

# Sports Injuries Not To Misdiagnose



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## Goals

- To improve the learner's awareness of five sports-related injuries
- To learn how to avoid a misdiagnosis or delayed diagnosis of these five sports-related injuries
- To improve the learner's clinical acumen on these potentially catastrophic injuries




## Case #1


- 21 year old female volleyball player dove for a low ball and fell on outstretched right hand
- Immediate wrist pain and pain with attempts at dorsiflexion and palmar flexion
- No gross deformity
- What is the possible diagnosis based on this mechanism of injury?



## Case #1



- Scaphoid fracture
- Distal radius or ulna fracture
- TFCC tear
- Distal R-U joint disruption
- Carpal ligamentous injury




## Do You Want An X-ray?




Name them....

## Wrist X-rays


A-P Wrist



Lateral Wrist



Clenched Fist A-P

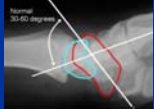


What is your diagnosis?

> 60 degrees

## Scapho-Lunate Dissociation

- Disruption of scapho-lunate ligament
- FOOSH injury
- Tender over scapho-lunate interval
- + Watson's clunk
- Limited dorsiflexion
- > 3 mm diastasis
  - ("Madonna sign")

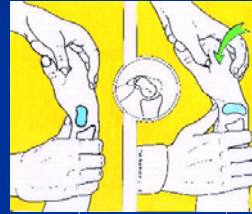


## Watson's Test of the Wrist

Watson's test  
(scaphoid shift test)

Press the scaphoid tuberosity on the palmar aspect while moving the wrist from ulnar to radial deviation.

A painful "click" or "pop" identifies scaphoid instability or scapholunate separation.



Scaphoid tubercle

Painful click or clunk

## Treatment



- Thumb spica splint
- PRICE-M
- Refer to ortho hand within 1 week for ORIF
- Avoid wrist pronation-supination
- Pain control



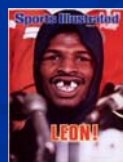
## Complications if Missed

- Chronic wrist pain
- Loss of function, motion, and strength
- Osteoarthritis



## Don't Miss This!

- FOOSH mechanism
- Dorsal wrist pain with limited dorsi-flexion
- Pain over snuffbox
- Get AP and AP clenched fist view
- MR arthrogram



## Case #2



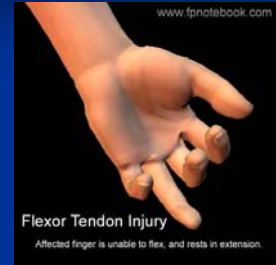
- 38 year old male got his left ring finger caught in a player's shirt while playing touch football
- Felt "pop" in his finger and now has pain
- Now in your clinic 2 days later
- What are the possibilities?

## Case #2

- Fracture
- DIP or PIP dislocation
- Extensor tendon injury
- Flexor tendon injury
- Collateral ligament tear



## Exam



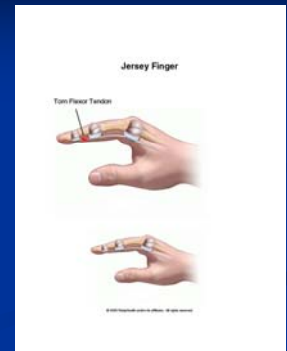
## X-rays



What is your diagnosis?

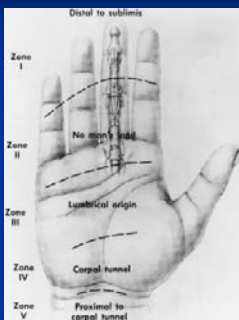
## Jersey Finger

- Rupture of FDP tendon
- Inability or weakness flexing finger tip
- Splint in position
- Repair within 7 days



## Complications if Missed

- Retraction into palm of hand
- Loss of flexion of tip
- Impaired work ability
- Difficult surgery



## Don't Miss This!

- History
- Feel pop in finger
- Isolate the Flexor Digitorum Profundus
- Weak or unable to flex tip of finger



## “New Jersey” Finger



## Case #3

- 12 year old wrestler complaining of mild groin and knee pain for 2 months
- Occasional limp after wrestling
- Otherwise feels fine
- Improved with tylenol and gentle adductor stretching
- What are the possibilities?



## Case #3



- Adductor strain
- Pelvic apophysitis
- OCD lesion of femur
- Patellofemoral pain
- Slipped capital femoral epiphysis
- Septic joint
- Tumor

## Exam

- Normal gait
- Non-tender knee exam without effusion
- Mild groin pain with palpation and leg roll
- No adenopathy
- No hernia appreciated
- ESR and CBC normal
- Groin pain with “duck walk”



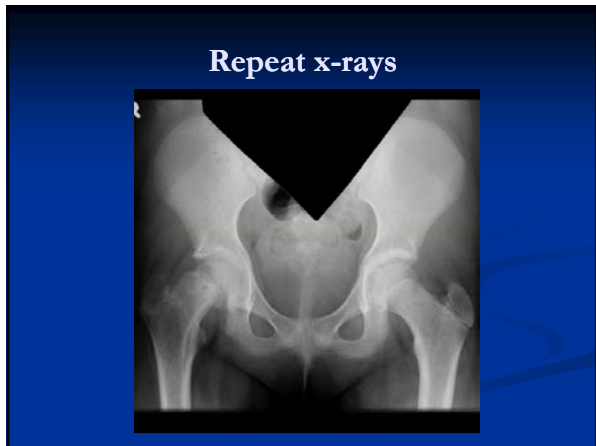
## X-ray Requested



## Returned to Sport

- Physical therapy
- Ice/heat/tylenol
- Pain in groin to knee
- Limping after match
- 2 months later, returned to family physician
- Exam unchanged





## Diagnosis

**Figure 2. Bilateral Klien's line:** The line is used on an AP axial hip or AP pelvis study. It is drawn along the lateral aspect of the femoral neck. A portion of the femoral epiphysis/head should be present lateral to the line, as seen on the right.

**Figure 3. SCFE of the right femoral head shown on a frog leg lateral view.**

- Slipped Capital Femoral Epiphysis

## Treatment

- Crutches with toe touch weight bearing
- Orthopedic consult within 24 hours
- Percutaneous fixation

## Complications if Missed

**Normal** vs **Slipped Capital Femoral Epiphysis**  
Stable vs Unstable

**Avascular Necrosis**

- Avascular necrosis
- Hip dysplasia
- Early osteoarthritis
- Leg length difference
- Chronic pain/limp

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## Don't Miss This!

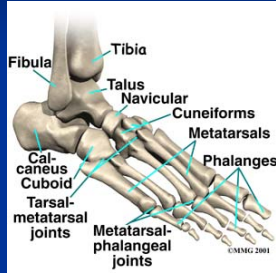
- Knee pain in adolescent-check hip
- Overweight boys
- AP Pelvis
- Lateral frog leg view
- If unclear, check MRI.

## Case #4

- 21 year old football player
- Loud audible pop and unable to bear weight
- Pain on top of mid-foot
- What are the possibilities?

## Case #4

- Fracture of metatarsal
- Fracture of cuneiform
- Extensor digitorum rupture
- Lisfranc complex injury
- Mid-foot sprain



## Exam

- Unable to weight bear
- Swelling over dorsum of foot
- Bruising on plantar aspect of foot
- Pain with external rotation of mid-foot



## Do You Need X-rays?



Anything special....?



## X-rays

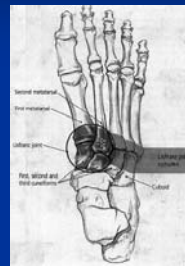


## Treatment

- Told to ice, elevated, and gradually return to running
- Limped x 2 months and returned to provider
- "I can't run on it"



## What is the Diagnosis?



- Lisfranc fracture-dislocation
- Lisfranc injuries may represent 1% of all orthopedic trauma, but 20% are missed on initial presentation
- Inability to WB, mid-foot pain, weight bearing x-rays are key

## Treatment

- PRICE-M
- NWB on crutches
- Bulky Jones dressing or posterior splint
- Refer to Ortho
- Frequent neurovascular checks



## Complications if Missed

- Acute compartment syndrome
- Chronic pain
- Arthritis
- Collapsed arch
- Inability to run or jump



## Don't Miss This!

- Mid-foot pain and swelling
- Inability to bear weight
- Check weight bearing x-rays with comparison view
- CT scan or MRI if in question



## Case #5

- 18 year old high school runner with one month "pulled groin"
- Winning races then limping
- State championship "snap" in groin on the final 50 yards; unable to WB!
- What are the possibilities?



## Case #5

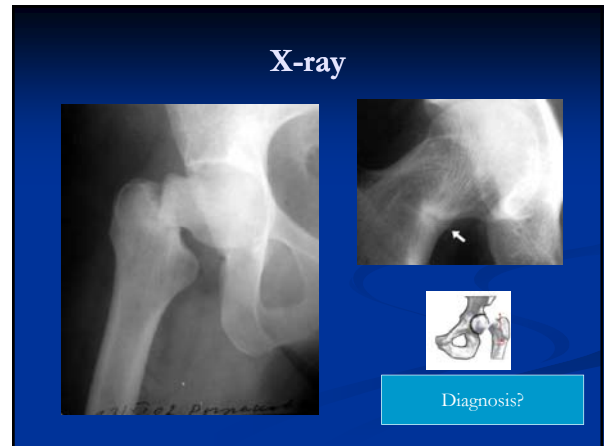
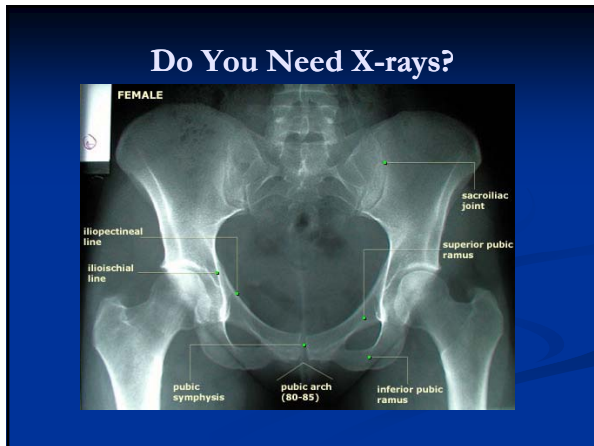


- Torn adductor muscle
- Avulsion of adductor or sartorius muscle
- Pubic ramus fracture
- Femoral neck fracture
- Femoral shaft fracture
- SI joint subluxation
- Ruptured iliopsoas bursa

## Exam



- 2 1/2 days after injury
- NWB on crutches
- Swelling noted in groin and high proximal femur
- Pain with all attempts at motion
- Distal pulses 2+
- No distal sensory deficits



## What is the Diagnosis?

- Femoral neck stress fracture – complete
- Groin pain in runner or jumper or soldier- don't ignore
- Need to know which side the stress fracture is on (compression vs tension side)
- Plain films often negative

## Treatment

- If stress fracture by x-ray or further imaging
  - Compression side
    - 12 weeks to heal +/- NWB
  - Tension side
    - Ortho consult/surgery
- Femoral neck fracture-surgery
- Cross train
- Proper nutrition and calories (LMP, DEXA, Vitamin D)

## Complications if Missed

- Stress to complete fracture
  - Avascular necrosis
  - Chronic pain
  - End of career

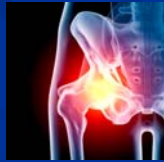
## Take Home Points

- Fall on outstretched hand, think:
  - Distal forearm fx.
  - Scaphoid fx
  - Scapho-lunate dissociation or other carpal lig disruption
  - TFCC
  - AP, Lat, Scaphoid and clenched fist views



## Take Home Points

- Grab injury with pain at distal phalynx, think jersey finger
- Adolescent with knee pain...ask about hip/groin pain and check. Think SCFE



## Take Home Points

- Mid-foot pain and inability to weight bear after foot axial load or twist, think Lisfranc injury
- Persistent groin pain, rule out stress fracture of hip or pelvis

