

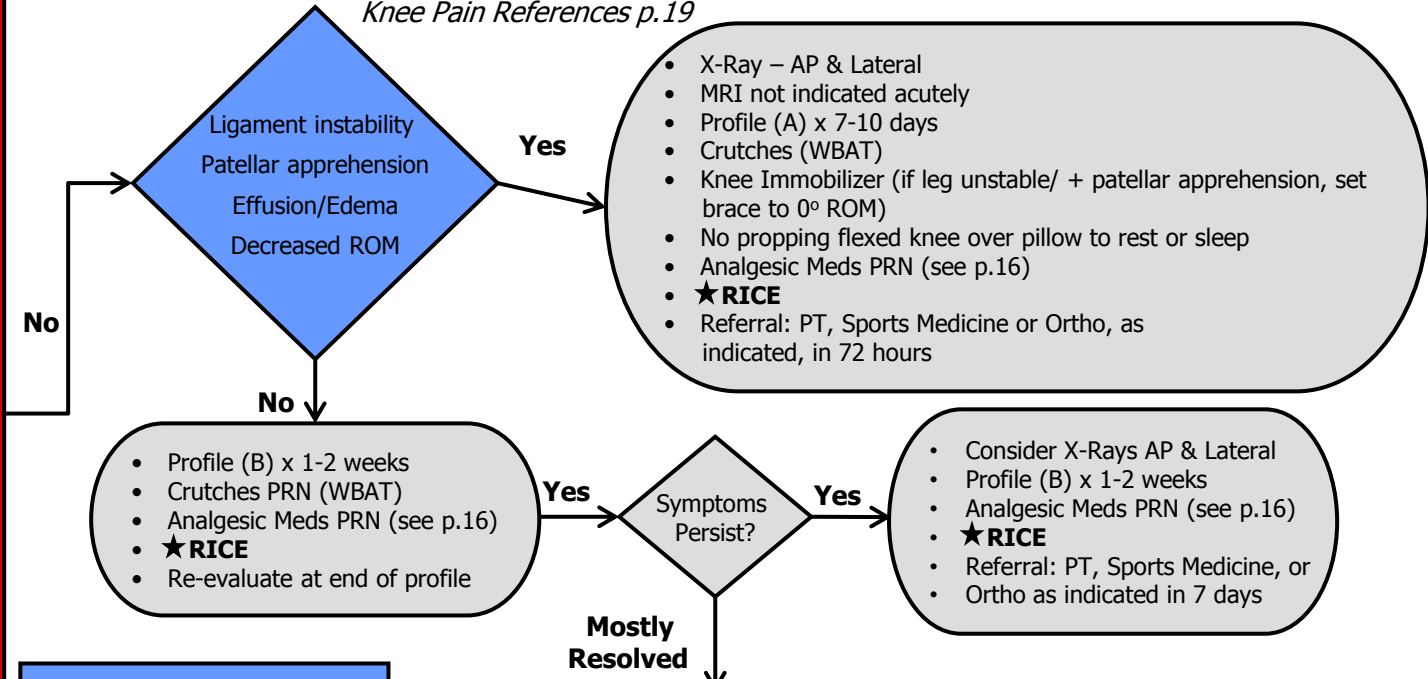
Patient Reports With Traumatic/Acute Knee Pain

# Screening and Referral Tools (SRTs) TRAUMATIC and ACUTE KNEE PAIN

*Knee Pain References p.19*

## RED FLAGS

- Fracture**
  - \*\*Ottawa Knee Rules apply
  - Deformity
- ACL Rupture / Int Derangement**
  - Locked knee (ROM < 10 -90 degrees)
  - Tense effusion onset < 4 hours
- Patellar – Quad Tendon Rupture**
  - Inability to perform straight leg raise
  - Infra/suprapatellar pain
  - Palpable defect
  - Inability to maintain full active knee EXT
- Neurovascular Injury**
  - Knee dislocation (NV injury or fracture)
  - Altered circulation or temperature
  - Altered motor or sensory exam
  - Hard/Soft Signs for Vascular Injury (see p.16)
- Infection, Septic Joint, or Crystal-Induced Arthropathy**
  - Acute pain with fever
  - History of recent infection anywhere
  - Pain with loading or inability to bear weight
  - Signs or symptoms of septic or crystal-induced arthritis: acute joint swelling, pain, erythema, warmth, joint immobility (see p.15 for details)
  - Exudate with/without constitutional sx
- \*Imaging**
  - If you have a high index of suspicion for fracture, order films regardless of Red Flags



**Yes**

**Perform Ankle –Brachial Index (ABI)**  
**X-Ray – A/P & Lateral**  
**Call Ortho TODAY: discuss management**

- ### SPECIAL TESTS EXAM
- Ligament Instability**
    - (+) Lachmans (ACL)
    - (+) Post Drawer (PCL)
    - (+) Valgus Stress 0/30 (MCL)
    - (+) Varus Stress 0/30 (LCL)
  - Patella Dislocation**
    - (+) Patellar Apprehension
  - Meniscal Tear**
    - (+) Thessaly's Test
    - (+) Joint Line Tenderness Test
    - (+) McMurray's Test
    - (+) Apley's Test

- ### \*\*OTTAWA KNEE RULES
- (Guide to X-Rays after trauma in adults)
- Age over 55 years
  - Tenderness at head of fibula (if present, order A/P, lateral of tibia / fibula in addition to knee A/P, lateral views)
  - Isolated tenderness of patella
  - Inability to flex > 90 degrees
  - Inability to walk four steps immediately after injury AND in ED

- ### ★RICE
- Relative rest** as designated on profile
  - Ice** compress 2-3 times daily for 20 minutes
  - Compression** by use of elastic bandage
  - Elevation** of affected joint above heart during periods of rest

- ### PROFILES
- Sample severe (A) and moderate (B) knee injury profiles on eProfile.
- (A) Severe knee injury examples:
- Fracture
  - Ligamentous instability
  - Patellar dislocation
  - Neurovascular compromise
- (B) Moderate knee injury examples:
- Pain throughout the range of motion or pain that limits motion
  - Decreased quad/hamstring strength
- Minimal knee injury example:
- Pain at end range of movement without decreased knee motion or quad/hamstring strength

# Screening and Referral Tools (SRTs)

## TRAUMATIC and ACUTE KNEE PAIN TESTS

|                         | TEST                                     | PROCEDURE   | (+) SIGN  | SN/SP  |
|-------------------------|--|---|---|--|
| Ligamentous Instability | <b>Lachman Test</b>                      | Tests for ACL insufficiency. With the patient supine and the tested knee flexed to 0-30°, the examiner stands on the side of the tested knee and stabilizes the femur with one hand. The examiner applies a quick anterior translation of the tibia on the femur using the free hand. The force should be applied from the posteromedial aspect of the proximal tibia.  | A soft or “mushy” end feel.   | SN = .85<br>SP = .94 <sup>1-3</sup>  |
|                         | <b>Posterior Drawer Test</b>             | Tests for PCL insufficiency. With the patient supine, the tested knee flexed to 90 degrees and the hip flexed to 45 degrees, the examiner stabilizes the tested side with his or her body by sitting on the patient’s forefoot. The examiner then uses both hands to grasp the proximal leg, fingers behind the leg and thumbs at the tibial tuberosity. From this position the examiner applies a posterior force to assess translation of the tibia on the femur.                           | The test is positive if the tibia moves posteriorly excessively (when compared to the other side).  | SN = .90<br>SP = .99 <sup>4,5</sup>  |
|                         | <b>Varus Stress Test at 0° and 30°</b>   | Tests for LCL injury. Patient supine. The examiner stabilizes the leg and ankle, holding the patient’s leg between the examiner’s arm and torso, placing both hands at the knee, fingers on the lateral joint line. The examiner applies a varus force to the knee and appreciates the amount of gapping at the lateral joint line. Perform at 0° and 30° flexion.  | Excessive gapping at the lateral joint line when compared to the other side.<br>(+) at 0° = PCL & LCL involvement<br>(+) at 30° = LCL involvement                             | Data not available   |
|                         | <b>Valgus Stress Test at 0° and 30°</b>  | Tests for MCL injury. Patient supine. The examiner stabilizes the leg and ankle, holding the patient’s leg between the examiner’s arm and torso, placing both hands at the knee, fingers on the medial joint line. The examiner applies a valgus force to the knee and appreciates the amount of gapping at the medial joint line. The test is first performed at 0°, then at 30° knee flexion.   | Excessive gapping at the medial joint line when compared to the other side. (+) at 0° = PCL and MCL involvement<br>(+) at 30° = MCL involvement                               | <u>At 0°</u><br>SN = .78<br>SP = .67<br><u>At 30°</u><br>SN = .91<br>SP = .49 <sup>1,2,6,7</sup> |
|                         | <b>Pivot-Shift Test</b>                  | Defer this test to an orthopedist unless time permits. Tests for ACL insufficiency and anterolateral rotary instability. With the patient supine and both knees extended, the examiner picks up the ankle of the tested knee, applying a force with the ipsilateral / distal hand to internally rotate the tibia and flex the knee while the contralateral / proximal hand applies a valgus force on the lateral side of the proximal tibia.  | A sudden reduction of the anteriorly subluxed tibial plateau caused by the IT band as the knee is moved into flexion.   | SN = .18-.48<br>SP = .97-.99 <sup>3, 13</sup>  |
|                         | <b>Dial Test</b>                         | Defer this test to an orthopedist unless time permits. Tests for PCL insufficiency and posterolateral corner (PLC) injury. With the patient prone, the examiner holds the patient’s feet to flex the patient’s knees to 30 degrees. The examiner then externally rotates the tibia through the foot on both sides to observe the amount of external rotation. The examiner repeats the process by flexing the patient’s knees to 90 degrees, then externally rotating through the feet again. | A side to side difference of more than 10-15° (greater on the affected side):<br>At 30°: Indicates an injury to the PLC<br>At 90° indicates an injury to the PCL              | Data not available   |
| Patellar Subluxation    | <b>Moving Patellar Apprehension Test</b> | Detects patellar instability or subluxation. With the patient supine and the knee fully extended with the leg off the edge of the table, the examiner holds the patella in a lateral glide position while moving the knee into 90° of flexion and back to the start position. The test is repeated with the patella held in medial glide.   | Patient shows apprehension with lateral glide but not medial glide- either through concern about the patella dislocating or by contracting the quad to stabilize the patella. | SN = 1.00<br>SP = .88 <sup>6,8</sup>   |
| Meniscal Tear           | <b>Thessaly’s Test</b>                   | Tests for meniscal tear. With the patient standing on the tested leg, the knee flexed to 20°, and holding the examiner’s hands for balance, the patient rotates the body and leg medially and laterally.  | Pain or click at the joint line.  | SN = .63-.76<br>SP = .96-.98 <sup>6,9,10</sup>   |
|                         | <b>Joint Line Tenderness</b>             | Tests for meniscal tear. With the patient’s knee flexed to 90°, the examiner palpates the medial and lateral joint lines.   | Joint line tenderness.  | SN = .63-.76<br>SP = .77 <sup>6,11,12</sup>  |
|                         | <b>McMurray’s Test</b>                   | Tests for a meniscal tear. With the patient supine, the examiner grasps the heel with one hand and places the other hand with the fingers on the joint line. The examiner fully flexes the knee, then internally rotates the tibia while fully extending the knee. Repeat with the tibia externally rotated.  | Click or joint line pain.   | SN = .55-.71<br>SP = .71-.77 <sup>1,2,6,11,12</sup>  |
|                         | <b>Apley’s Compression Test</b>          | Tests for a meniscal tear. With the patient prone and the tested knee flexed to 90°, the examiner stabilizes the patient’s thigh with his/her knee. The examiner then compresses the joint by applying force through the foot, then rotates the tibia medially and laterally.   | Pain at the joint line.   | SN = .22-.61<br>SP = .70-.88 <sup>1,2,6,11,12</sup>  |