The Acutely Injured Knee:
8 Things to Consider Before Writing *'Soft Tissue Injury Knee'*

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Disclosure

I have no financial interests or relationships to disclose.

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OTTAWA KNEE RULE

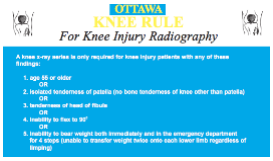
For Knee Injury Radiography

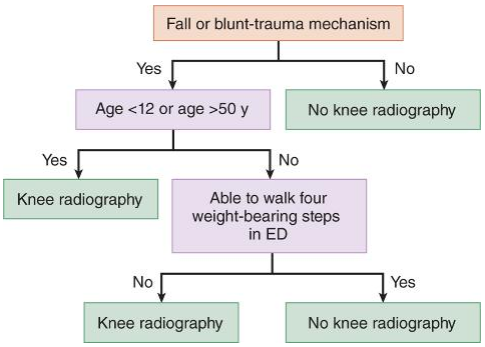
A knee x-ray series is only required for knee injury patients with any of these findings:

1. age 55 or older
   OR
2. isolated tenderness of patella (no bone tenderness of knee other than patella)
   OR
3. tenderness of head of fibula
   OR
4. inability to flex to 90°
   OR
5. inability to bear weight both immediately and in the emergency department for 4 steps (unable to transfer weight twice onto each lower limb regardless of limping)

3

Pittsburgh Knee Rules

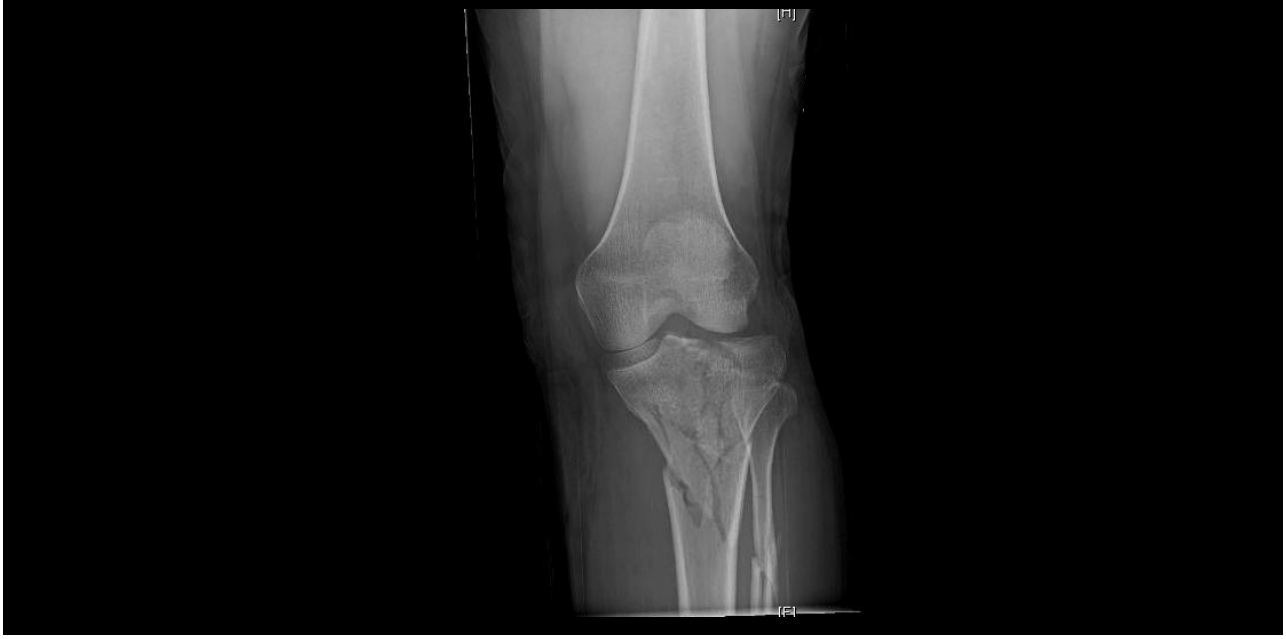




KNEE AND LEG INJURIES - INJURIES TO BONES AND JOINTS - Tintinalli's Emergency Medicine - Just the Facts, 3ed.

4

65F



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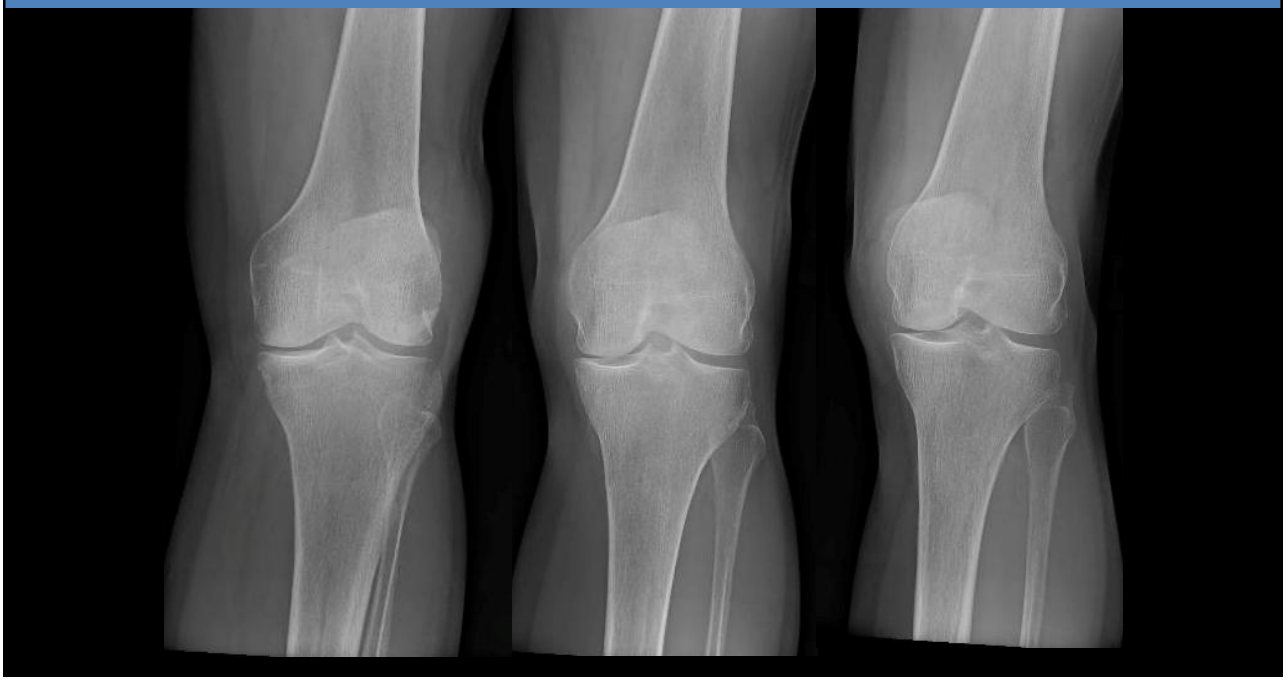

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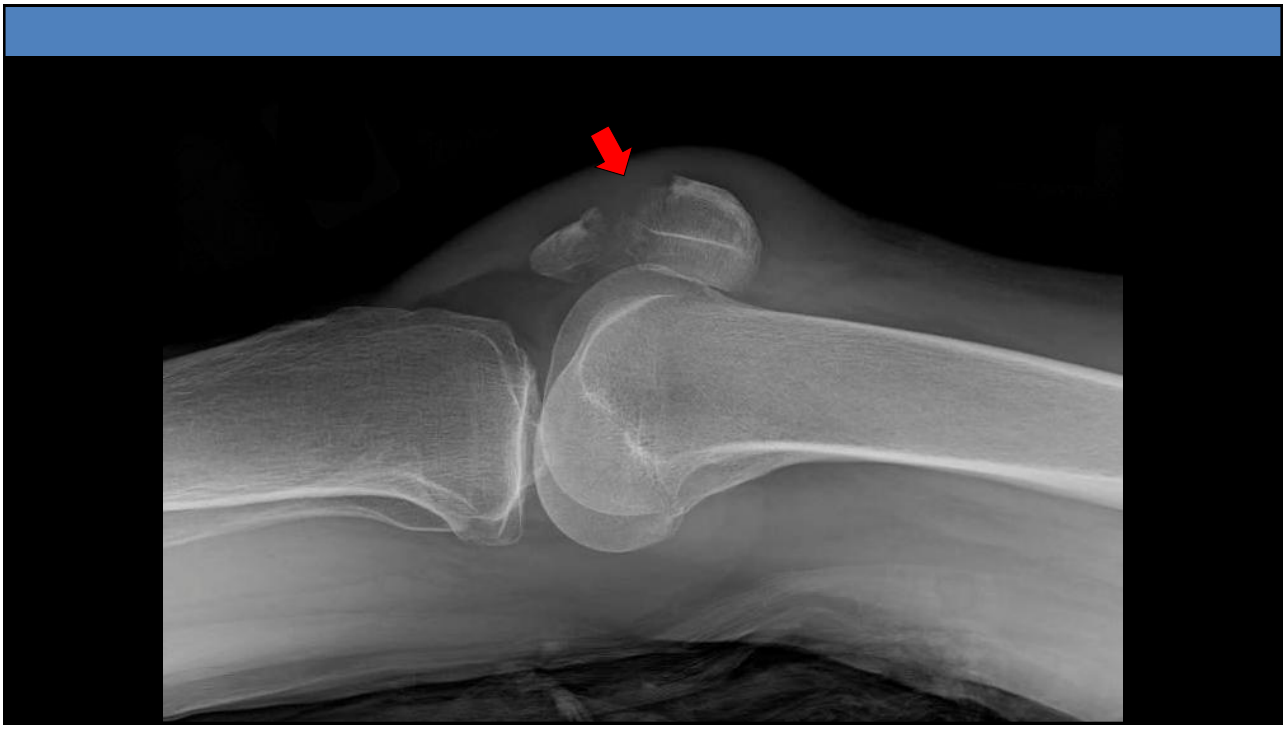

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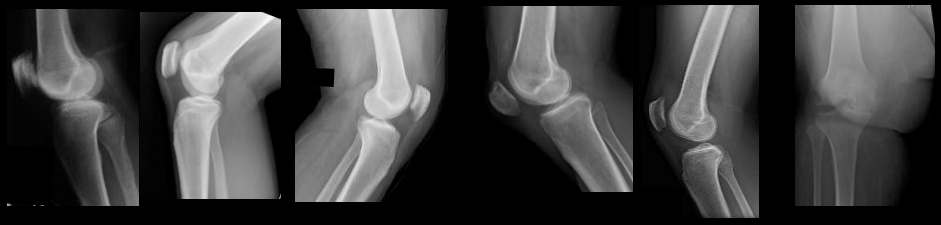
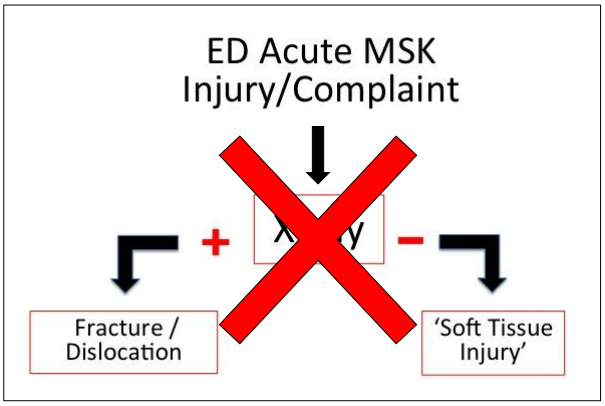


62 M 28 M 44 M 49 M 28 M 38 F

'Soft Tissue Injury'
Knee
Knee Immobilizer
Ortho (or Primary Care)

8

Typical **ED Ortho** Algorithm



9

Chest Pain in the ED

- Ideal to make the definitive diagnosis, but don't miss:
  -
  -
  -
  -

10

Chest Pain in the ED

- Ideal to make the definitive diagnosis, but don't miss:
  - ACS
  - PE
  - Dissection
  - Esophageal Rupture
  - Pericardial Effusion with Tamponade, etc.

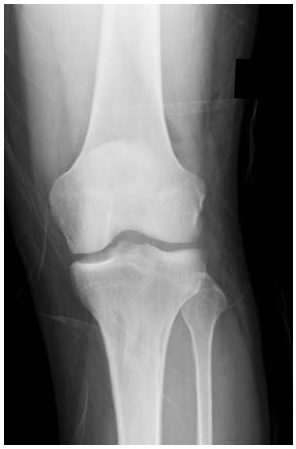
11

Knee Injuries in the ED

- Ideal to make the definitive diagnosis, but don't miss:
  -
  -
  -
  -

12

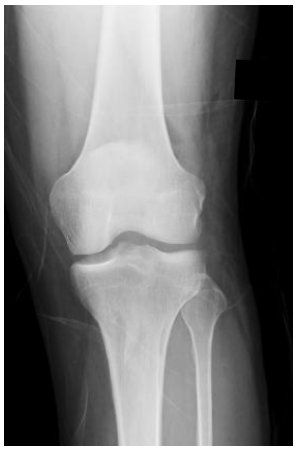
Common Diagnoses with **Normal** XR?



Meniscal
MCL
ACL
Patellar subluxation
Contusions

13

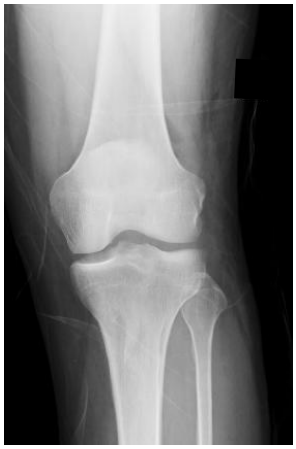
Surgical Diagnoses with **Normal** XR?



7 (or 8) Diagnoses
to Consider
Before You Write
'Soft Tissue Injury
Knee'

14

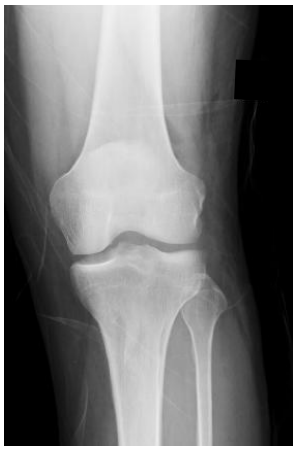
Surgical Diagnoses with **Normal** XR?



Dislocation
Occult Fracture
Quads Rupture
Patellar Tendon Rupture
Septic Knee
From the Hip
Compartment Syndrome
(Locked Knee)

15

How to Diagnose?



Dislocation
Occult Fracture
Quads Rupture
Patellar Tendon Rupture
Septic Knee
From the Hip
Compartment Syndrome
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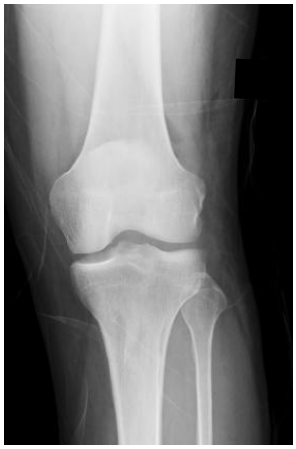
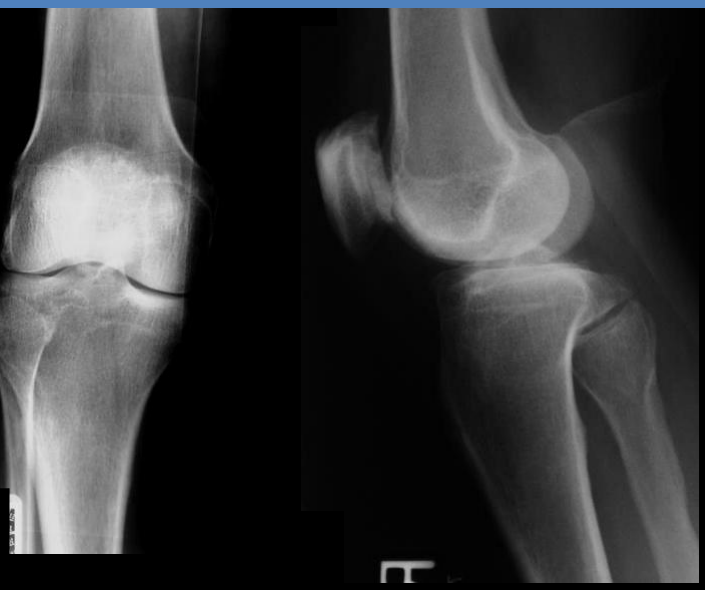
16



'Much More Is Missed
By
Not Looking
Than By
Not Knowing'

17

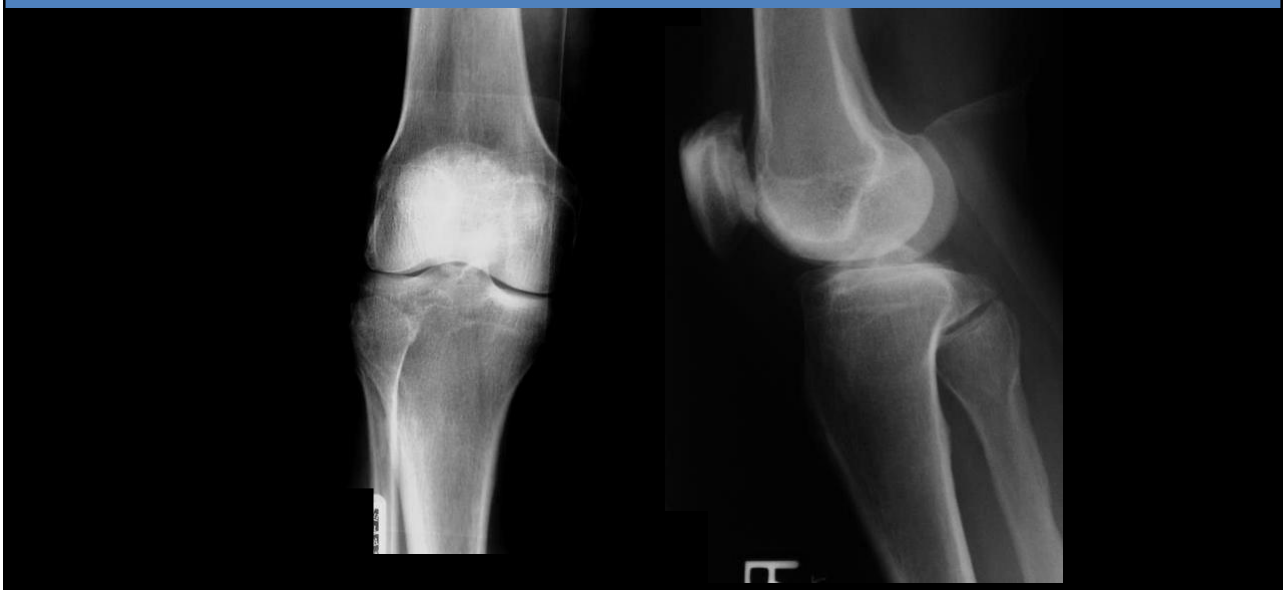
62M



Minor Fracture
Clinic Day 8

18

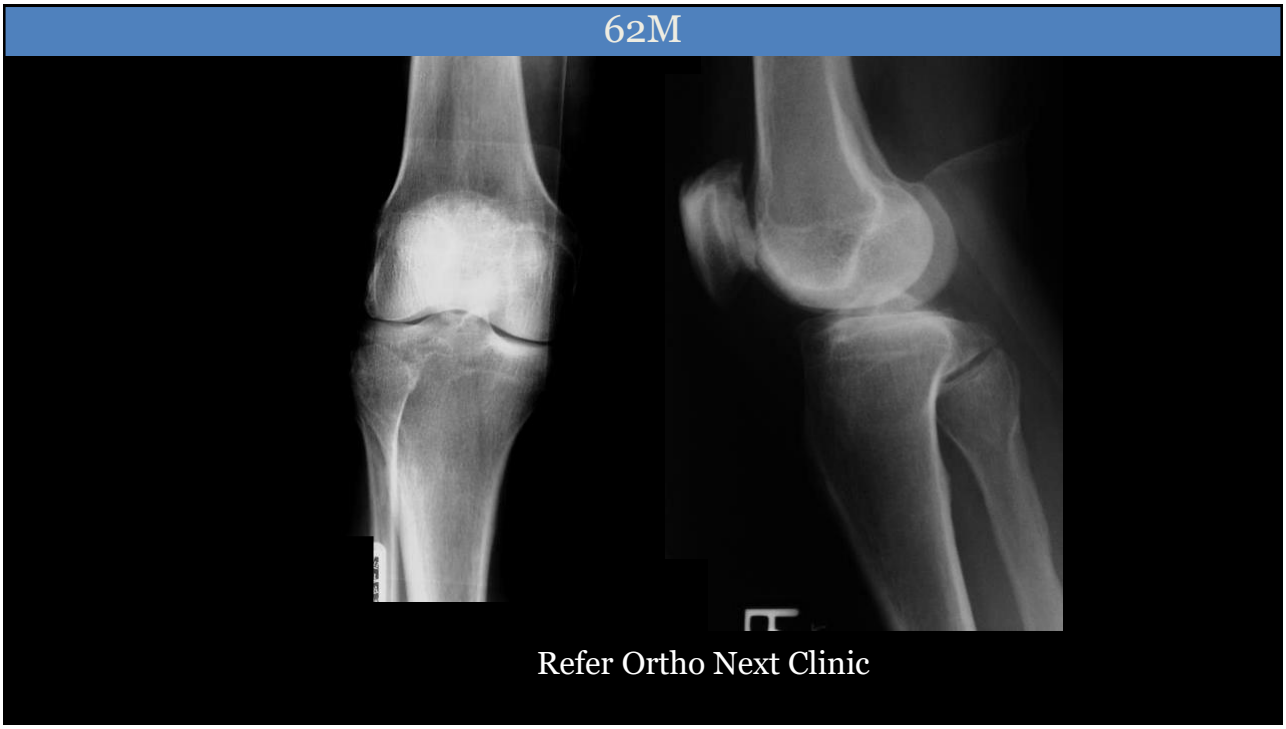
62M



Repeat X-rays

19

62M

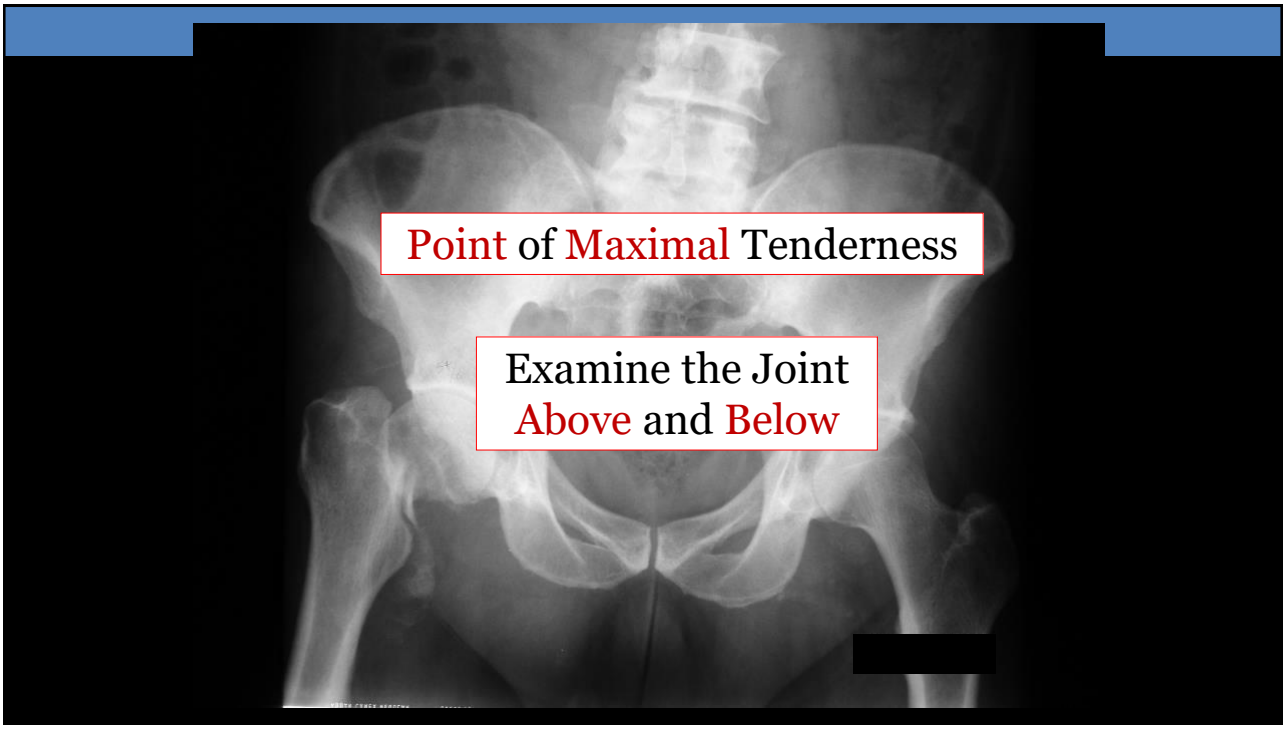


Refer Ortho Next Clinic

20

Ortho Day 15

21



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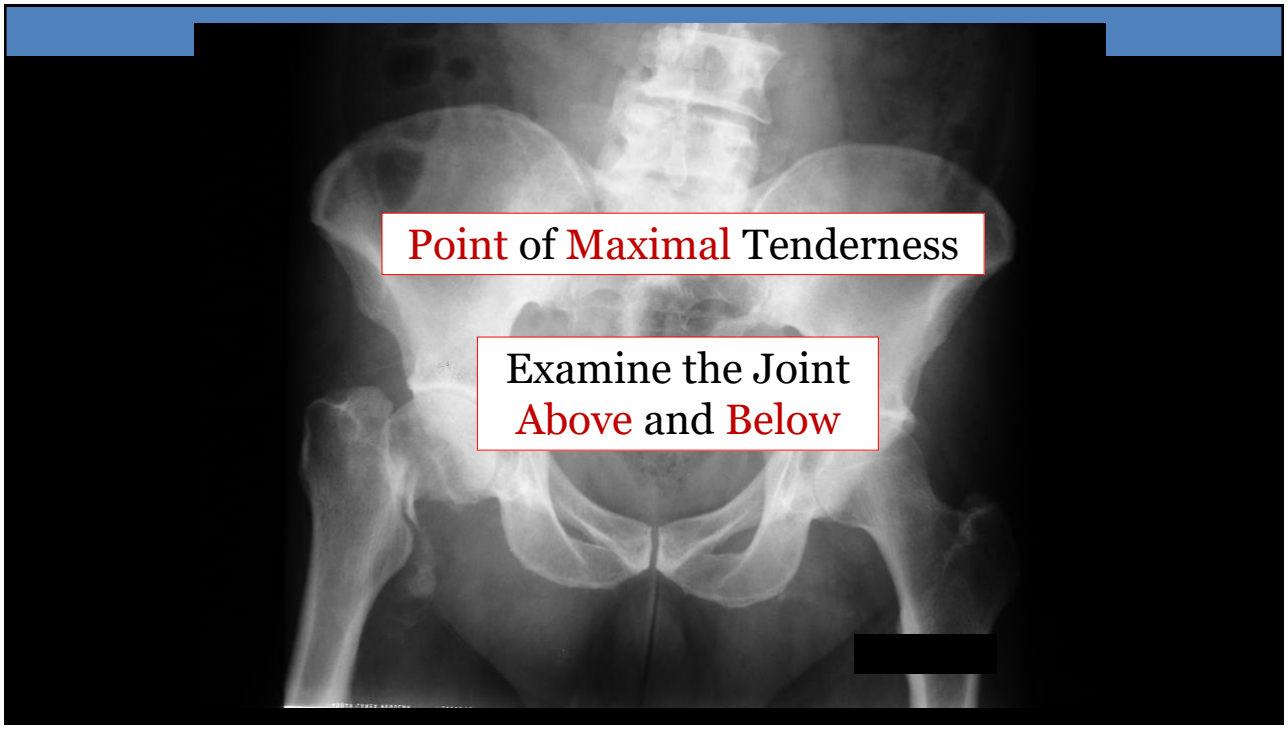
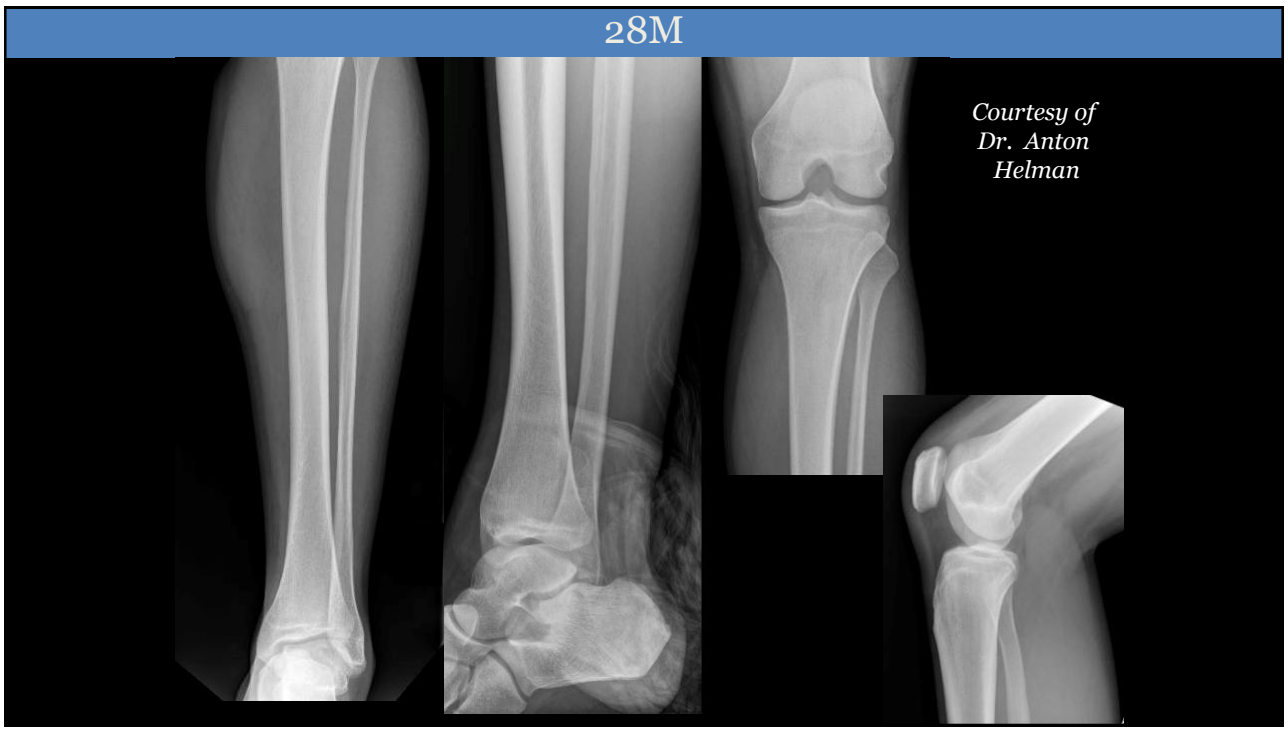

Point of Maximal Tenderness
Examine the Joint
Above and Below

23


28M
Courtesy of
Dr. Anton
Helman

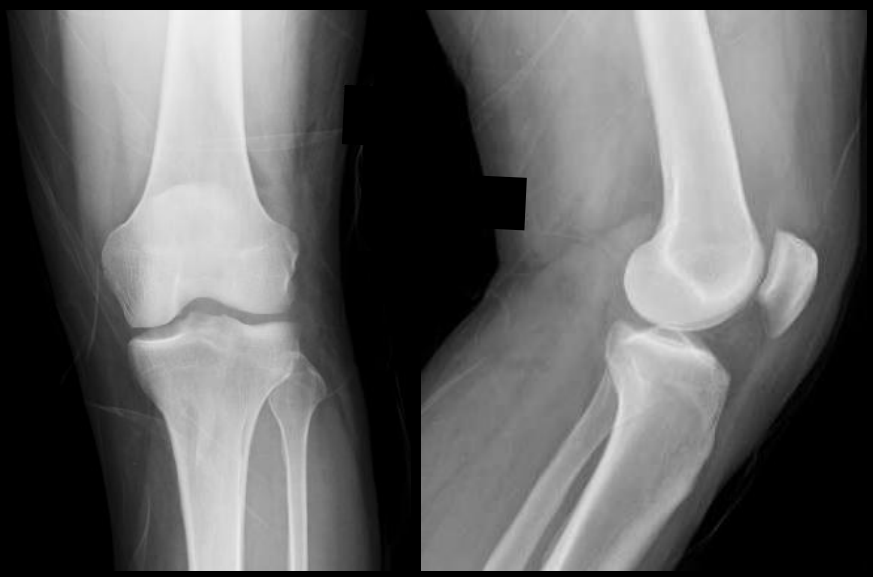
24

42M
- Injury Lt knee
- No other injury
- Non-wt bear

O/E:
- NAD
- Lt Knee – stable
- No effusion
- Decr. ROM

Ankle/foot – NV intact

25



26

42M
- Injury Lt knee
- No other injury
- Non-wt bear

O/E:
- NAD
- Lt Knee – stable
- No effusion
- Decr. ROM

Ankle/foot – NV intact

Dx: STI knee

Zimmer/Crutches/Minor Ortho
Elevate
Tylenol / NSAIDs prn

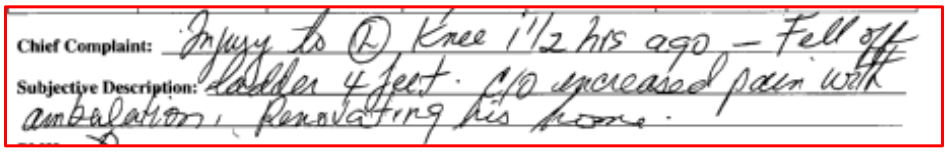
27

42M
- Injury Lt knee
- No other injury
- Non-wt bear

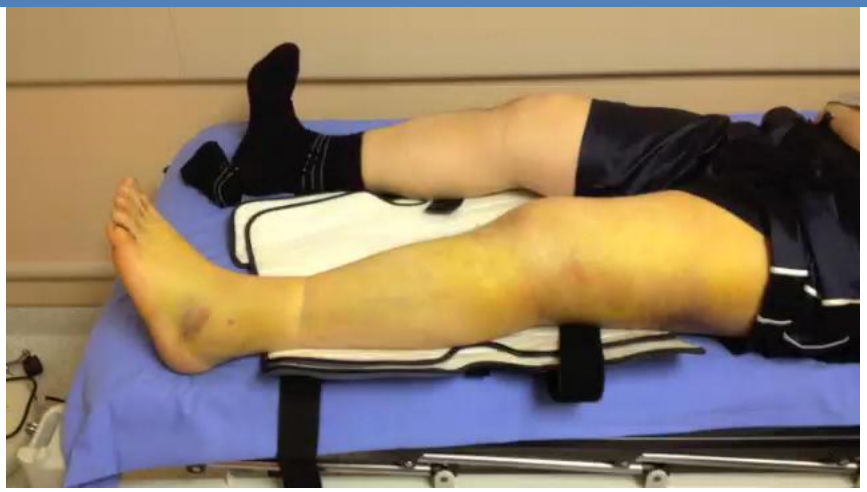
O/E:
- NAD
- Lt Knee – stable
- No effusion
- Decr. ROM

Ankle/foot – NV intact

Dx: STI knee


Chief Complaint: Injury to (R) Knee 1½ hrs ago – Fell off
Subjective Description: ladder 4 feet. C/O increased pain with ambulation, removing his boots.

28



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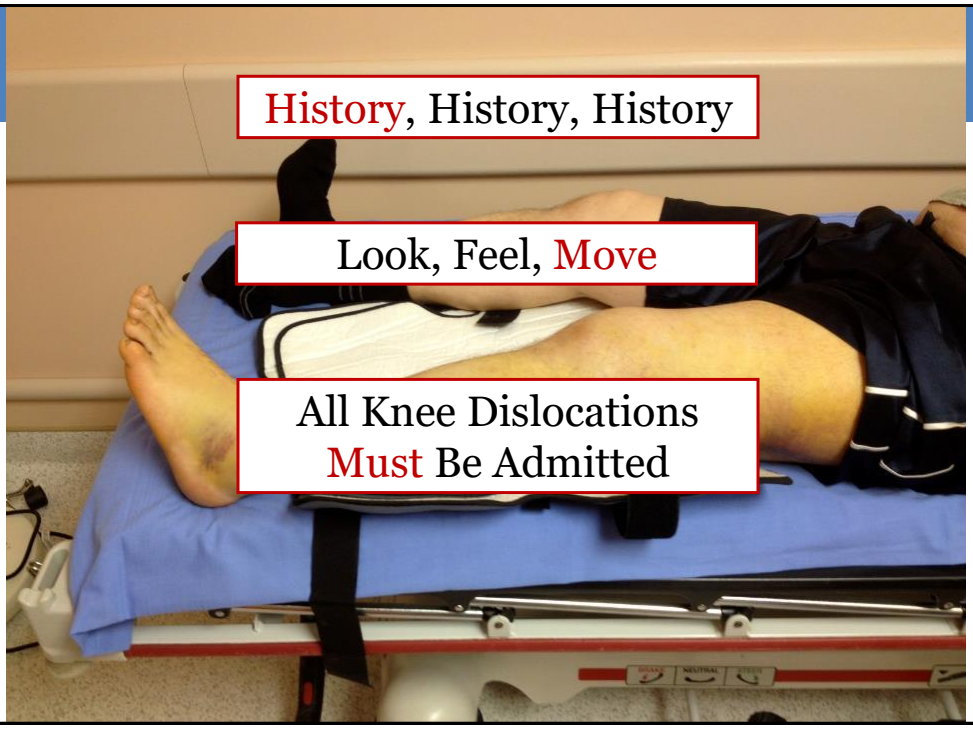
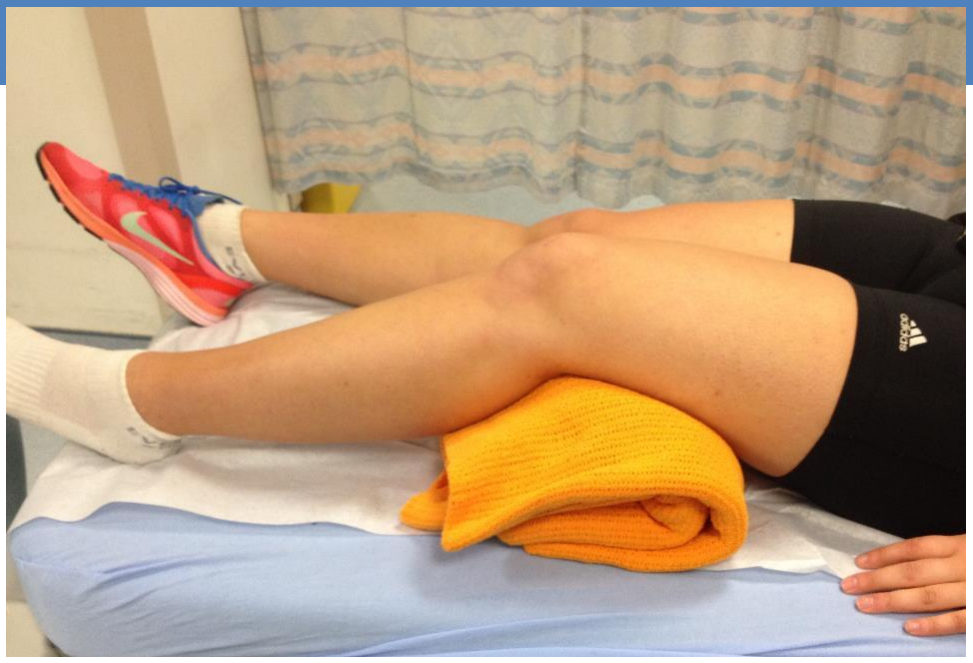

History, History, History
Look, Feel, Move
All Knee Dislocations
Must Be Admitted

30

31



32

68M

Downstairs

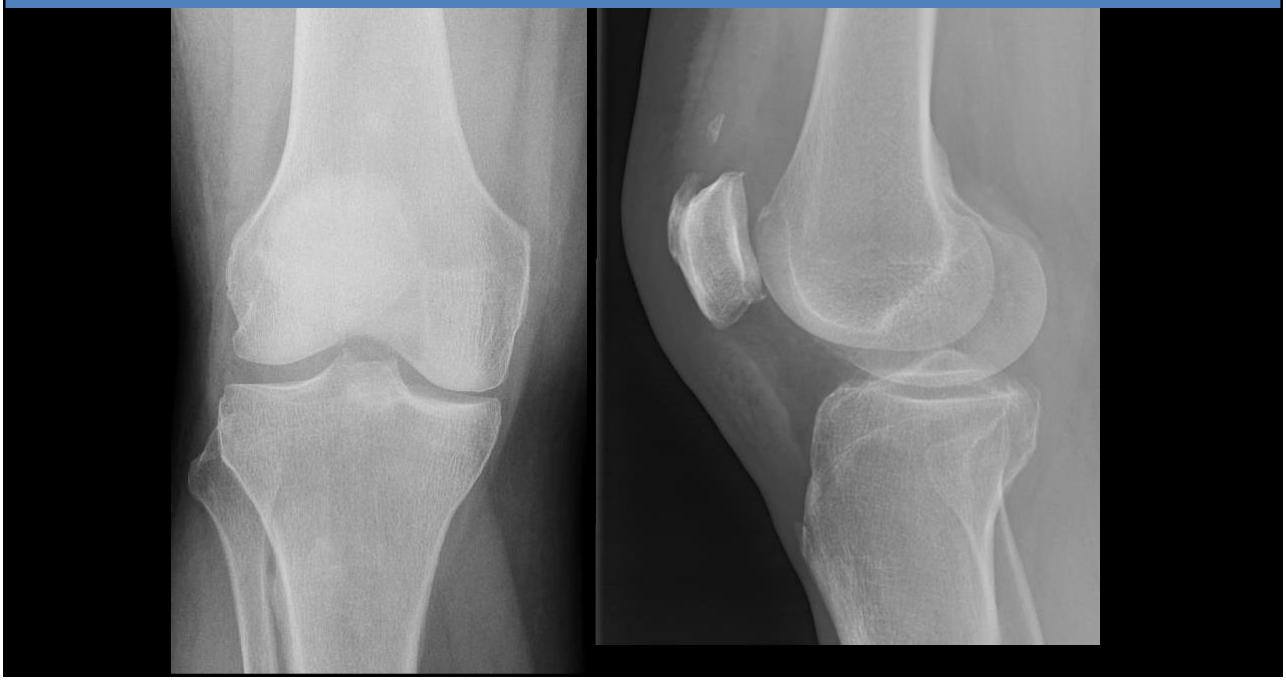
Stumbled last 2 steps

No fall

Tender around patella

33

68M



34

68M

Downstairs

Stumbled last 2 steps

No fall

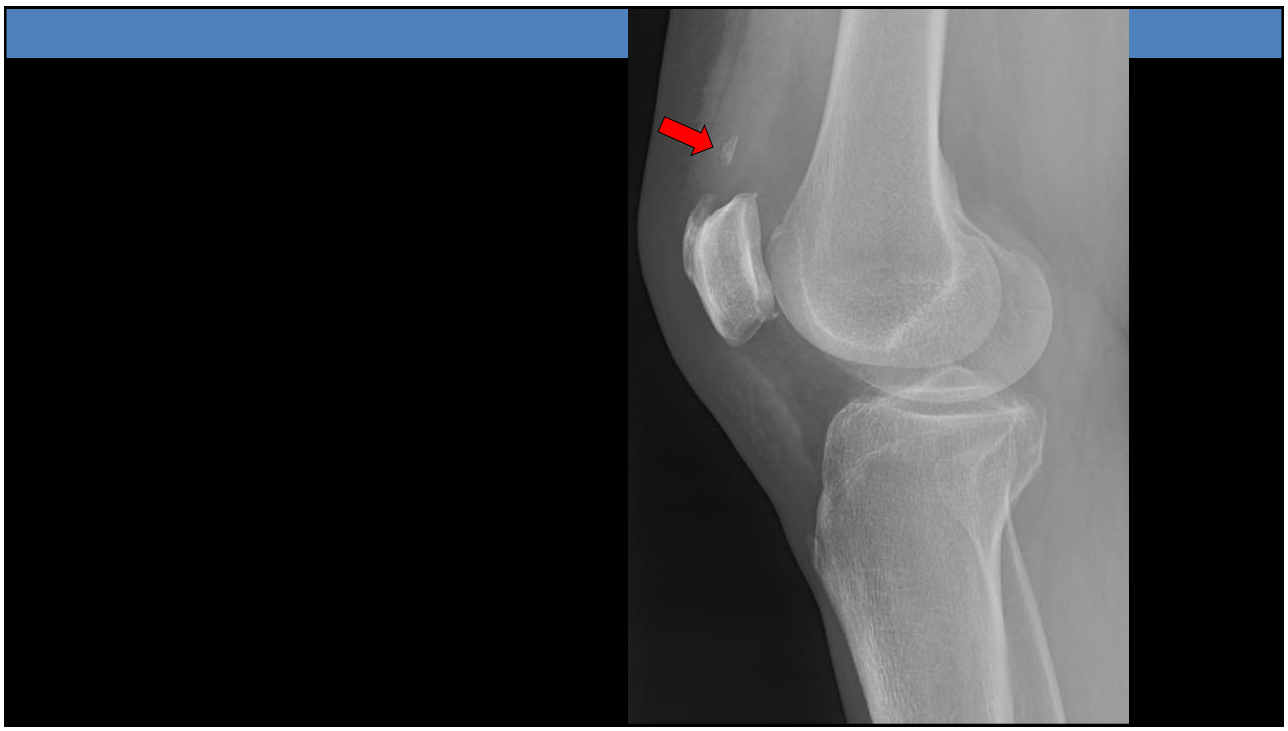
Tender around patella

X-ray – Neg

Immobilizer

F/U Minor Fracture Clinic

35



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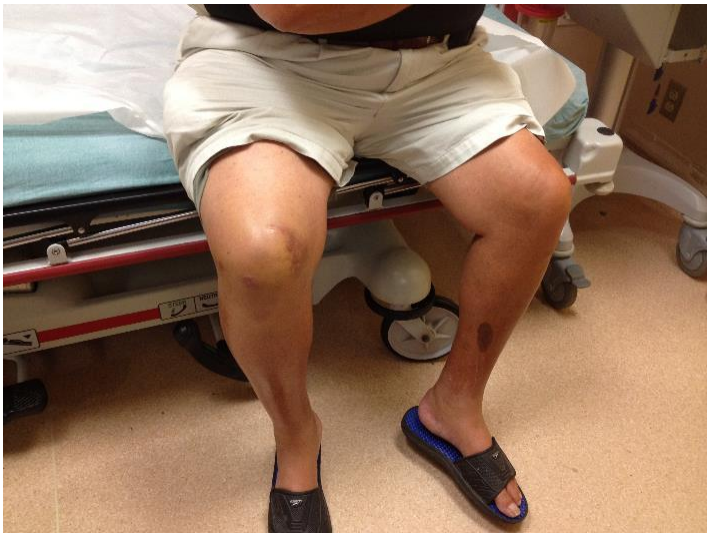

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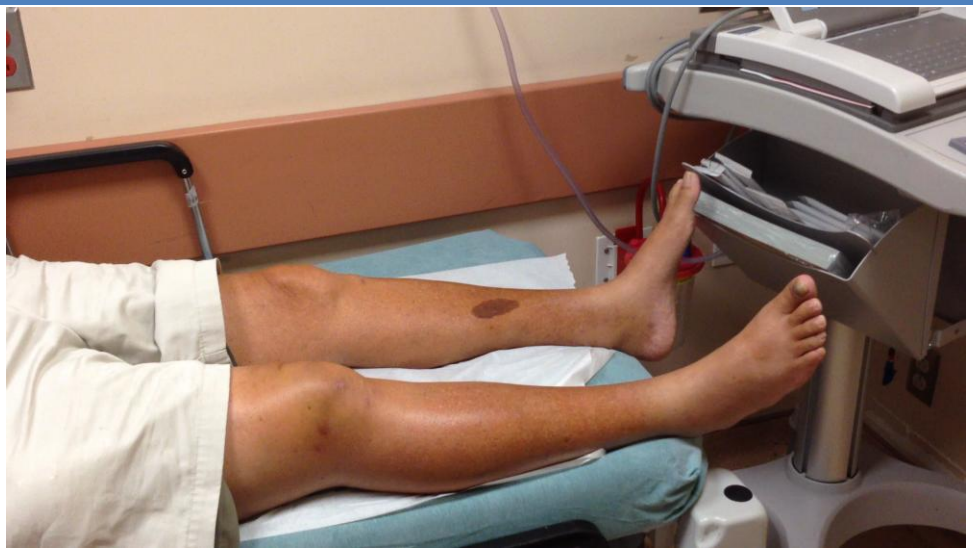

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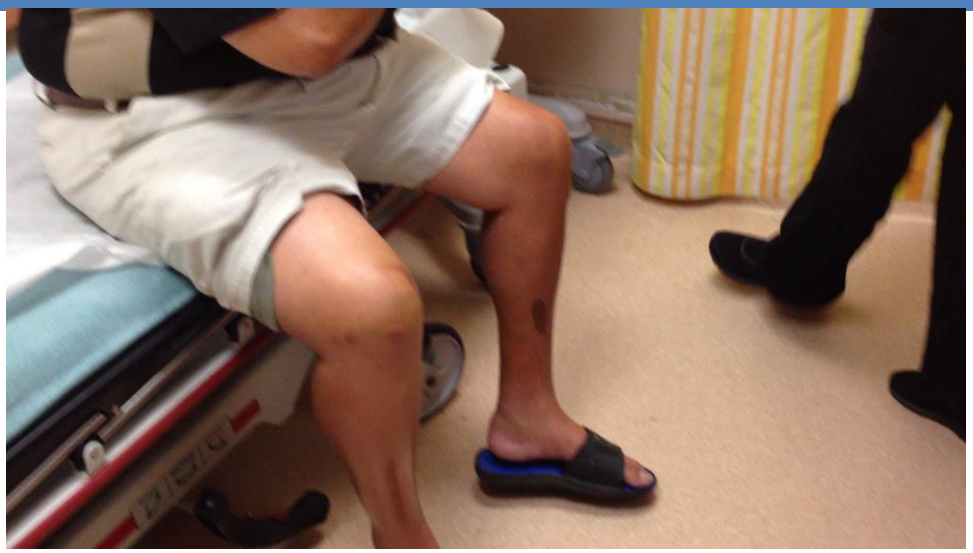

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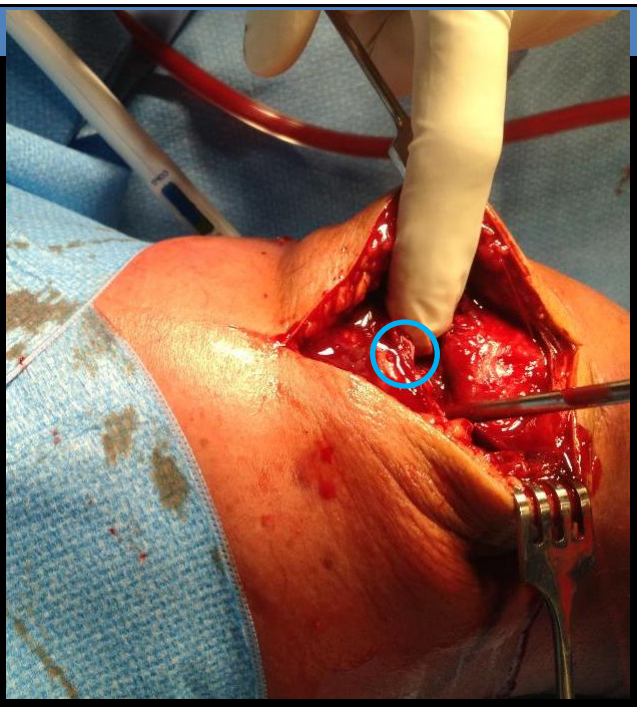

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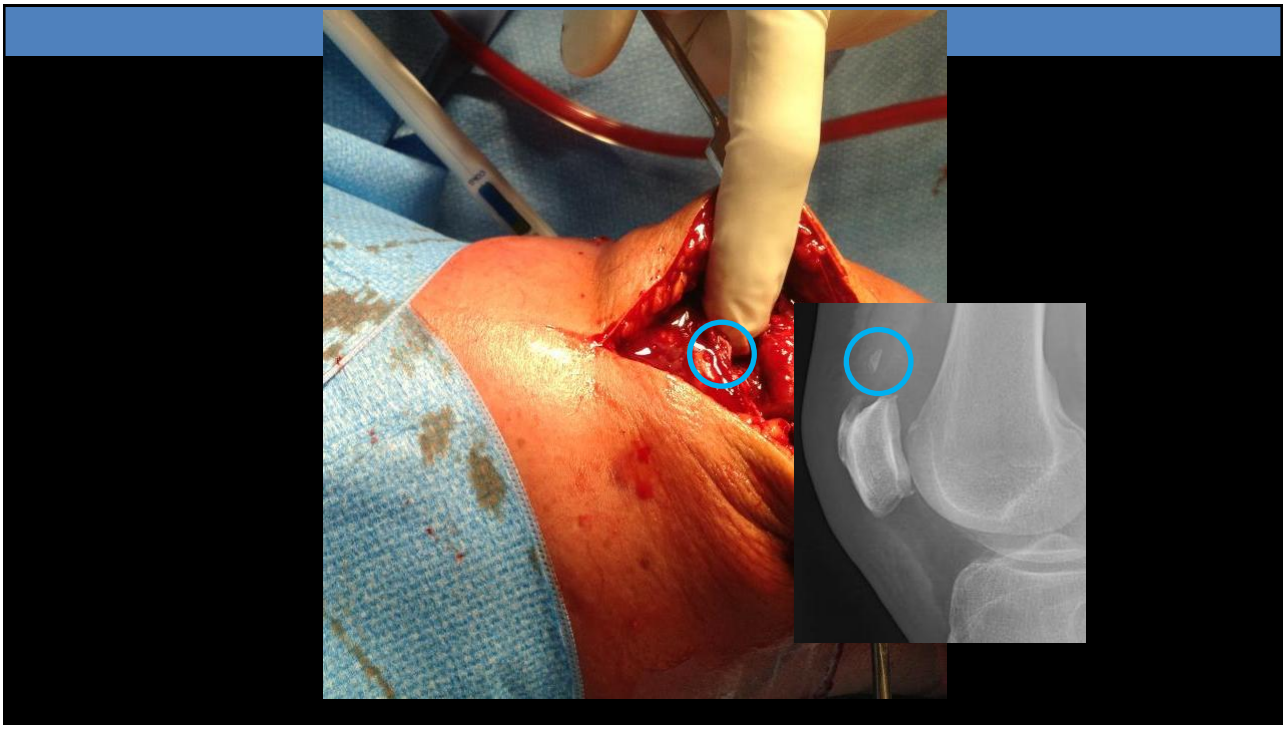

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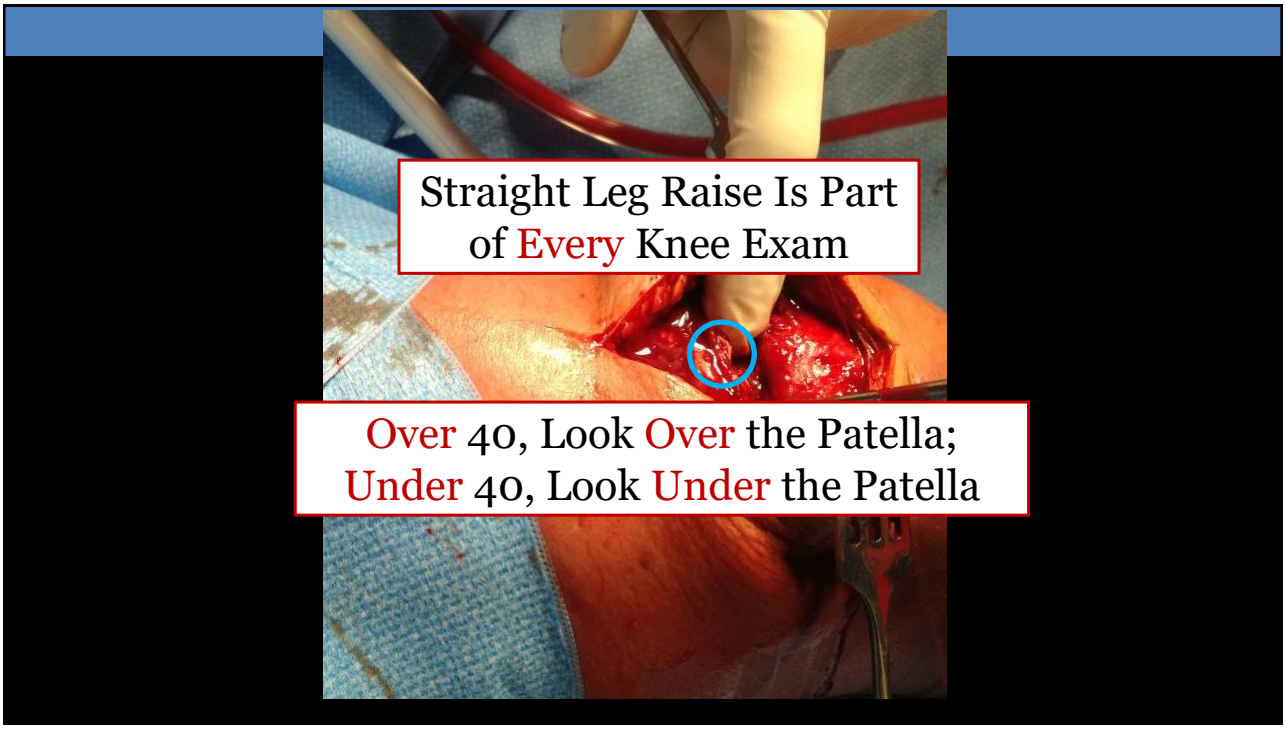
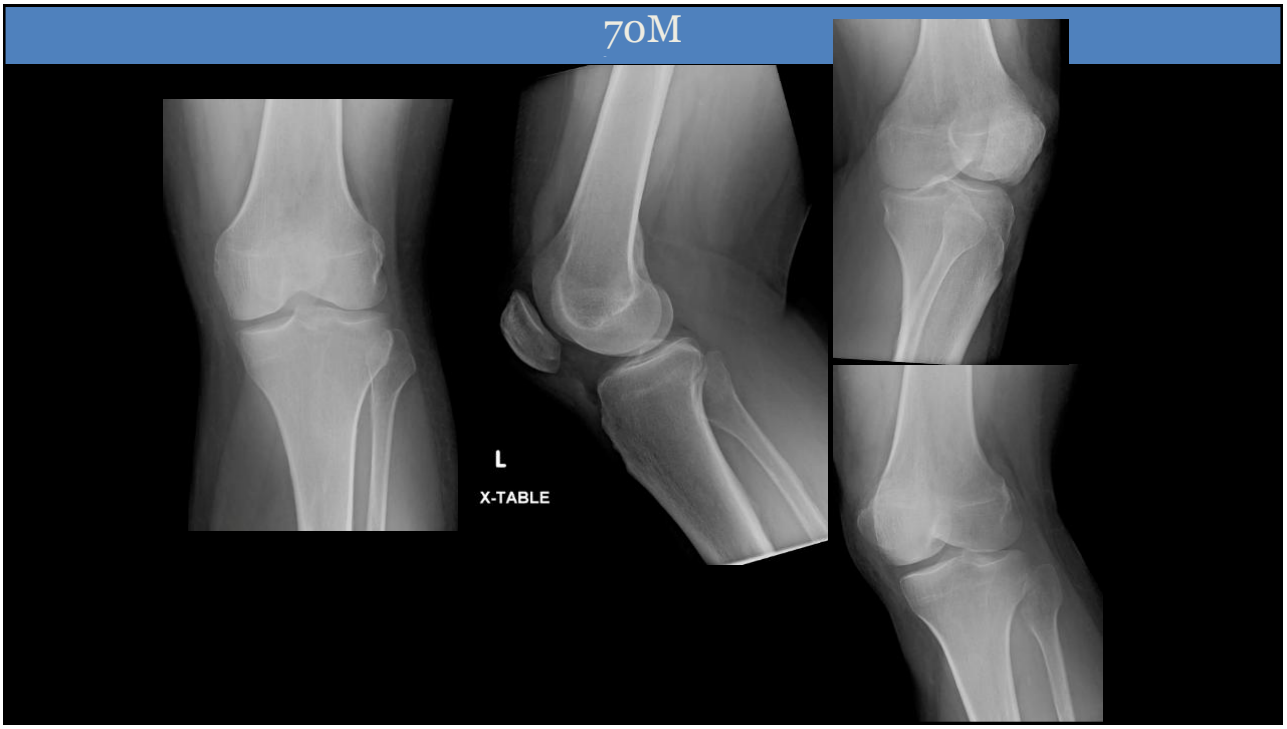

Straight Leg Raise Is Part of Every Knee Exam
Over 40, Look Over the Patella;
Under 40, Look Under the Patella

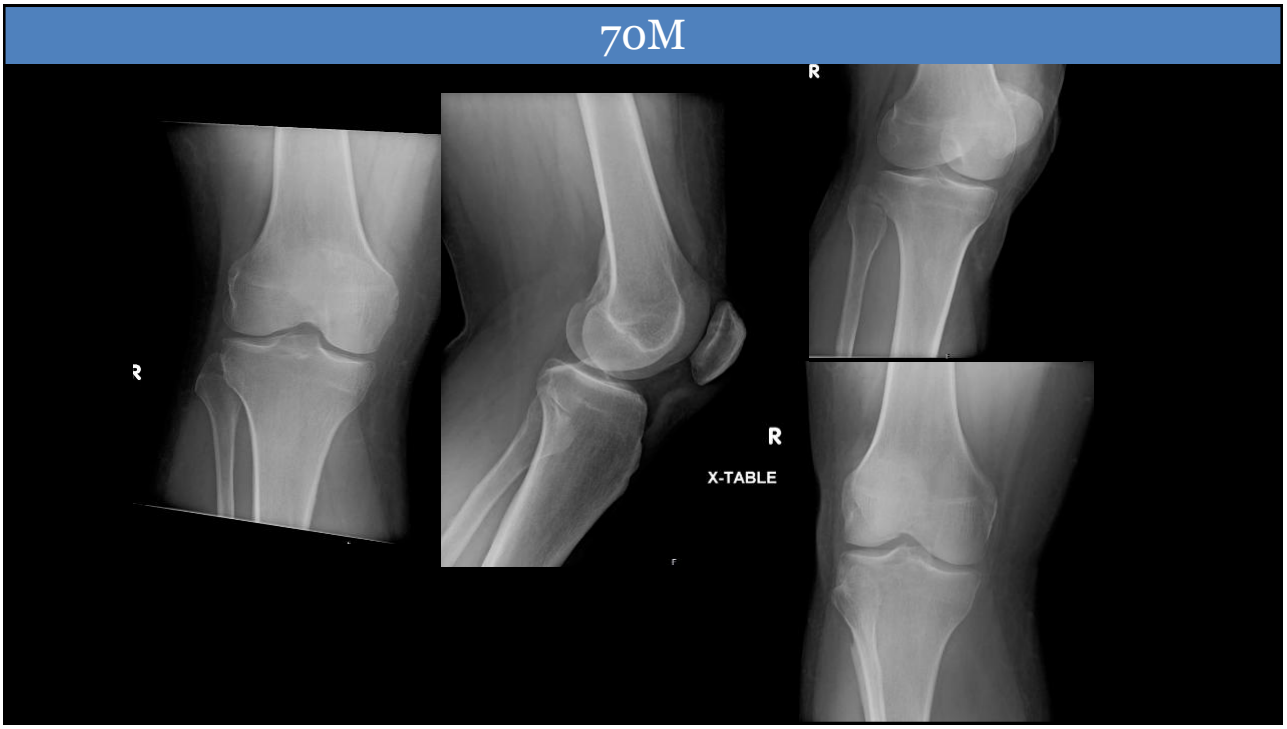
42

70M



43

70M



44

70M

BILATERAL KNEES

Normal alignment
No fractures or subluxations
No significant arthritic changes
No large suprapatellar effusion

IMPRESSION:

No fracture or dislocation bilateral knees

P.o. analgesia provided and walk test planned. Patient attempted to get up out of the stretcher and reported acute onset bilateral knee pain and "giving out". Following this he had a syncopal episode and fell to the ground, once again striking his head and his right shoulder. There was no witnessed seizure activity or posticta1 state. Vital signs were within normal limits immediately following syncopal episode with BP 107/60 and HR 72.. With multiple people assisting we were able to get him back on the stretcher but he was not able to stand independently.
He and his wife report very rare episodes of syncope in the past, consistent with vasovaqal syncope.

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Current Issues, Assessment and Plan

In summary, we have a 71-year-old gentleman who sustained a mechanical fall. He fell to his knees today, and currently experiences knee pain and deconditioning and is not able to ambulate. He is not ready to be discharged home. Fortunately, no fractures and there is no intracranial bleed.

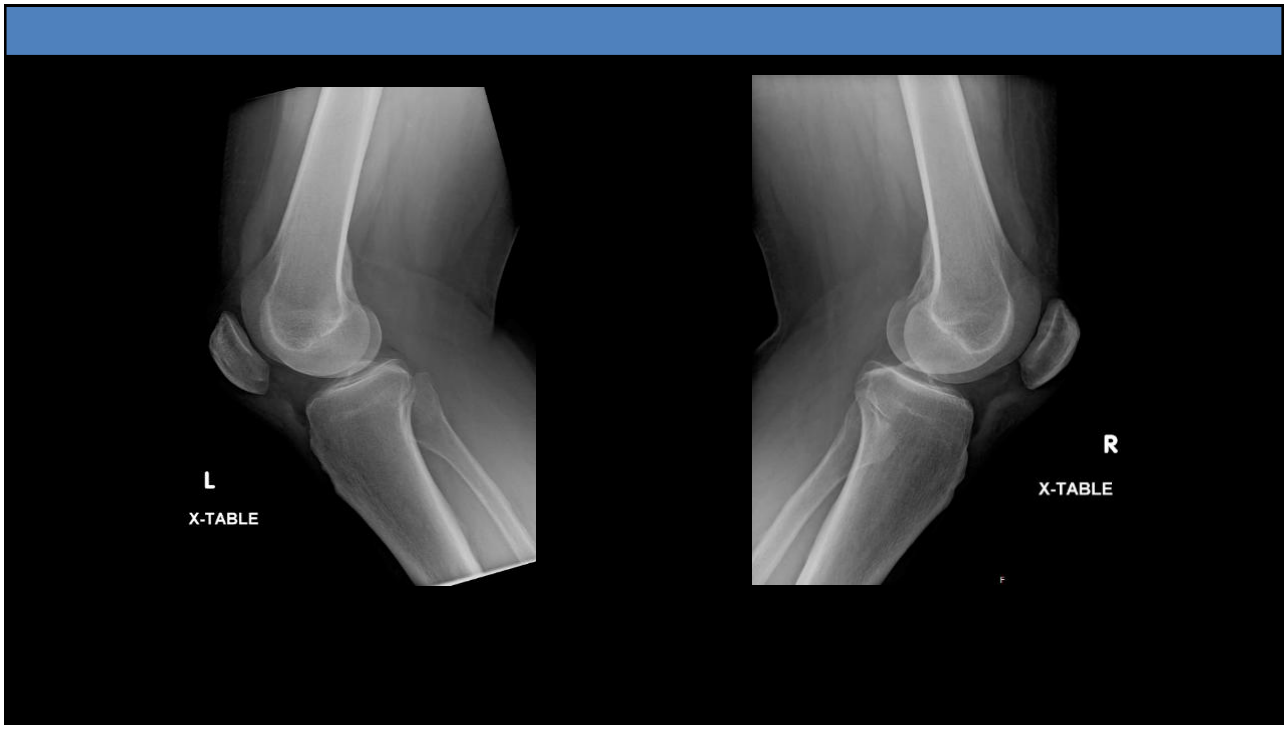
He will be admitted to hospital. He will benefit from pain control, and for now we will give low-dose Tylenol, and subsequently may give Dilaudid on a as needed basis prior to mobilization.

Current Issues, Assessment and Plan
Ordered:
Consult to Orthopedics
CT Knee Bilateral
PT Follow Up
PT Rehabilitation Assistant Assignment

‘Much More Is Missed By **Not Looking** Than By **Not Knowing**’

Bilateral knees:
Evidence of moderate knee effusions. There is a palpable gap over the superior aspect of the patella bilaterally. Consistent with a full-thickness quadriceps tendon tear. Extensor mechanism is completely disrupted bilaterally as he is unable to do a straight leg raise bilaterally.
Neurovascular intact in both lower extremities. Knees are stable to varus valgus stresses. Hip and ankle examination is unremarkable.

46



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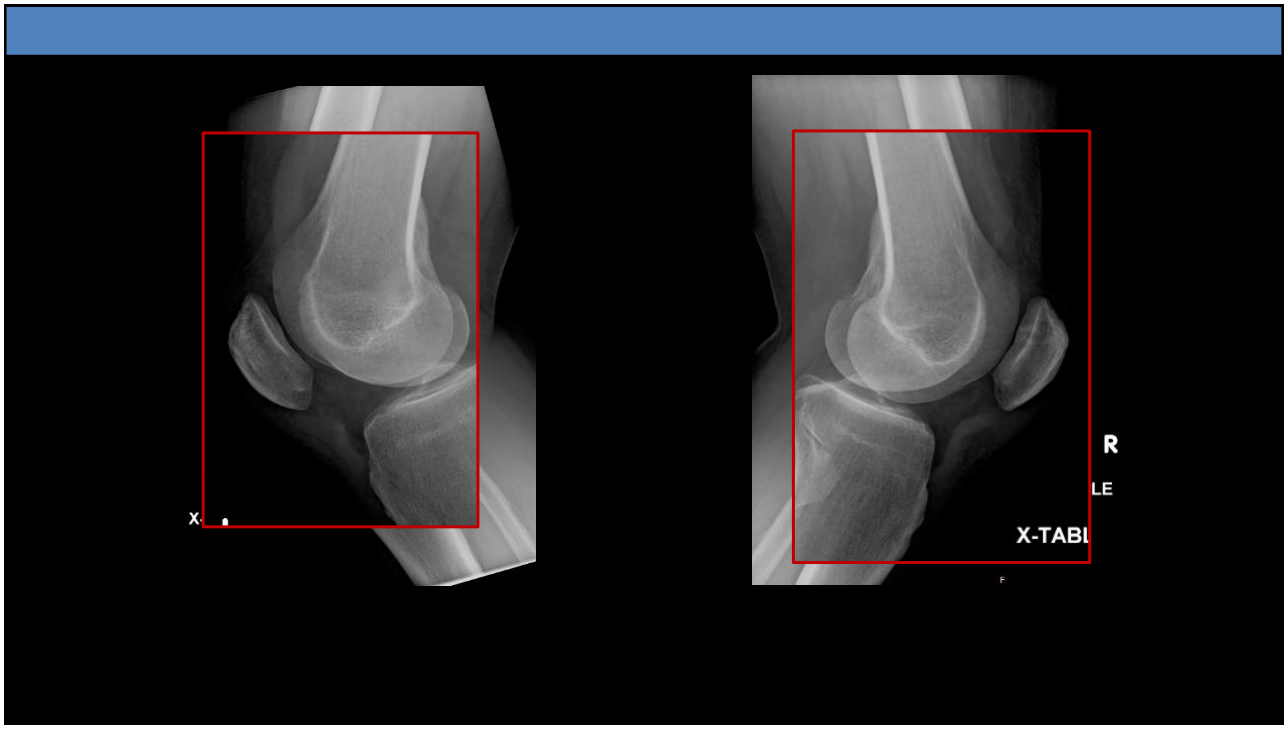

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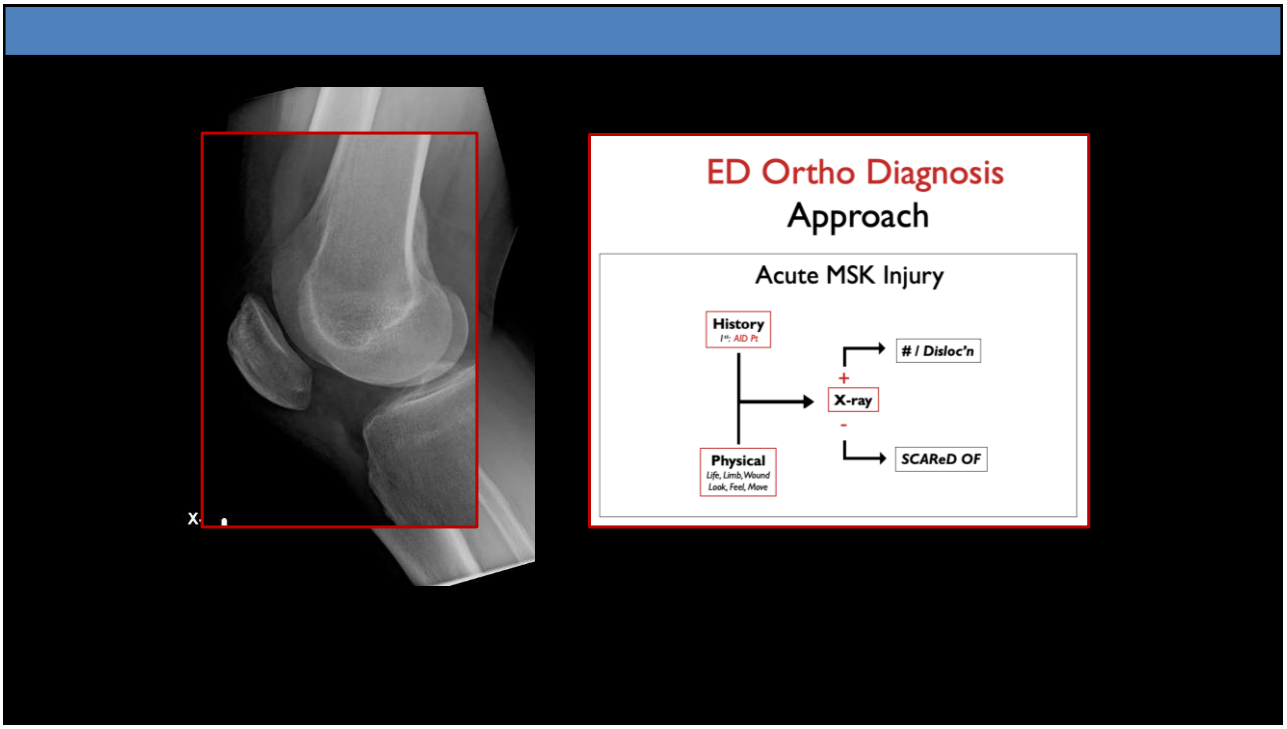
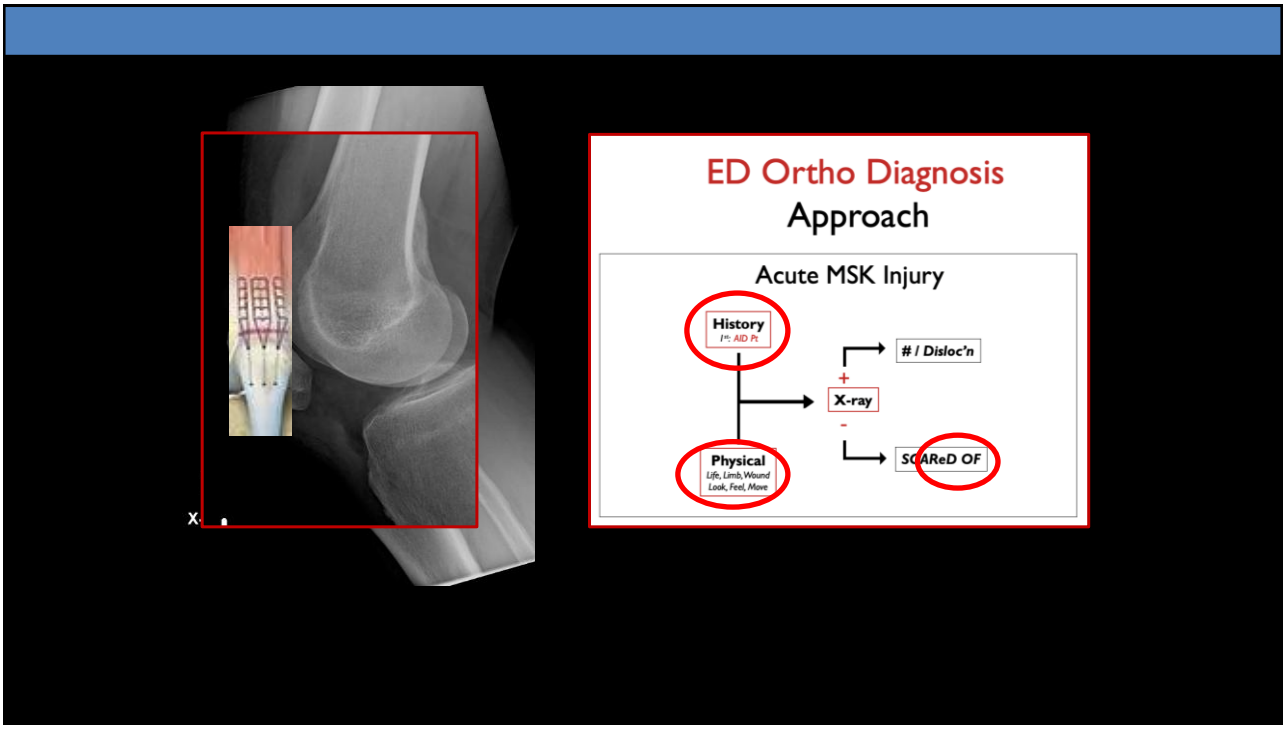

ED Ortho Diagnosis
Approach
Acute MSK Injury
History
1st: AID Pt
/ Disloc'n
+
X-ray
-
Physical
Life, Limb, Wound
Look, Feel, Move
SCAReD OF

49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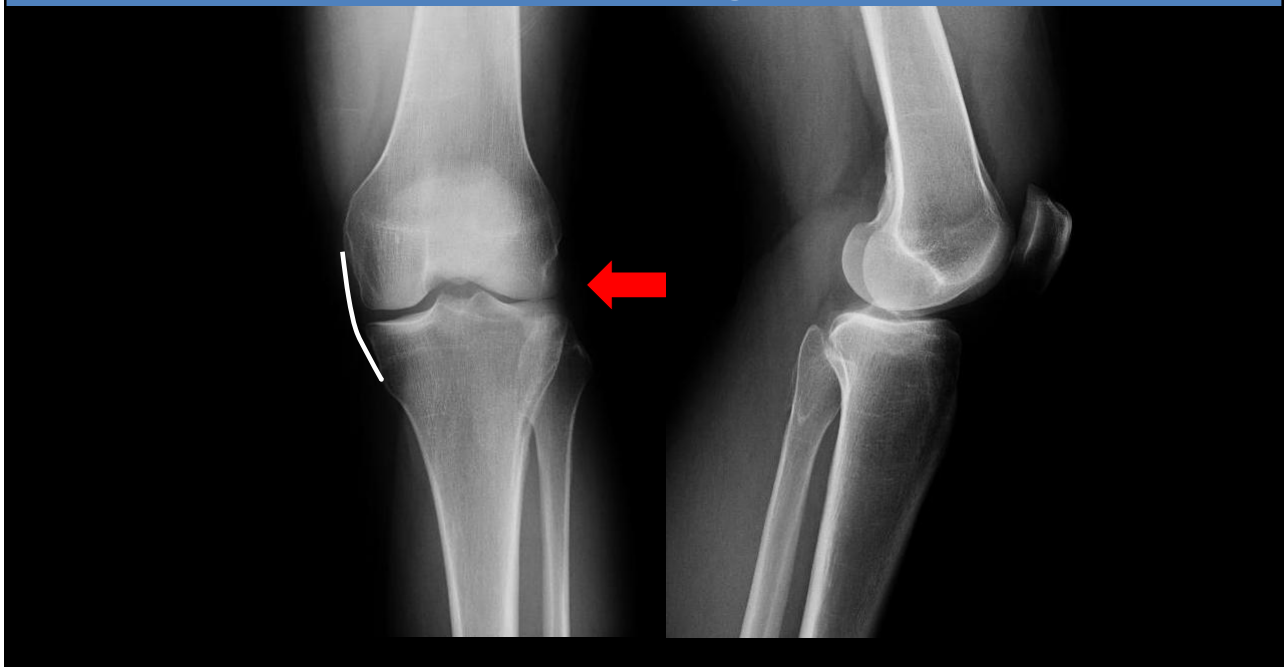
SCAReD OF

50

38F – Soccer Valgus Stress



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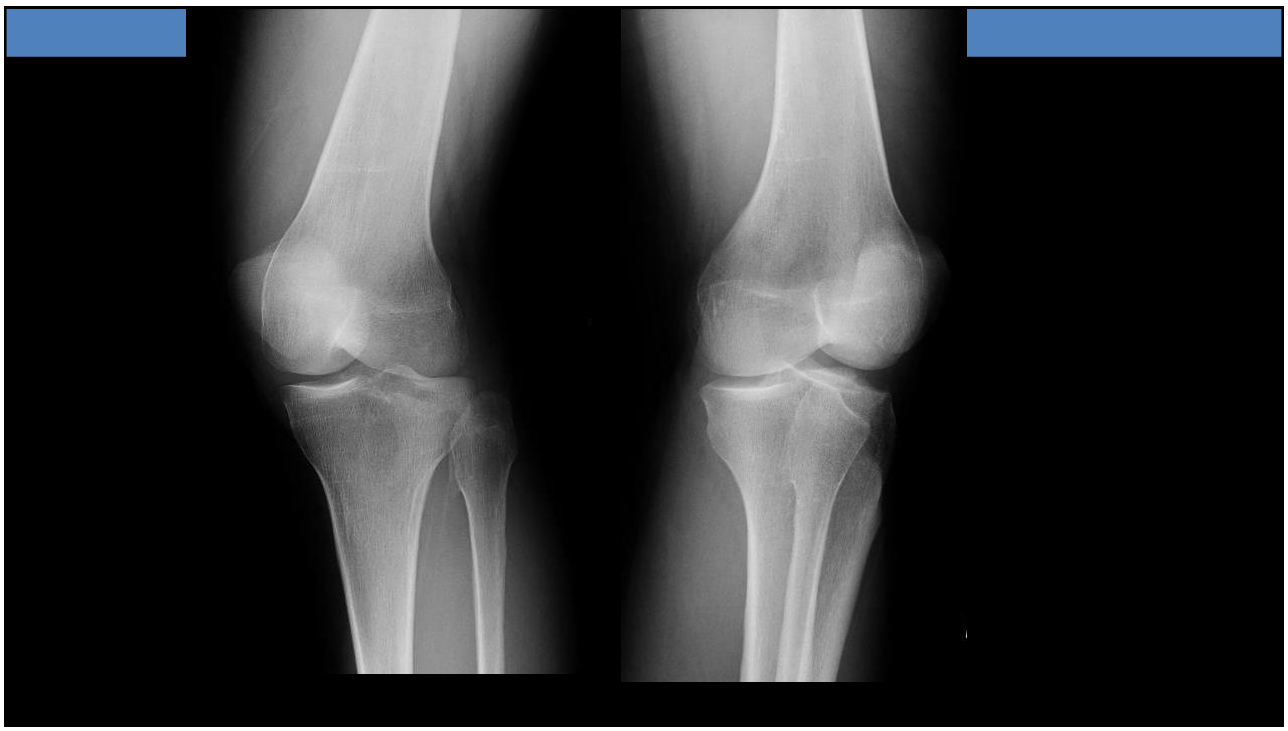

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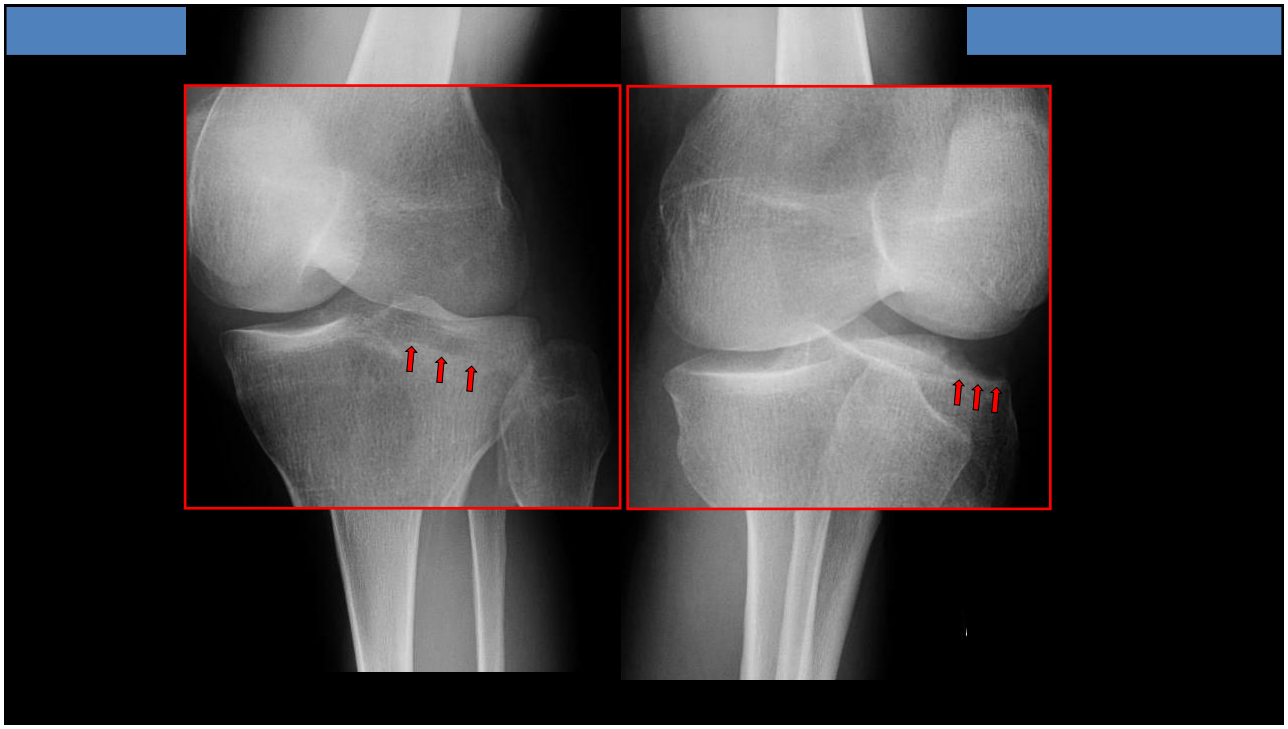

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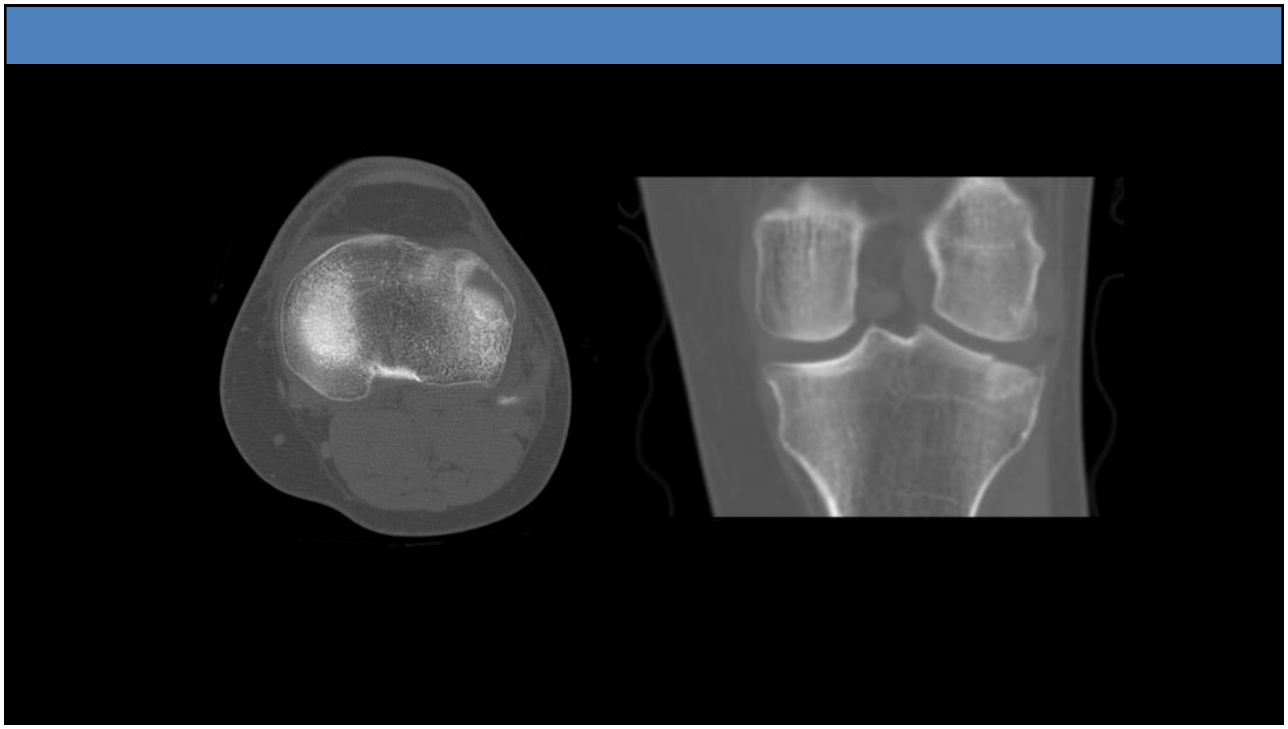

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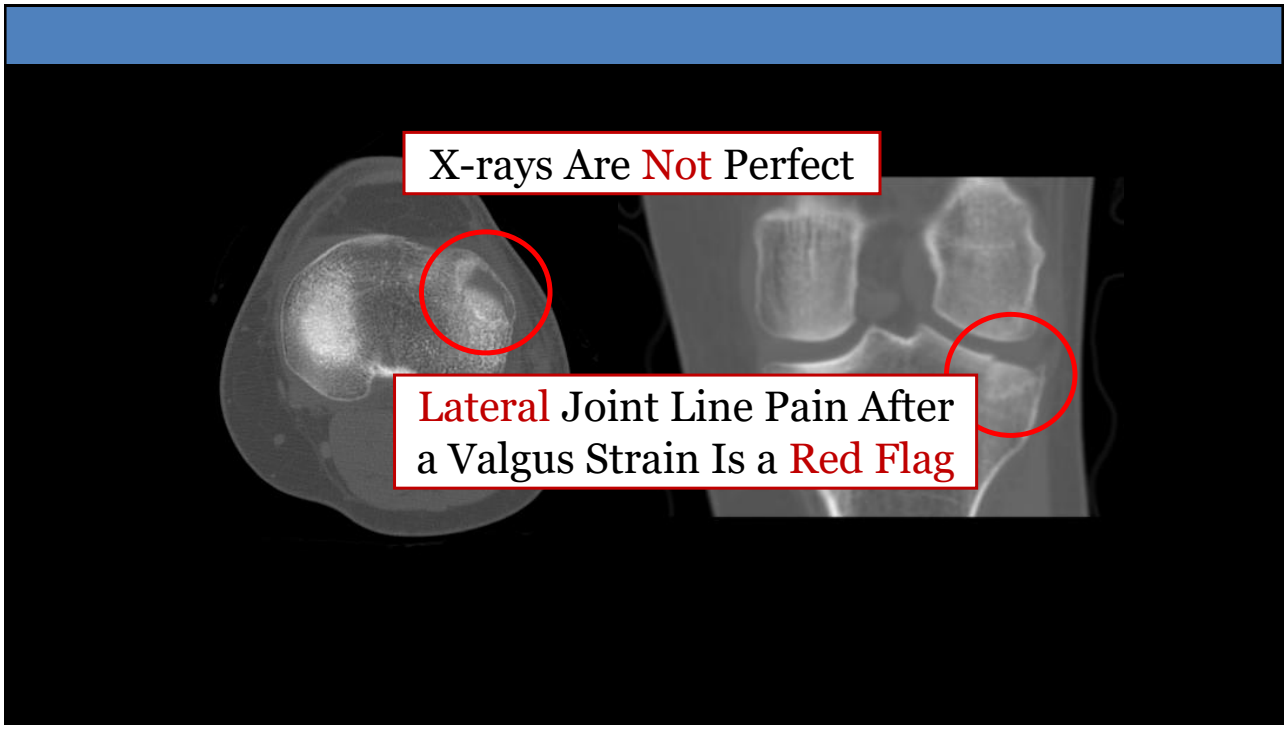
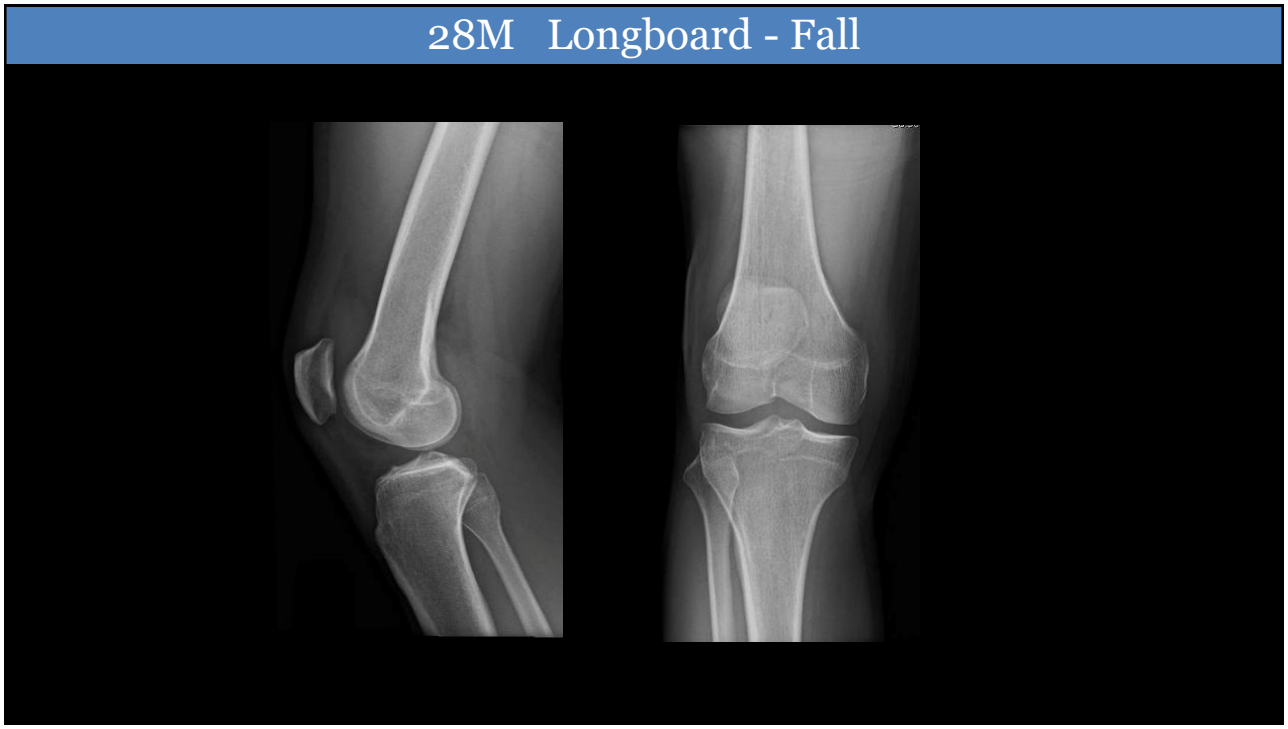
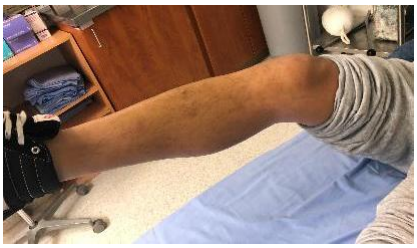

X-rays Are Not Perfect
Lateral Joint Line Pain After a Valgus Strain Is a Red Flag

55


28M Longboard - Fall

56

28M
Day 12



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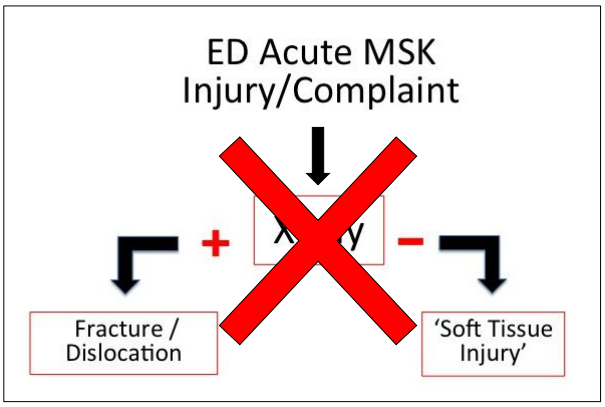
Typical **ED Ortho**

Algorithm



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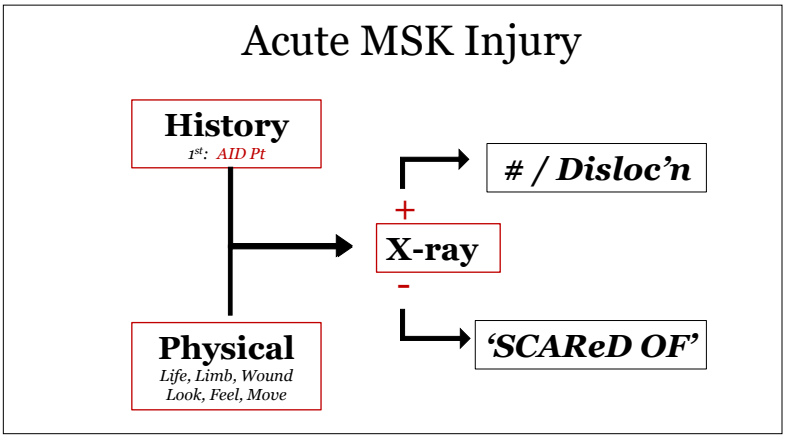
ED Ortho Diagnostic

Approach



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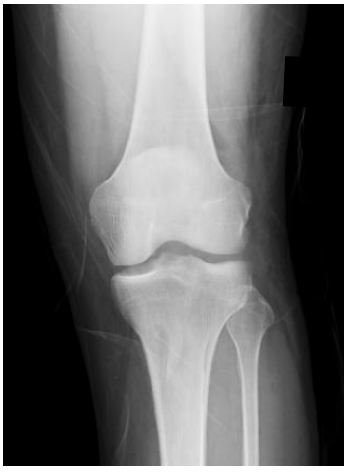
MSK Diagnostic Tools

- **History**
- **Physical**



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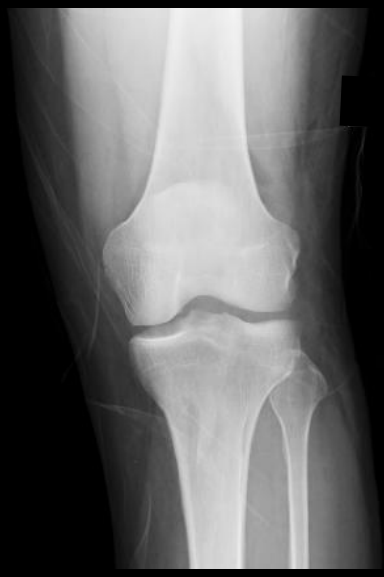
7 (or 8) Diagnoses Before Writing '**STI Knee**'



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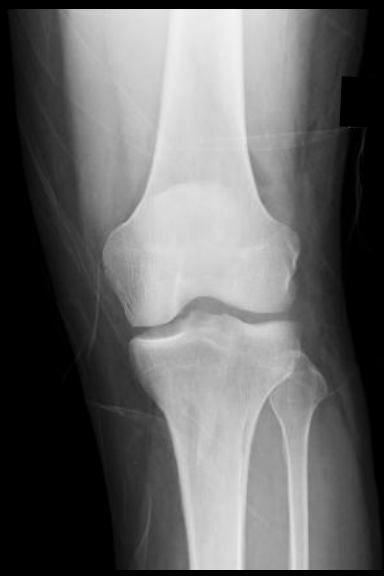
Straight Leg Raise Can Detect Elusive Findings



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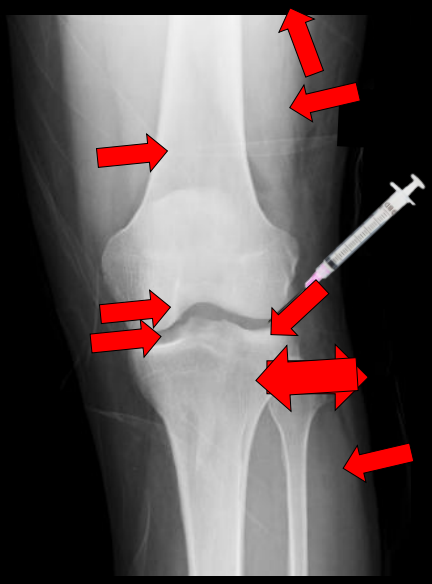
Straight Leg Raise Can Detect Elusive Findings

Septic knee
Locked knee
Referred from hip

Compartment syndrome
Dislocation
Extensor Mech (Pat / Quads Tear)
Fracture



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8 Things to Consider Before Writing *'Soft Tissue Injury Knee'*

'Straight Leg Raise Can Detect Elusive Findings'

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