**EVALUATION OF THE KNEE IN THE EMERGENCY DEPARTMENT SUMMARY HANDOUT**

**Anatomy**

* Bones: femur, tibia, fibula, patella
* Ligaments: ACL, PCL, MCL, LCL
* Cartilage: medial and lateral meniscus
* Tendons: patellar, quadriceps

**Radiographs**

* Use the Ottawa Knee Rule to determine the need for x-rays in acute knee injuries
* AP and lateral x-rays are standard. Obtain a sunrise view if pain is present over the patella.

**Physical exam**

* Inspection
* Palpation
* Range of motion
* Special tests
* Neurovascular exam

[Link to ACEP Sports Medicine Section physical exam demonstration videos](https://www.acep.org/how-we-serve/sections/sports-medicine/musculoskeletal-exam-series/)

**Pathological conditions**

* Baker’s cyst
  + Pain/swelling in the posterior knee
  + Easily evaluated with ultrasound
  + Treatment is conservative
* Knee dislocation
  + High energy mechanism
  + Spontaneous reduction is common
  + Multidirectional instability
  + Popliteal artery injury is common
* Patella dislocation
  + Clinical diagnosis
  + Medial patellar facet and lateral femoral condyle fractures can occur
  + Immobilize knee after reduction
* Ligament tear (ALC, MCL, LCL)
  + Sensation of popping at the time of injury suggests ligamentous injury
  + Obtain x-rays based on Ottawa knee rules
  + Clinically diagnosed by examination
  + Consider a knee brace, knee immobilization is generally not indicated for single ligament injuries
  + Terrible triad – ACL, MCL, medial meniscus tear
* Meniscus tear
  + History of locking episodes suggests a meniscal tear
  + Joint line tenderness may be present
  + Consider protected weight bearing and offloading with crutches for acute tears
* Osgood-Schlatter disease
  + Apophysitis of tibial tubercle commonly seen in 10-15y/o
  + Imaging not typically needed
  + Disease is self-limited
  + Treatment is rest, activity modification, NSAIDs
* Osteochondritis dissecans
  + Subchondral injury
  + Occurs in adolescents
  + Often seen in medial femur
* Patella fracture
  + Focal patellar tenderness, swelling, effusion
  + Check integrity of knee extensor mechanism
  + Obtain AP, lateral and sunrise x-ray views
* Quadriceps and patellar tendon ruptures
  + Sudden “pop” or tearing
  + Inability or difficulty extending the knee
  + Tendon separation can be visualized on ultrasound
  + X-ray may show a high or low riding patella
* Septic joint
  + Always consider in acute, non-traumatic joint pain
  + Diagnostics include arthrocentesis with synovial fluid analysis, ESR, CRP
* Tibial plateau fracture
  + Concurrent ligament injuries and compartment syndrome can occur
  + Consider CT or MRI if x-rays are negative and clinical suspicion is high
  + Patients should be non-weightbearing in a knee immobilizer
* Traumatic arthrotomy
  + Must exclude diagnosis when lacerations and penetrating injuries are near a joint
  + Saline load test is the generally accepted practice, but CT is commonly used
  + The use of methylene blue is not recommended