**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