union	No	Yes
Malunion	Cosmetic	Functional
Surgery	Can be done late	Within 2-3 days
Neurovascular Injury	10%	Rare
Conservative Treatment	Anterior humeral line crosses capitellum – OK	<2mm displacement - OK

Elbow Dislocation





Get good lateral view after elbow reduction and look at ulnar humeral articulation.

Make sure all lines line up.

May still have radial head dislocation or ulnar subluxation

If worried – f/u 1-2 d

Radial Head Fracture

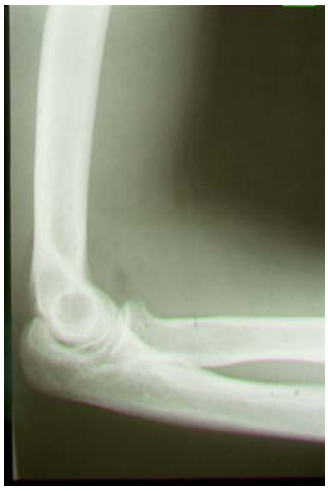
Elbow pain after fall on outstretched arm.

If don't have full ROM

Aspiration reveals blood and relieves pain

Injection of anesthetic allows assessment of ROM to assure no mechanical block.

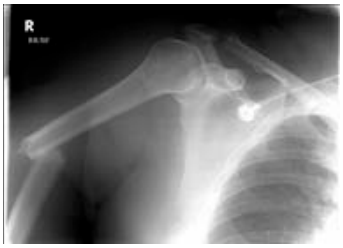
Treat non-displaced fractures with a sling and early mobilization.



ALWAYS LOOK AT THE LINES AND FAT PADS!

Occult elbow fracture in adult is radial head fracture.

HUMERUS

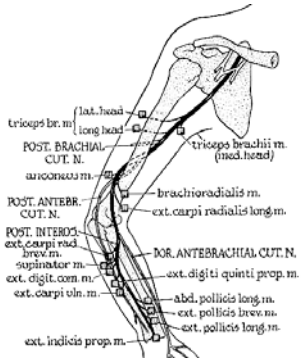


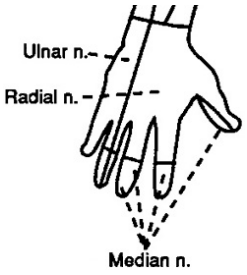
Humerus

Very forgiving

Just don't miss Radial N injury

Get wrist drop and sensory loss over radial n distribution





Tx: coaptation splint (hanging sugar tong that extends to deltoid)

SHOULDER

AC Separation

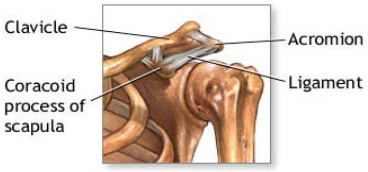
Mechanism is direct blow to acromion.

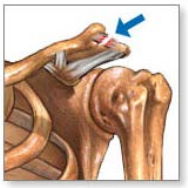
Tenderness at AC joint is diagnostic.

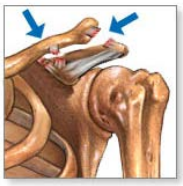
Grade 1, 2, and 3 injuries are treated with a sling for comfort, use arm as tolerated.

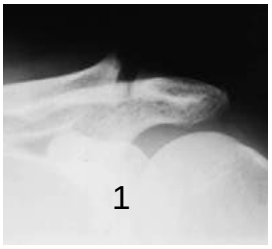
Grade 4 and 5 injuries (clavicle bayoneted posteriorly into the trapezius) = surgery

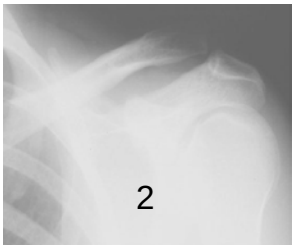
Patient should understand that there will be a permanent sag and prominence.

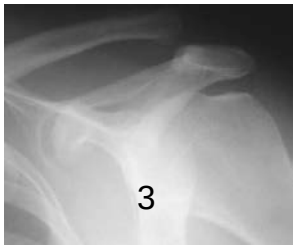






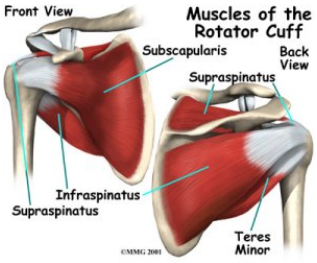


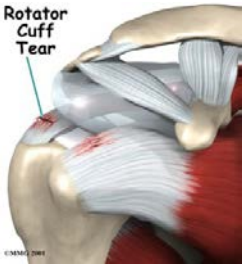




Rotator Cuff Injury

- Deltoid pain - likely rotator cuff
- Abduction – supraspinatus
- External rotation – infraspinatus
- Lift off back or belly test – subscapularis
- Don't worry about teres minor

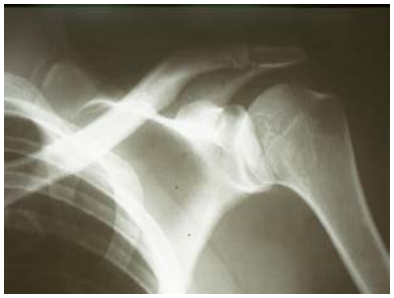


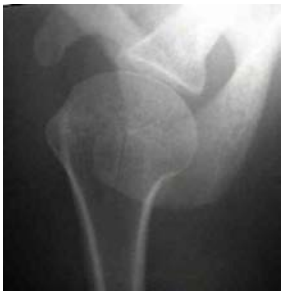


Shoulder Dislocation

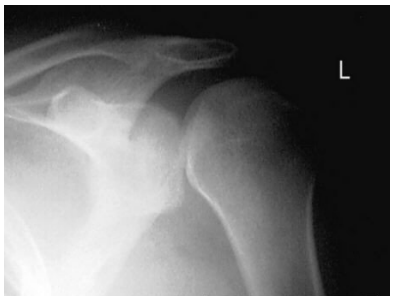
- Anterior – 97%
  - Shoulder in slight abduction and external rotation
  - Check for axillary N. injury (sensation over deltoid)
  - Obvious on X-ray
  - Tx: reduce, sling or shoulder immobilizer for <2 weeks, follow-up
- Posterior – 3%
  - Shoulder held in adduction and internal rotation
  - May be relatively asymptomatic - can do minor ADLs but can't supinate hand
  - May be missed on AP X-ray – make sure to look at lateral (scapular-Y or axillary)
  - Tx: reduce, sling or shoulder immobilizer for <2 weeks, follow-up

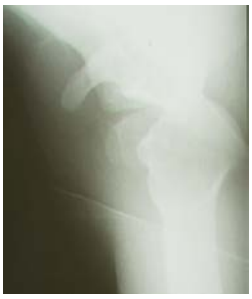
Normal
AP & axillary views



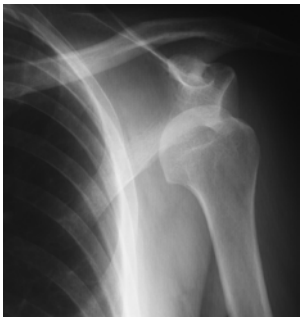


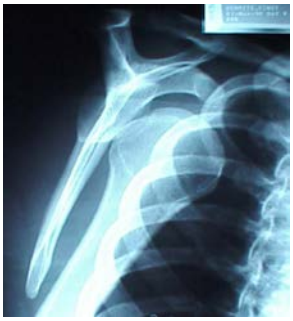
Posterior dislocation
AP & axillary views





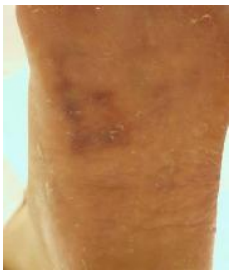
Anterior dislocation
AP & scapular-Y views

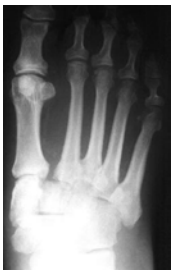




FOOT

52 yo diabetic c/o foot pain after stepping in a hole

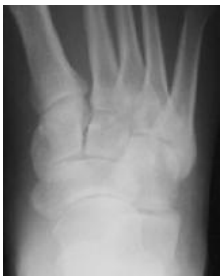


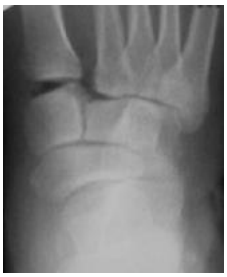


Lisfranc fracture/dislocation –

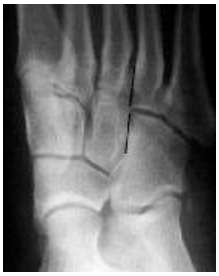
Get weight bearing view if subtle
Plantar ecchymosis bad sign even if x-rays neg
Look for alignment of 2nd metatarsal on AP and 4th metatarsal on oblique x-rays
Frequently missed.
Needs surgery.

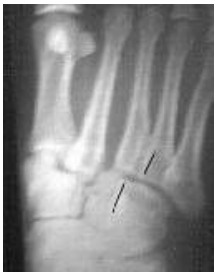
Medial borders of 2nd MT and middle cuneiform on AP

Normal 

Abnormal 

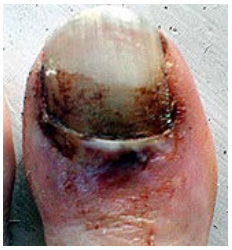
Medial borders of 4th MT and cuboid on oblique

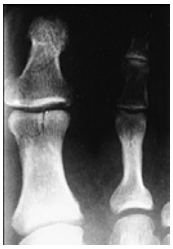
Normal 

Abnormal 

Open Toe Fracture

Distal phalanx fracture with dorsal nail bed injury or laceration is an open fracture
Like any open fracture, they need irrigation, debridement, reduction, and antibiotics





22 yo jumps off a 30 foot tower and lands on his feet. He c/o heel pain.

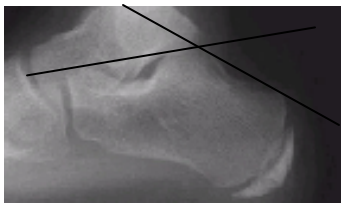
Calcaneus Fracture

Frequently mistaken for ankle sprain because of “negative” x-rays.

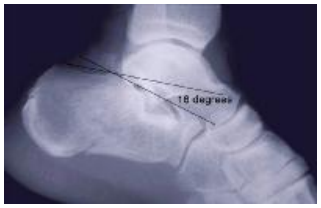
Look for heel tenderness and subtle X-ray findings.

Bohler’s angle: 20-40 deg is normal

Normal
40 deg



Abnormal
18 deg



Line #1: from apex of anterior process to apex posterior facet

Line #2: from apex posterior facet to posterior tuberosity

Intra-articular and displaced fractures should be consulted in the ED

Beware of spine injuries!!!!

ANKLE & TIB/FIB

Physical Exam

Palpate base of 5th metatarsal (Jones, Dancers)

Palpate navicular

Palpate Achilles tendon and do Thompson test (Achilles rupture)

Palpate bony prominences (medial and lateral malleoli)

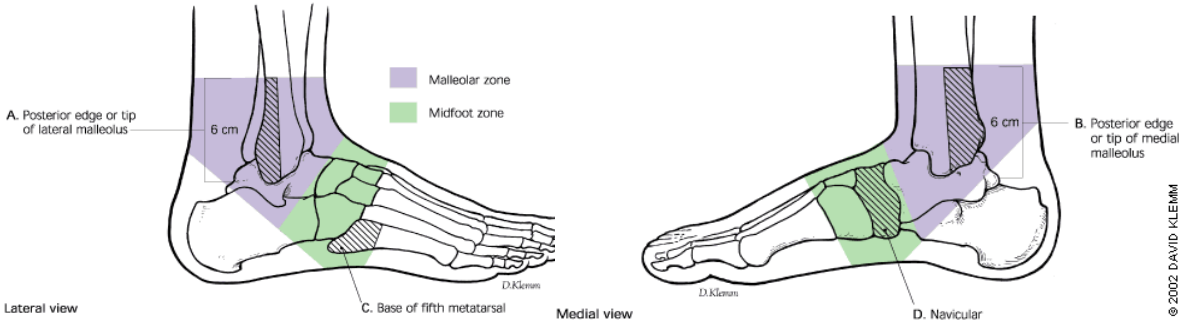
Palpate proximal fibula (Maisonneuve)

Think referred pain

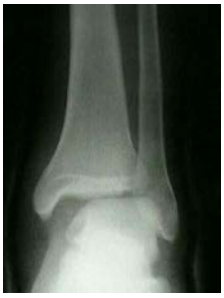
Ottawa ankle rules – get ankle x-rays if:

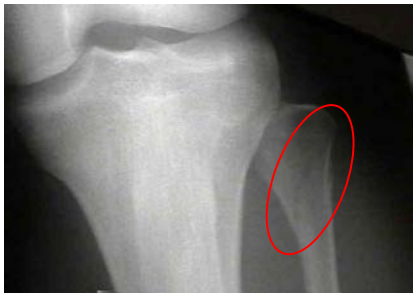
Tenderness at posterior distal 6cm of medial or lateral malleoli

Can’t take 4 steps at time of injury or in the ED



23 yo c/o ankle pain after a bike stunt went wrong.





Maisonneuve fracture

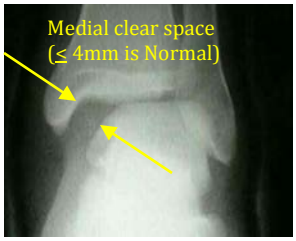
Proximal fibula fracture with distal tibiofibular syndesmosis disruption

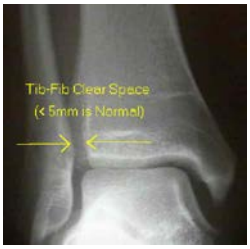
May or may not have ankle fracture

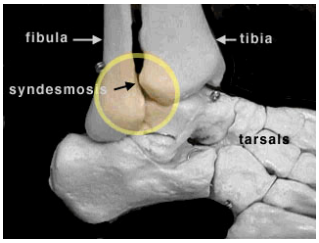
Proximal fibula fracture usually does not require surgery

If ankle unstable then usually needs open fixation

Always examine fibular head in ankle injuries.







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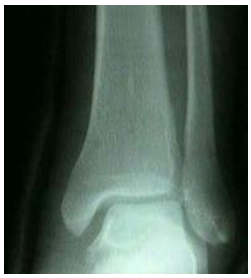
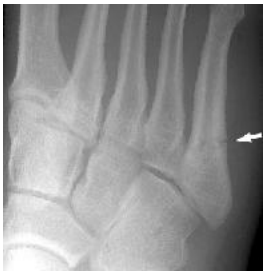
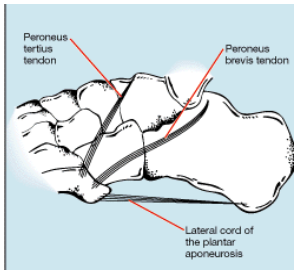
23 yo Lindy Hopper c/o ankle sprain

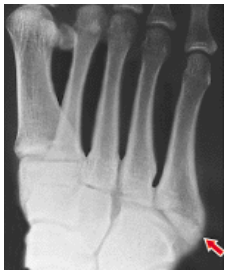
Ankle x-ray is normal



Always examine base of 5th metatarsal







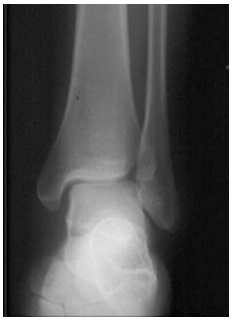
Jones’ Dancer’s

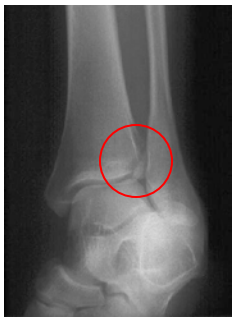
Jones: at least 15 mm prox to end of bone. NWB and f/u

Dancer’s: Usually heal fine with walking cast and f/u

Cause is plantar aponeurosis avulsion

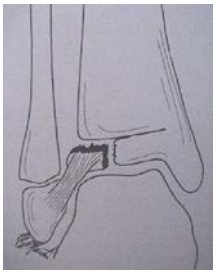
14 yo c/o ankle sprain

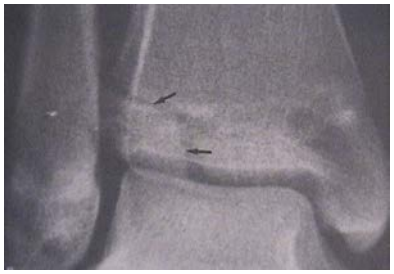




Tillaux fracture

Due to external rotation and stress by anterior tibiofibular ligament.
Usually in adolescents as ligament tends to give way in adults.
If displaced >2mm then need surgery.
If non-displaced – NWB and above the knee cast for 6-8 weeks





Letts. J Pediatr Orthop 1982
26 pediatric Tillaux fractures in 3 years
9 only visible on oblique x-ray
5 initially missed

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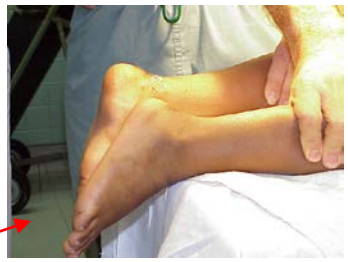
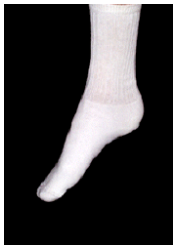
35 yo c/o "pop" in ankle during 1st game of beer league

Ankle x-ray is normal



Achilles Tendon Rupture

Consider Achilles rupture and do Thompson test
Thompson test is gold standard
May also feel defect in tendon
20 % of Achilles tendon ruptures misdiagnosed as ankle sprains.
Tx: splint in gravity equinus
NWB & follow-up with ortho



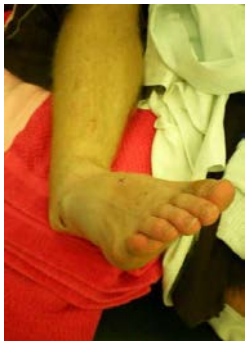
For Ankle Injuries, if in doubt……..

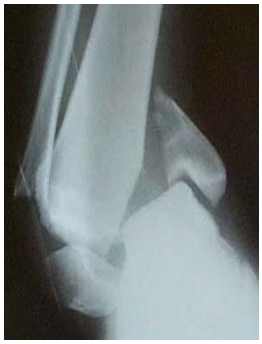
Pretty much all injuries can be splinted, made non-weight bearing and f/u in a week.

THE EXCEPTION……..

Ankle fracture-dislocation

EMERGENT reduction if skin tenting.
If you don't, skin necrosis occurs, converting this to an open fracture.
Then may splint and f/u if OK





KNEE

Knee Rules

Ottawa	Pittsburgh
Age>55	Only if fall or blunt trauma
Fibular head tenderness	
Isolated patellar tenderness	Age<12 or >50
Can't flex 90 deg	No 4 steps in ED
No 4 steps immed. & in ED	(full weight-bearing)
Sens: 97%	Sens: 99%
Spec: 27%	Spec: 60%

Seaberg et al. Annals of Emerg Med July 1998

Original Studies
Ottawa study: sens 100% spec 50%
Pittsburgh study: sens 100% spec 80%

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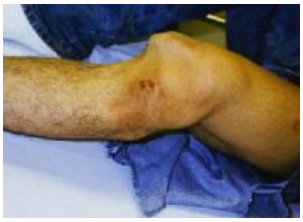
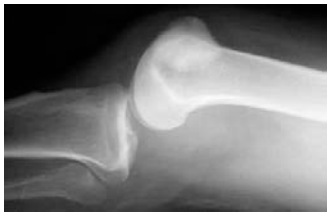
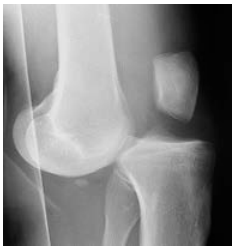
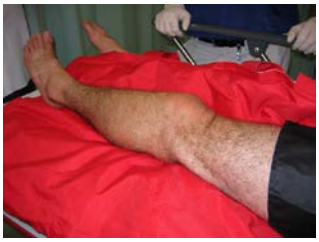
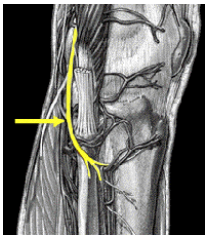
32 yo male got tackled playing football. Now has a little pain in the knee.

Posterior  

Knee Dislocation
- 50-60% anterior
- 10-40% vascular injury
  - ½ of those will need amputation
- Anterior: hyperextension.
- Posterior: direct blow
- Beware mechanism and grossly unstable knee (combined ant ACL and PCL) as may have spontaneously reduced
- Vascular inj. rate is equal in those that present dislocated as those which have reduced

Anterior  

Don't miss popliteal artery injury:
- If ischemia, or pulse deficit → OR (angio)
- If normal → ABI
  - ABI>0.9 → observe
  - ABI<0.9 → angio



Don't miss peroneal N injury – about 25%
- Can't dorsiflex or evert foot and lose sensation to the top of the foot

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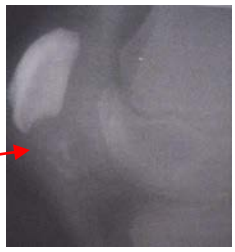
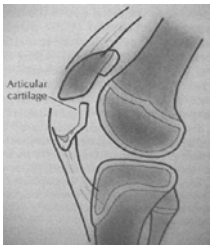
Case 1: 13 yo boy jumped from a 6 foot wall and then couldn't get up
PE: can't straighten leg

fragment 



Patellar sleeve rupture

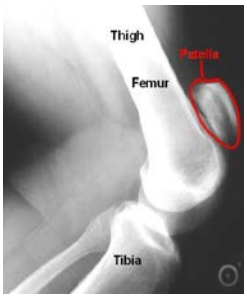
Occurs in adolescents, from strong quadriceps pull

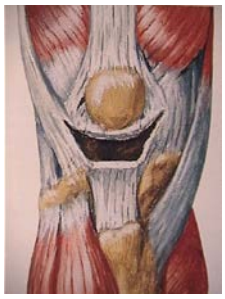
Avulsion of articular cartilage, periosteum, retinaculum and small fragment

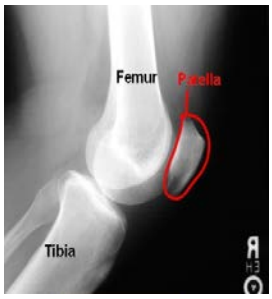
Tx: early ORIF

Case 2: 43 yo female with lupus and chronic "jumper's knee"

PE: can't straighten leg







Patella Alta

Normal

Patellar tendon rupture

Tx: partial tear - splint in extension for 4-6 weeks

complete - surgical repair

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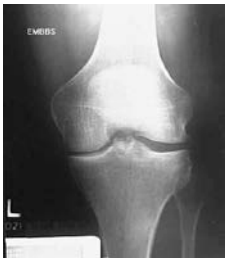
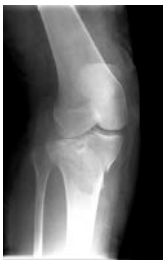
27 yo rugby player c/o severe pain with walking after a tackle

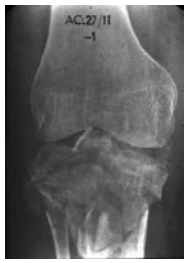


Tibial plateau fx's – need surgery

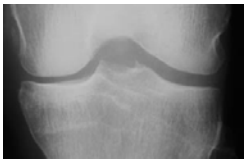
make sure joint space is even all the way across

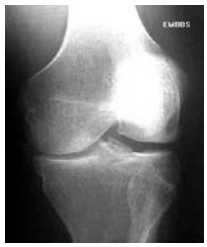
Some are obvious





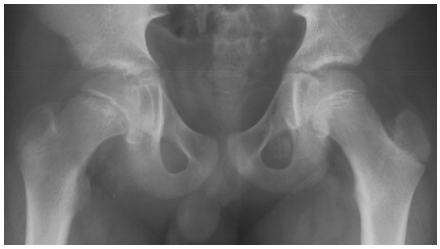
Some just have a widened joint space on one side

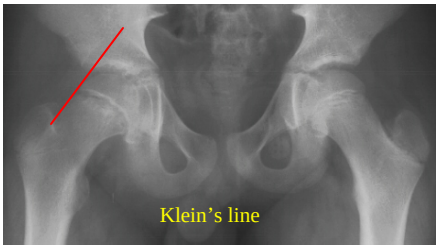




HIP

This 13 yo presents c/o R knee pain while roller blading





SCFE – Slipped Capital Femoral Epiphysis

Male, obese, active, 12-13 yo.

Many have no symptoms or mild symptoms only, especially at first

30% are not diagnosed at first presentation

15% have pain in the distal thigh or knee.

A lateral x-ray is the most sensitive test

Strict non-weight bearing on the affected side from the moment of diagnosis

Bilateral involvement in up to half.

Loss of internal rotation of the hip is sensitive.

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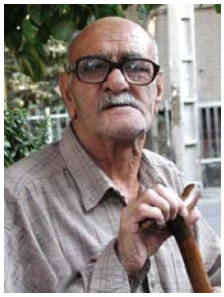
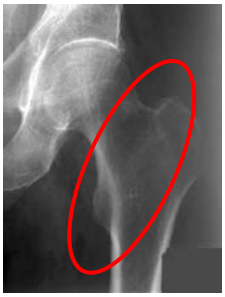
75 yo male fell from standing & c/o L hip pain





Hip fractures in osteopenic hips can be difficult to see, especially if intertrochanteric.

Pearl: Anybody with acute groin pain = hip pathology until proven otherwise (unless it is groin pain!)

Be wary of hip injuries in people c/o back pain in a wheel chair

Our tendency may be to lean them forward and examine their backs, but they may not realize their pain is from their hip because they haven't tried to walk.

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27 yo female s/p MVC, c/o L hip pain

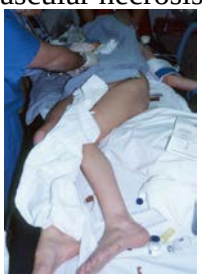
Hip Dislocation: EMERGENCY

Need to be reduced ASAP or can develop avascular necrosis of the femoral head

Posterior: 75-90%

Adducted, internally rotated, shortened

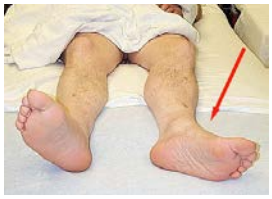
Reduced by anterior traction while hip is flexed to 90 deg

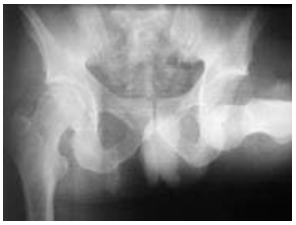


Anterior: 10-25 %

Abducted, externally rotated, flexed

Reduced by longitudinal traction





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2 yo male brought in because not walking.

TRANSIENT SYNOVITIS *VS* SEPTIC HIP

Four independent clinical predictors.

History of fever (T > 38.4 or history of it at home)

Non weight bearing

ESR > 40

WBC > 12

0 predictors…….	0.2% septic
1 predictor……..	3% septic
2 predictors…….	40% septic
3 predictors…….	93% septic
4 predictors…….	99% septic

Kocher, Zurakowski and Kasser: J Bone Joint Surg 1999

Summary

Orthopedic Emergencies
- Hip dislocation (ASAP)
- Ankle dislocation with tenting (1 hour)

Orthopedic Urgencies
- Open fractures (to OR in 6 hours)
- Compartment syndrome
- High pressure injection injuries

Other important things
- Look at fat pads and lines on all elbow films
- Look at medial and lateral joint space for tibial plateau injuries
- Beware posterior shoulder dislocation
  - Always get a lateral view
- Beware arterial injury in knee dislocations
- Splint kids with joint tenderness

If in doubt:
- Splint
- Non-weight bearing
- Follow-up with ortho

Don’t be afraid – it’s not rocket science!

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