



Knee Examination

Video. (Was done by the department)

Objective:

To be able to perform examination of the knee and to distinguish and identify an abnormal finding that suggests a pathology.

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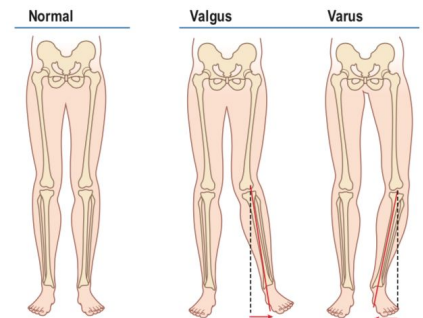
Edited & Revised By: Adel Al Shihri & Moath Baeshen.

References: Department handout, Notes (by moath baeshen), Browse's, 433 OSCE Team.

Look

❖ Standing:

- Expose both lower limbs from mid-thigh down.
- Comment on knee alignment while standing (varus/valgus /or neutral) and whether physiological or pathological).
- Look for abnormal motion of the knees while walking.
- Look for ankle and foot alignment and position.
- Gait.



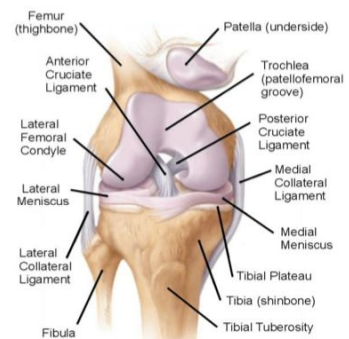
❖ Supine

- Alignment (physiological valgus, abnormal valgus, varus)
- Skin changes
- Varicose veins
- Swelling
- Muscle wasting (quadriceps) (Should be measured by a measuring tape guess)
- **Inspect the back of the knee.** (Baker's cyst)

Feel

1. **Before touching the patient ask if he has any pain**
2. **Always compare to the other side**

- ❖ Check and compare temperature
- ❖ Feel for any lumps or bumps in the soft tissue or bone around the knee – comment if present
 - **Baker's cyst (in popliteal fossa)**
- ❖ **Identify bony landmarks** (femoral and tibial condyles, tuberosity, proximal fibula, patella and comment if tender) (Best done with the knees flexed. Keep looking at the patient's face.) (Tenderness over the tibial tuberosity may indicate Osgood–Schlatter disease)
- ❖ Identify course of collateral ligaments and comment if tender
- ❖ Identify joint line in flexion of 80 - 90 degrees and comment if tender (Joint line tenderness = meniscus injury) (Identify the quadriceps tendon checking for a gap)



- ❖ You should know surface anatomy to localize the site of abnormality, in the exam the SP may points to an area that hurts, you should be able to identify it.

Move

- ❖ **Flexion and Extension:** Do active R.O.M and compare, normally from -5° to calf touching thigh (normal ROM from -5° to 140°)
 - **Passive ROM if active is abnormal.** [Video.](#)
 (There is variation in the degree of extension, usually it's zero)
- ❖ Comment on pain or crepitus with movement
- ❖ You should be able to approximately describe ROM in degrees (**varies in normal individuals, Full extension is 0° , flexion of 135° and above consider normal**)
- ❖ ROM is measured using **Goniometer**



Fig. 8.17 Testing knee flexion.



Fig. 8.18 Testing knee extension.

Special tests:

★ Tests for effusion:

- **Milking test:** in **extension** milk the knee medially upwards to fill the suprapatellar pouch and hold fluid in pouch with one hand then run other hand laterally downwards and look for filling medially (moderate effusion)
- **Patellar tap:** in extension tap the patella downward and feel the patella bounce on the femur (large effusion)
- A warm knee can be suggestive of mild effusion.

○ [Video](#)



Fig. 8.15 The patellar tap test: squeeze any fluid out of the suprapatellar pouch using the right hand and then press down on the patella. A tap or click will indicate an effusion.

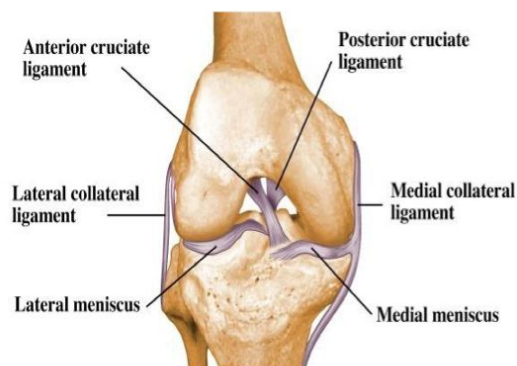


(a) Milking of fluid on the medial side of the knee. The fluid displacement test: compress one side of the knee and note the joint distending on the opposite side.



(b)

★ Examine the ligaments



Ligament:	Function:
Anterior cruciate ligament (ACL)	Prevents the tibia sliding forward on the femur
Posterior cruciate ligament (PCL)	Prevents the tibia from sliding backward on the femur
Medial collateral ligament (MCL)	Resists forces from the outside of the leg
Lateral collateral ligament (LCL)	Resists forces from the inner side of the knee

○ ACL

- **Lachman's test (Most sensitive).** [Video.](#)

Flex the knee to 30°, patient should be relaxed, place on hand medially distal to the knee and the thumb on tibial tuberosity. Place the other hand laterally proximal to the knee. Make sure the quadriceps are relaxed. then pull the tibia forward.



Fig. 8.23 The Lachman test for cruciate insufficiency.

- **Anterior Drawer Test.** [Video.](#)

Flex the knee to 90°, make sure the hamstrings are relaxed, and stabilize the foot by sitting on it. Place your fingers in popliteal fossa and thumbs on the tibial tuberosity pull the leg forward. Normal forward movement should not exceed 3 mm



Fig. 8.22 Anterior draw test (blue arrow) for the anterior cruciate ligament and posterior draw test (red arrow) for the posterior cruciate ligament.

○ PCL

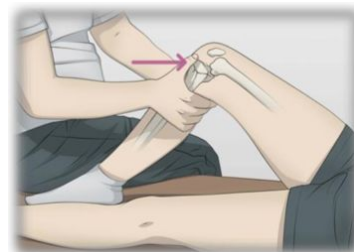
- **Posterior Drawer Test.** [Video.](#)

Position is same as the anterior drawer, but you push the leg back.

○ MCL

- **Valgus Stress Test.** [Video.](#)

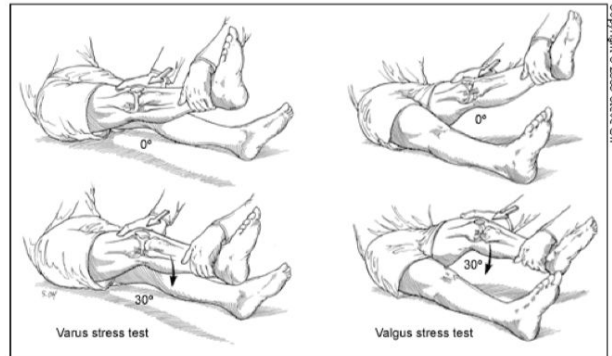
Flex the knee to 30°, then apply valgus force to the knee, if positive: **pain, +- opening**. Then repeat at extension (0°)



- **LCL**

- **Varus Stress Test**.[Video](#).

Flex the knee to 30°, then apply varus force to the knee, if positive: **pain, +- opening**. Then repeat at extension (0°)



	Increased valgus laxity	Increased varus laxity
In full extension	Damage to MCL and posteromedial capsule	Damage to LCL and posterolateral capsule
In flexion	Isolated damage to MCL with intact posteromedial capsule	Isolated damage to LCL with intact posterolateral capsule

★ **Patellar Instability**

- **Apprehension Test**.[Video](#).

- Start in extension with relaxed quadriceps, push patella laterally with one hand, and ask the patient to flex the knee to 30 degrees (actively), at any point if patient contracts his quadriceps aggressively or becomes apprehended stop and identify test as positive. (suggest lateral patellar dislocation)

(To assess for meniscal tear/injury, palpate the joint line while the knee is flexed 90°, tenderness indicates meniscal injury)

To complete the knee examination perform a neurovascular examination and examine the joint above hip) and joint below (ankle)

- Palpate distal pulses
- Quick screening that ankle and toes are moving up and down
- Quick screening for sensation in the foot.
- Comment if abnormal and compare to opposite side if abnormal