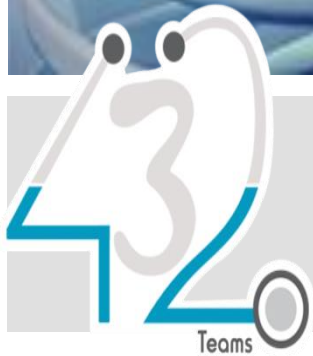


Orthopedics

OSCE - Knee Examination



Done By: Rawan AlTaleb (F1)

Team Leader: Khulood AlRaddadi (F1)

Khulood.AlRaddadi@gmail.com

جامعة
الملك سعود
King Saud University



Color Code:

Slides

431 team work

Sessions' Notes

Arabic Words

Team Notes

Books' notes

Important

Other Sources

Knee Examination

Objectives:

At the end of this you should be able to perform a good examination of the knee joint, to distinguish and identify an abnormal finding that suggests pathology.

General notes about knee:

It is a bicondylar type **synovial** joint, which mainly allows for **flexion and extension** (and a **small degree of medial and lateral rotation**). It is formed by articulations between the patella, femur and tibia.

Helpful videos:

- <https://www.youtube.com/watch?v=pT1ZHVbpsuw>
- <https://www.youtube.com/watch?v=wOplC9qMfrU>

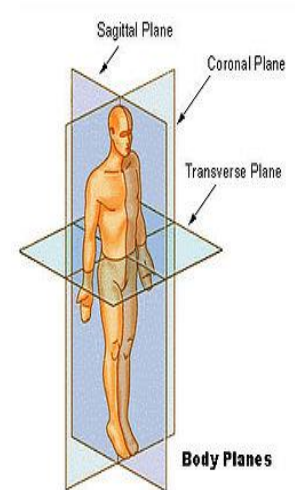


WIPE!

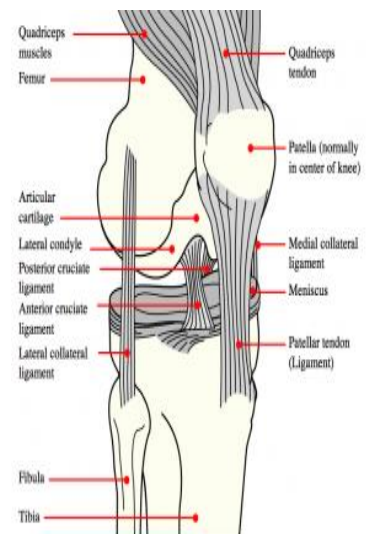
1. **W**ash hands
2. **I**ntroduction.
3. **P**ermission.
4. **P**rivacy.
5. **P**osition of the patient: standing (to describe deformity and walking) and supine position.
6. **E**xposure: both lower limbs from mid thighs down.

Look (Inspection):

- **Alignment** (Comment on knee alignment while standing (varus/valgus and physiological valgus) **varus can't be normal**.)
- **Asymmetry?**
- **Deformity:**
 - Coronal plane: varus and valgus deformities.
 - Sagittal plane: extension and flexion deformities.
 - Axial plane: rotational deformities (normally the resting position is external rotation).
- Muscle wasting (**look for quadriceps wasting**).
- Skin changes (scars, swelling).
- **Varicose veins**
- **Inspect the back of the knee (baker's cyst)**.
- Abnormal motion of the knees while walking and for ankle and foot alignment and position.
- Abnormal Gait (antalgic, waddling and trendelenberg).

**Feel (Palpate):**

- Temperature (remember! With the dorsum of your hand check and compare between the two limbs).
- Tenderness:
 - Bony tenderness (while the knee is flexed at 90 degree): palpate tibial tuberosity and femoral condyles (**proximal fibula, patella**) looking for any **tenderness**.
 - Soft tissues: palpate medial and lateral menisci, quadriceps tendon and patellar tendon, (**Identify course of collateral ligaments**) and comment if tender. (**you can't palpate the cruciate ligaments**)
 - Palpate behind the knee for baker's cyst.



*Identify joint line in flexion of 80-90 degree and comment if tender (Suggestive of arthritis or meniscal pathology).

Move:

ROM (**Range of motion**) both actively and passively:

- **Extension** (by the quadriceps femoris, which inserts into the tibial tuberosity)
- **Flexion** (by the hamstrings, gracilis, sartorius and popliteus)
- **Lateral rotation** (by the biceps femoris)
- **Medial rotation** (by five muscles; semimembranosus, semitendinosus, gracilis, sartorius and popliteus)

NB: Lateral and medial rotation can only occur when the knee is flexed.

- You should be able to approximately describe ROM **in degree**.

- Comment on pain and crepitus with movement.

- Active ROM and compare: Normally from -5 to calf touching thigh.
- Passive ROM **If abnormal**.

Special Test

- **Knee effusion:**

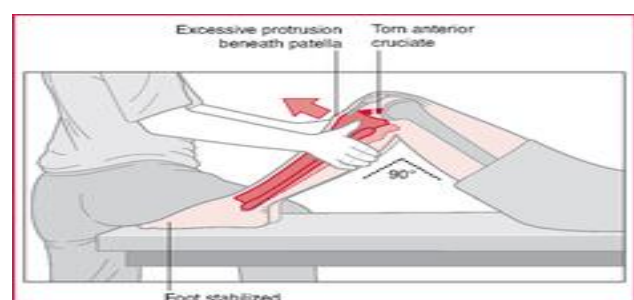
- **Milking Test** (for moderate effusion): In extension milk the knee medially upwards to fill the **suprapatellar pouch** and hold fluid in pouch with one hand then run other hand laterally downwards and look for filling medially.

- **Patellar tap:** (for large effusion) In extension tap the patella downward and feel the patella bounce on the femur (**empty the supra patella pouch by sliding your left hand down the thigh to the patella and keep your hand there and with the finger tip of your right hand press down and firmly over the patella**). If it is positive you don't need milking test.

*A warm knee can be suggestive of mild effusion.

- **Anterior cruciate ligament (ACL) examination:**

- **Anterior Drawer test:** At 90 degree.



- **Lachman's test:** At 30 degree.



<https://www.youtube.com/watch?v=gfN-p-xZx24>

- **Posterior cruciate ligament (PCL) examination:**

- **Posterior Drawer test:** At 90 degree.

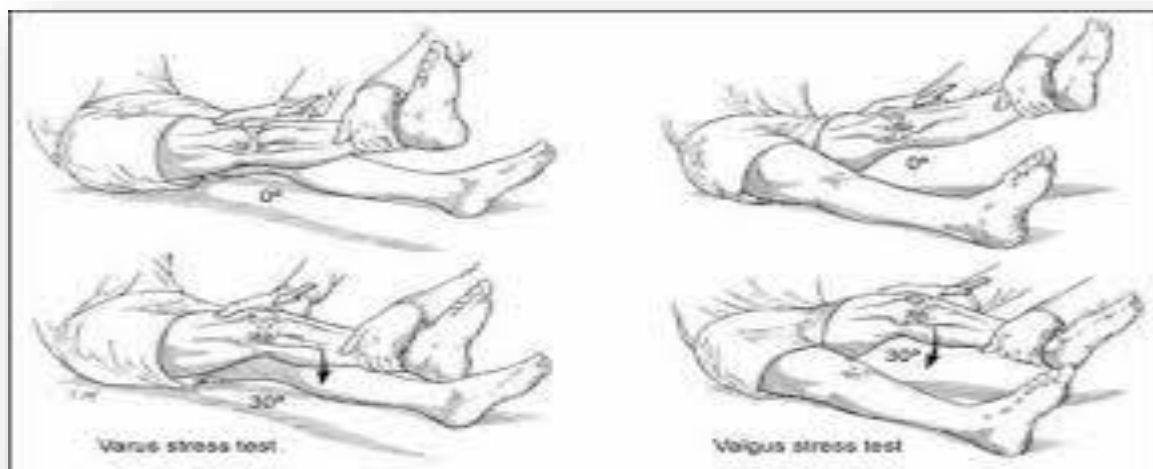


- **Medial collateral ligament (MCL) examination:**

- **Valgus stress test:** At 30 degrees for MCL if positive (pain+/- opening) then repeat in extension.

- **Lateral collateral ligament (LCL) examination:**

- **Varus stress test:** At 30 degrees for LCL if positive (pain+/- opening) then repeat in extension.



- **Patella instability (Apprehension test):**

Starts in extension with relaxed quadriceps, push patella laterally, then passively flex the knee to 30 degree, at any point if patient contracts his quadriceps aggressively or becomes apprehended stop and identify test as positive.

Joint above and below:

- Hip: can be a source of referred pain, so a quick screening while supine is required as follows:
 - Move hip to flexion passively to 90 degrees and internally/externally rotate and check for pain.
- Ankle: pathology may affect the knee, so a quick screening while supine is required as follows:
 - Move ankle passively in dorsal/plantar flexion and check for limitation and pain. Check subtalar motion and comment if abnormal.

Distal neuro-vascular examination:

- **Myotome** (Knee flexion= L5, S1/ Knee extension= L3, L4)
- **Dermatome** (L3, L4, L5).
 - 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

References:

- <http://teachmeanatomy.info/lower-limb/joints/the-knee-joint/>
- 431 team work.
- Student guide.
- Proof AlHarbi notes.
- Clinical skill knee examination list.