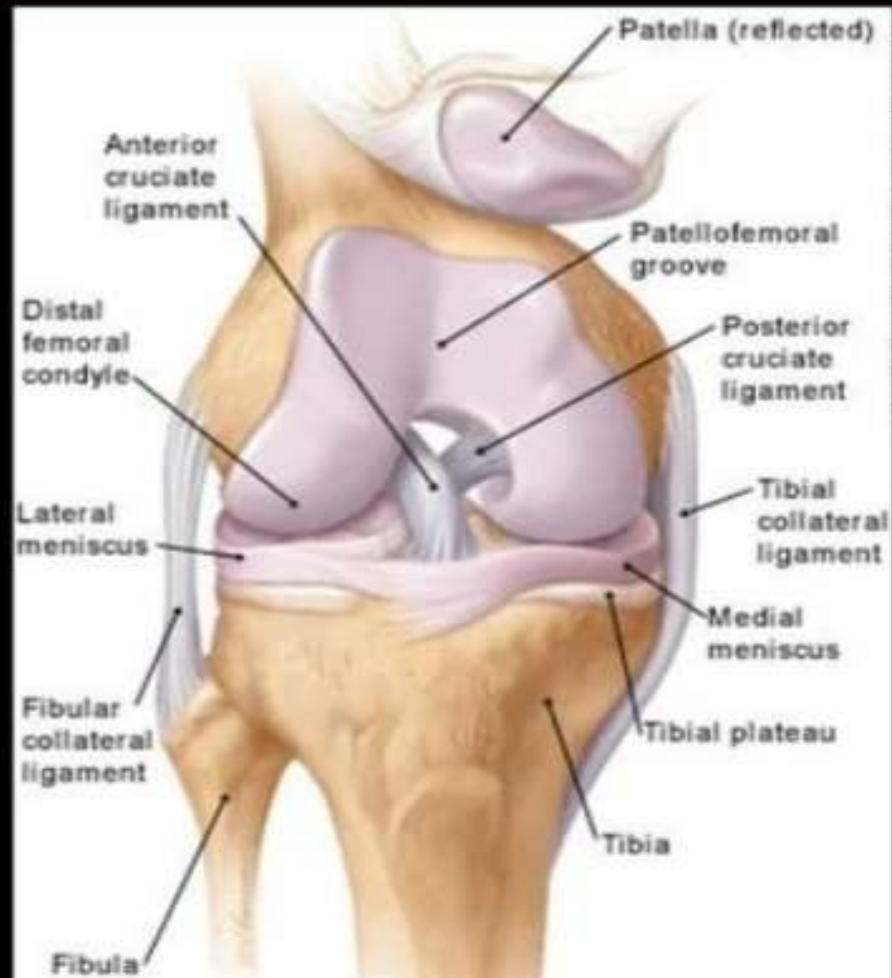
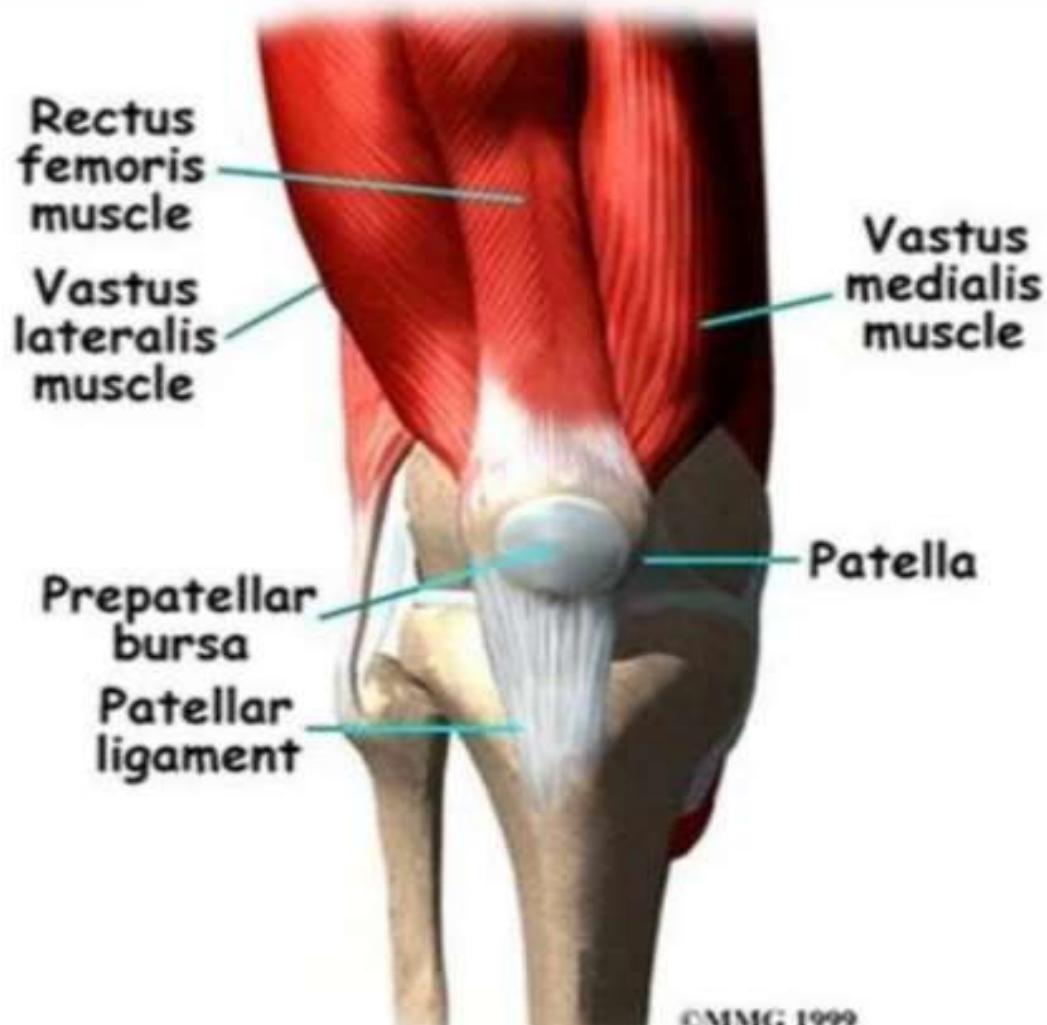


Knee examination

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Anatomy



CHIEF COMPLAINS

- Pain
- Swelling
- Stiffness
- Mechanical Disorders (locking, giving Way, click)
- Limp
- Deformity



Position

- Standing
- Sitting
- Supine
- Prone on examination table.



Inspection done while the patient is standing

Alignment

- Genu Valgus(knock-kneed)
- Genu Varus(bowlegged)
- Flexion deformity
- Genu recurvatum

- Shortening
- Baker's cyst
- Antalgic gait



Quadriceps

Patella

Medial Joint Line

Lateral Joint Line

Patellar Tendon

Anterior Tibial Tuberosity

Fibular Side (actual bony prominence not visible)

Tibia



Inspection done while supine

- Masses
- ❖ Bursae: **Housemaid's** (prepatellar bursitis), **clergyman's** (infrapatellar bursitis).
- ❖ Bony : Exostosis
- ❖ Tumor of femur / tibia
- Scars
- Lesions
- Signs of trauma/
previous surgery



- Swelling - effusion
- Redness
- Muscle bulk and symmetry (in particular atrophy of the **vastus medialis**)
- Displacement of the patella



Palpation / Feel

- Temperature change
- Tenderness:
 - *joint line tenderness* - done by flexing the knee and palpating the joint line with the thumb.
 - Tenderness of tibial tubercle / patellar tendon / quadriceps tendon.
- Effusion
- Patellofemoral crepitus
- Thickened synovial membrane- spongy/boggy feel, edge can be rolled
- Quadriceps and hamstrings power

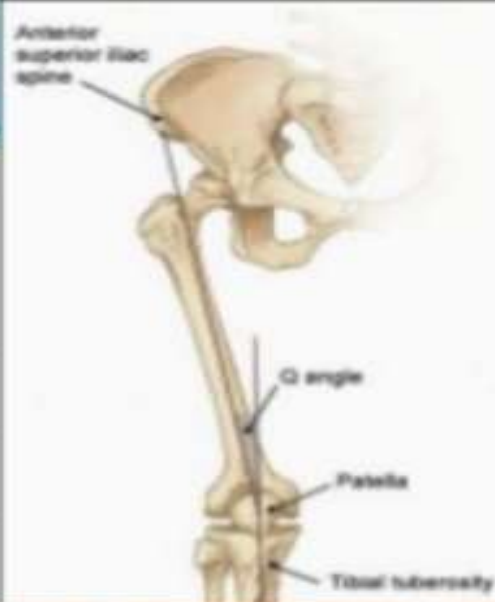
Effusion:

- **Fullness of para patellar tendon fossae in flexion**
- **Bulge sign:** useful for smaller effusions
- **Patellar tap:** useful for large effusions. Slide your hand down the patients thigh, pushing down over the suprapatellar pouch; on reaching the upper pole of the patella, keep your hand there and maintain pressure. Using the index & middle finger of the other hand push the patella down gently. Does it bounce? If so +ve.
- **Ballotment:** defined as a palpatory technique for detecting or examining a floating object in the body



Patellar Instability

- Measure **Q angle**, angle between a line from ASIS to center of patella and center of patella to tibial tuberosity; compare.
N- ♂ $8-10^\circ$ ♀ $15 \pm 5^\circ$
- **Dynamic patellar tracking** in sitting- (positive **J sign** –lateral subluxation of patella in full extension)
- **Active patellar tracking** with knee extended-normal patella moves more superiorly than laterally.
If more lateral movements –abnormal
- **Apprehension Test:** Knee in 20-30 deg flexion; Manually sublunate patella laterally - Pain & resistance for lateral motion- positive test



MOVE

Movement: ACTIVE & PASSIVE

- **Flexion – Extension:** Normal 0-135 degrees.
- **Rotation:** 20-30 deg. In flexion. Nil in extension.
- **Fixed flexion deformity :** by passively lifting the leg at the heel to see if there is complete extension.
- See for **crepitus** during motion.
- See hip rotations, as pain can be referred from the hip.
- Observe active extension of the knee from flexed position.
- Repeat each movement for the opposite leg at the same time

TESTS FOR MENISCAL INJURY

- **Joint line tenderness:** medial joint line tenderness-medial meniscus tear; lateral joint line tenderness-lateral meniscus tear.
- **McMurray test:** knee acutely flexed forcibly; palpate postromedial margin of joint + knee external rotation + knee extension-click s/o medial meniscus tear. palpate posterolateral margin + internal rotation + knee extension-click s/o-lateral meniscus tear. Negative McMurray's test doesn't rule out tear



- **Apley Grinding test:** prone; knee 90 degree; ant. thigh flexed against table foot and leg pulled upwards/downwards and rotated+ joint slowly flexed and extended pain/ popping-tear



ACL: 1. Anterior drawer test



- Supine
- Hip-45 deg
- Knee 90 deg
- Stabilize foot

- Ensure tibia is not sagging behind- otherwise false positive result
- Not possible in acute painful knee



ACL 2. Lachman Test

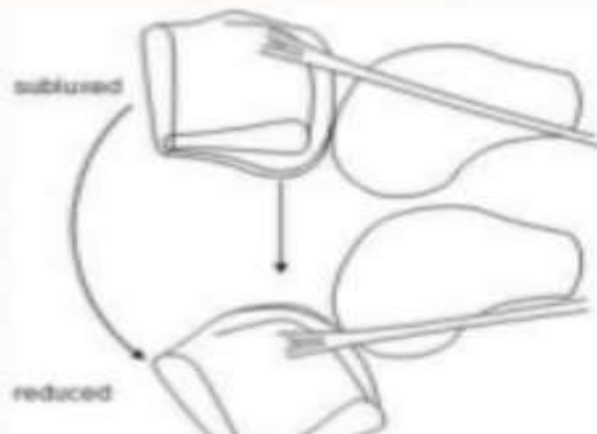


- Supine
- Knee 15 deg flexion
- Slight ext. Rotation
- **Most sensitive** test for ACL rupture
- Useful in painful knee/ door step effect of menisci

ACL 3: Pivot Shift Test



- Pt supine, relaxed
- Hip at 30 abduction, knee in IR and valgus strain (subluxates the knee); do gradual flexion from extension.
- See for the reduction of the lateral femoral condyle.
- **Most specific** for ACL tear



PCL 1: Sag sign

- Knee 90
 - Support heel
 - Tibia sags visibly posteriorly from effect of gravity
 - Compare silhouette both side
-
- **Godfrey test:** sag sign at 90 flexion at hip & knee



PCL: 2. Posterior drawer test

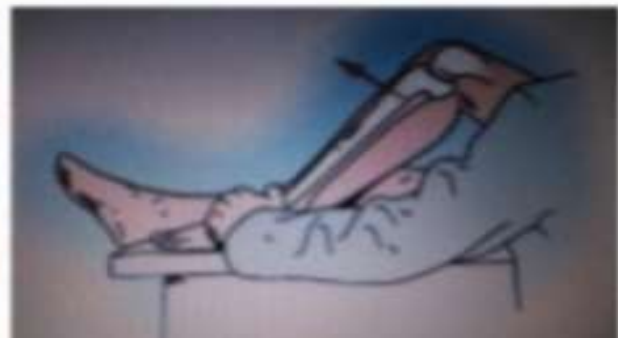
- Supine
- Knee 90 deg
- Excessive posterior laxity / no hard end point felt s/o PCL tear



PCL 3: Quadriceps Active Test



- Supine
- Knee 90 deg
- Active gentle quadriceps contraction to shift tibia without extending knee
- Anterior shift of tibia-PCL tear



MCL: Valgus stress test

- Supine
- Side Of Table
- Abducted Of The Side Of Table
- Knee Flexion 30
- Valgus Strain
- External Rotation
- Observe Stability



LCL : Varus stress test

- Varus Strain Given Similarly at 30 deg flexion
- Observe Instability
- Palpate LCL-**figure 4 Position**
- LCL Torn-not Palpable
- Compare



Posterolateral Corner Injury (PLC)

- **External Rotation Recurvatum test**
- **Dial test:** External rotation of tibia is compared at 30 & 90 flexion; > 10 deg increased - + ve.
- **Reverse Pivot Shift Test**



- Thanks