433 Teams

ORTHOPEDICS

OSCE

Knee Examination

***KSU Knee examination video**

https://youtu.be/fuj7icwc4Y8

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MED 433

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Knee Examination Learning Outcome:

By the end of the teaching session, Students should be able to identify normality and abnormality of the knee joint by performing a proper physical examination.

- ✓ Make sure to learn how to do the examination correctly because examiners focus on technique
- ✓ While you are examining , explain what you are doing

Overview

Look

- Abnormal gait
- Alignment
- Deformity
- Scars
- Muscle wasting
- Skin changes
- Swelling

Feel

- Temperature
- Bony or soft tissue tenderness
- Joint line tenderness

Move

- Test the joint's ROM both actively and passively
- Flexion and Extension

Don't forget :

Before starting :WIPE

At the end: Cover, thank the patient and say to complete the examination, I should examine joint above (hip) and joint below (ankle) and do neurovascular examination

1) WIPE

Wash your hands

Introduce your self

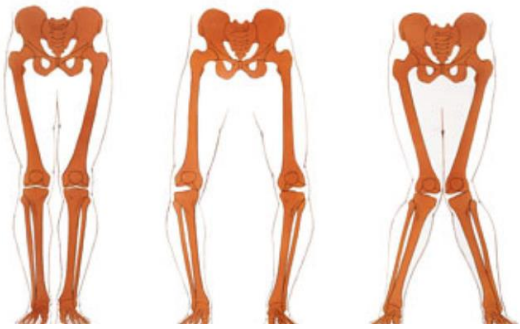
Position, and insure **p**rivacy

Explain and take consent, **E**xposure: both legs and knees to mid thigh (Ideally joint above and joint below)

2) Inspection:

- **First ask the patient to walk to observe for abnormal gait**
- **Then when the patient is standing , you look from anterior, lateral and posterior for:**

✓ Alignment, Deformity : Genu varum, Genu valgum



Normal **Varus** **Valgus**

Genu Varum	Genu Valgum
Distal part of tibia pointing medially	Distal part of tibia pointing laterally
The apex of the knee pointing medially	The apex of the knee pointing laterally

- **Then ask the patient to lie on the bed to allow further inspection , look for:**

✓ Scars

✓ Skin changes

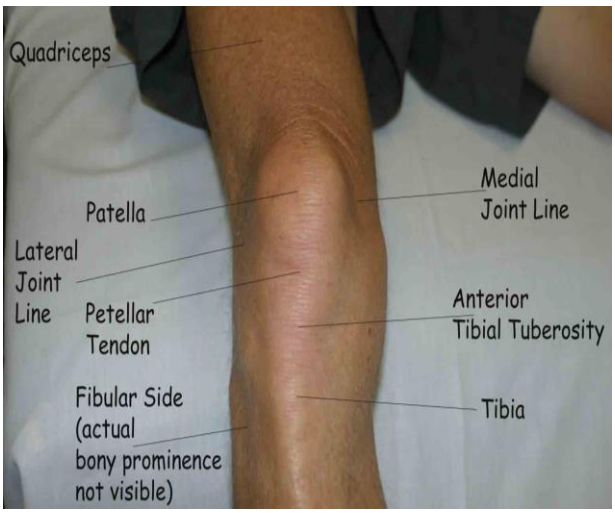
✓ Muscle wasting

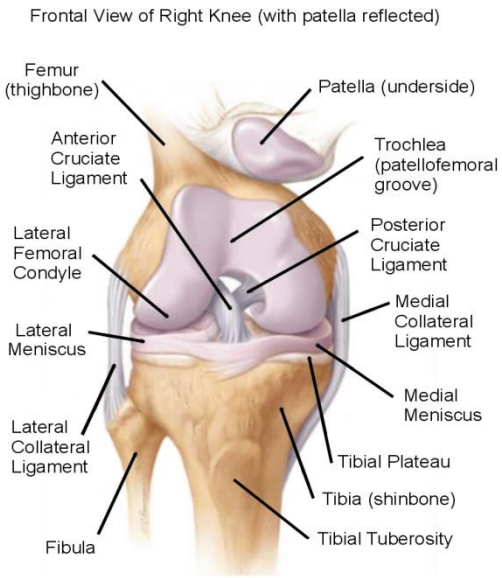
✓ Swelling

3) Palpate for;

- **Temperature,** using the back of your hands and comparing with the surrounding areas
- **Bony tenderness**

Tibial tuberosity⇨Patella ⇨lateral and medial femoral condyle ⇨Head of fibula





(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)

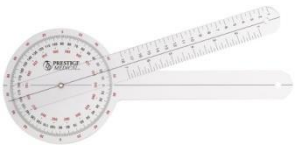
- **Soft tissue tenderness:** medial and lateral menisci , Quadriceps muscle and tendon**, <u>Patellar tendon</u>**, MCL,LCL
- **Joint line tenderness :** Identify joint line in flexion of 80-90 degrees and comment if tender (suggestive of arthritis or meniscal pathology)
- **Behind the knee (popliteal fossa) for any swelling** (e.g. Baker's cyst)

Remember:

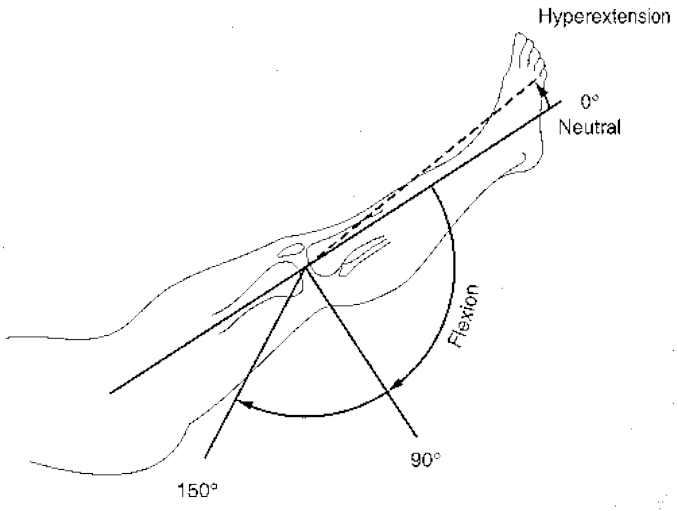
- ❑ Before touching the patient ask if he has any pain
- ❑ Always compare to the other side

3) Move

- ✓ Test the joint's range of motion (ROM) both actively and passively
- ✓ Flexion and Extension
- ✓ Do active R.O.M and compare, normally from -5 to calf touching thigh (normal ROM from -5 to 140 degrees)
- ✓ Passive ROM if abnormal
- ✓ 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 degree , flexion of 135 degrees and above consider normal)
- ✓ ROM is measured using Goniometer



If you know the 90 degree angle, you can estimate ROM in degrees



Do special tests:

1) Test for Knee effusion:

Milking test:

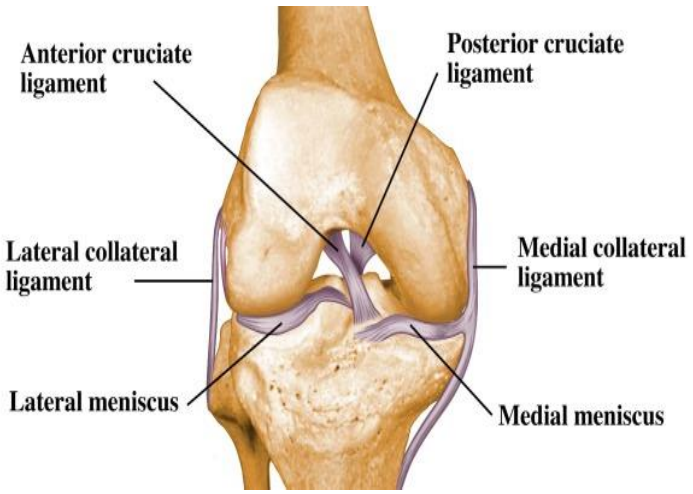
- In extension: milk the knee medially upwards to fill the suprapatellar pouch and hold fluid in pouch with one hand then run other hand laterally downwards and look for filling medially (For moderate effusion)

Patellar tap:

- In extension squeeze the suprapatellar pouch, then tap the patella with the other hand (For large effusion)

2) Examine the ligaments:

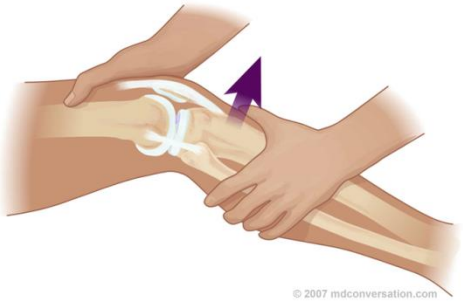
Ligament:	Function:
Anterior cruciate ligament (ACL)	Prevents the tibia sliding forward on the femur
Posterior cruciate ligament (PCL)	Prevents the tibia from sliding backward on the femur
Medial collateral ligament (MCL)	Resists forces from the outside of the leg
Lateral collateral ligament (LCL)	Resists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



- **ACL examination:**

  - ✓ **Lachman's test** (the most sensitive to test the integrity of ACL)

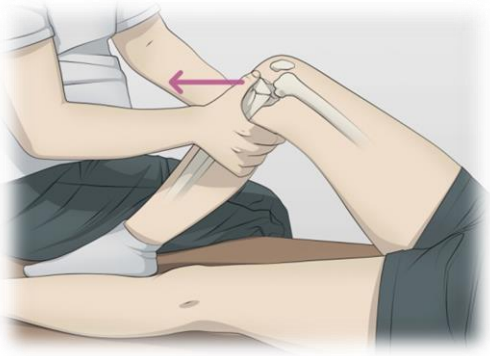
Flex the knee to 30 degrees patient should be relaxed, place on hand medially distal to the knee and the thumb on tibial tuberosity. Place the other hand laterally proximal to the knee. Make sure the quadriceps are relaxed . then pull the tibia forward.



An intact ACL prevents anterior movement

  - ✓ **Anterior Drawer test**

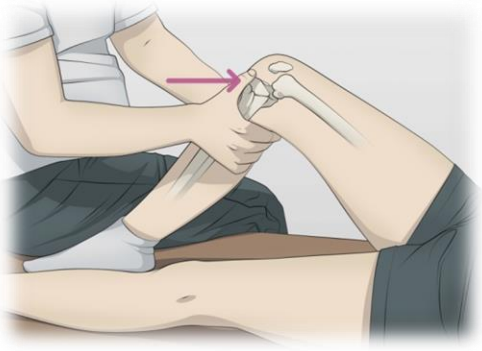
Flex the knee to 90 degrees, make sure the hamstrings are relaxed, and stabilize the foot by sitting on it. Place your fingers in popliteal fossa and thumbs on the tibial tuberosity pull the leg forward. Normal forward movement should not exceed 3 mm



- **PCL examination:**

  - ✓ **Posterior Drawer test**

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



o MCL examination

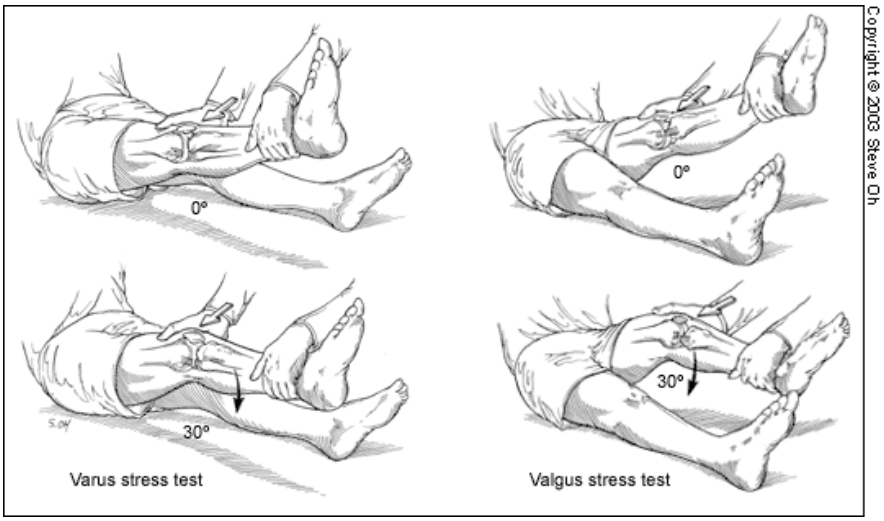
Valgus stress test /Flex the knee to 30 degrees, then apply valgus force to the knee, if positive ⇨ pain, +- opening

Then repeat in extension (0 degrees)

o LCL examination

Varus stress test / Flex the knee to 30 degrees, then apply varus force to the knee, if positive⇨pain, +- opening

Then repeat in extension (0 degrees)



	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

3) Patella instability

Apprehension test / 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 complete the knee examination perform a neurovascular examination and examine the joint above (hip) and joint below (ankle)**

Reference:

***Student's guide**

***http://www.osceskills.com/e-learning/subjects/knee-examination**

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