Approach to knee pain taking hx & Physical exam

- Patient: 28-year-old male marathon runner.
- C/C : Lateral side knee pain

Case 1- Clinical History

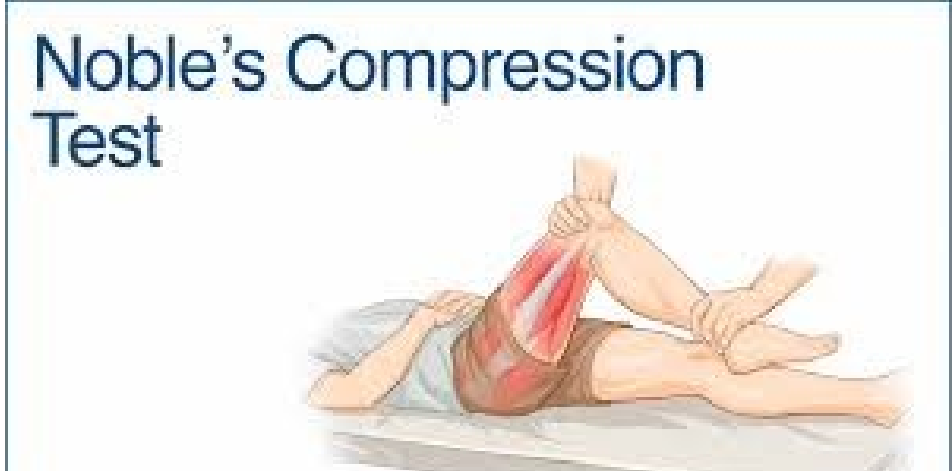
- Relevant Questions ?

History:
Onset, Duration , location , radiation , Progression, Pain character and severity , Resting pain, Night pain, Swelling, Bruising , paraesthesia, numbness
Aggravating factors : walking , sitting , kneeling , preying
Reliving factors : rest , position , medications, physiotherapy
Treatment received
Level of Sports, Change in Sport or training , How it affects ADLs, Work
Past Hx : Trauma, Inflammatory arthritis
Medications , Smoking

Gradual onset of lateral knee pain, worse with running, especially downhill, subsides with rest. sharp or burning.

Tenderness over the lateral femoral epicondyle, positive Ober's and Noble's tests.

Relevant examination according to taken history



- General : Expose both LLs, Walk the patient
- Look – Swelling , Bruising , Varus thrust , scars, swelling , deformity
- Feel – Tenderness , crepitus , clunks
- Move- Active and Passive
- Special test –
- Meniscus – MacMury , Thassali
- ITB -
- Noble’s compression test :
- Ober Test

DDx for lateral sided knee pain

- 1. Lateral Meniscal Tear: Pain localized to the lateral joint line, possible locking or clicking of the knee.
- 2. Patellofemoral Pain Syndrome (PFPS): Anterior knee pain, aggravated by prolonged sitting or stair climbing.
- 3. Lateral Collateral Ligament (LCL) Injury: Instability, localized pain over the LCL, and possible history of trauma.
- 4. PLC injury
- 5. Popliteus Tendinitis: Pain localized to the posterolateral knee, aggravated by downhill running.
- 6. Stress fracture

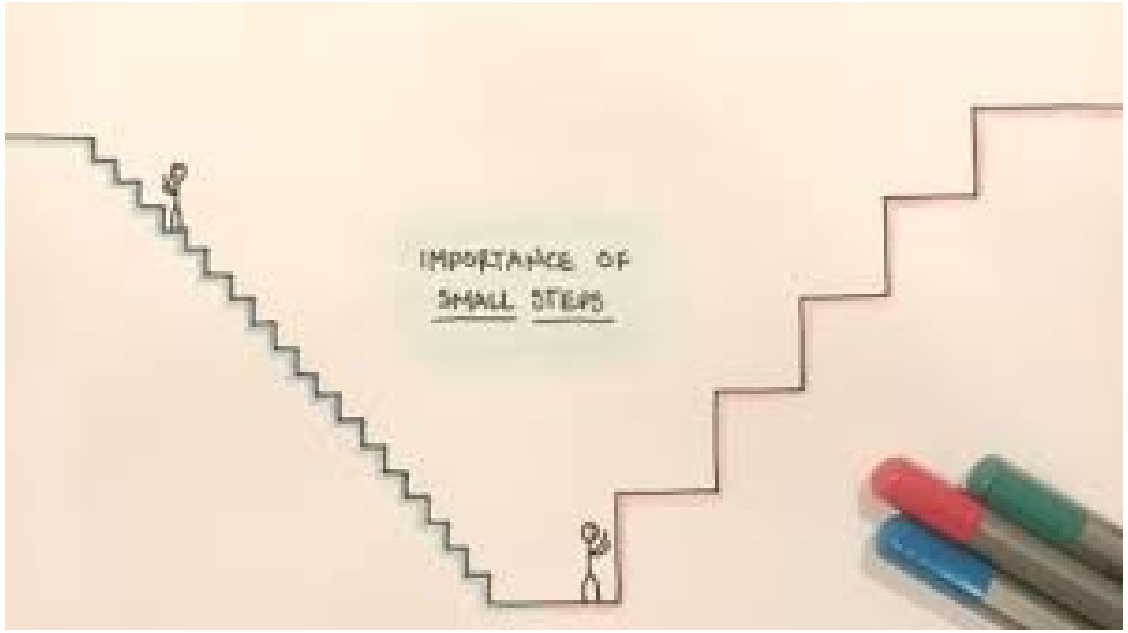
General considerations for the Exam

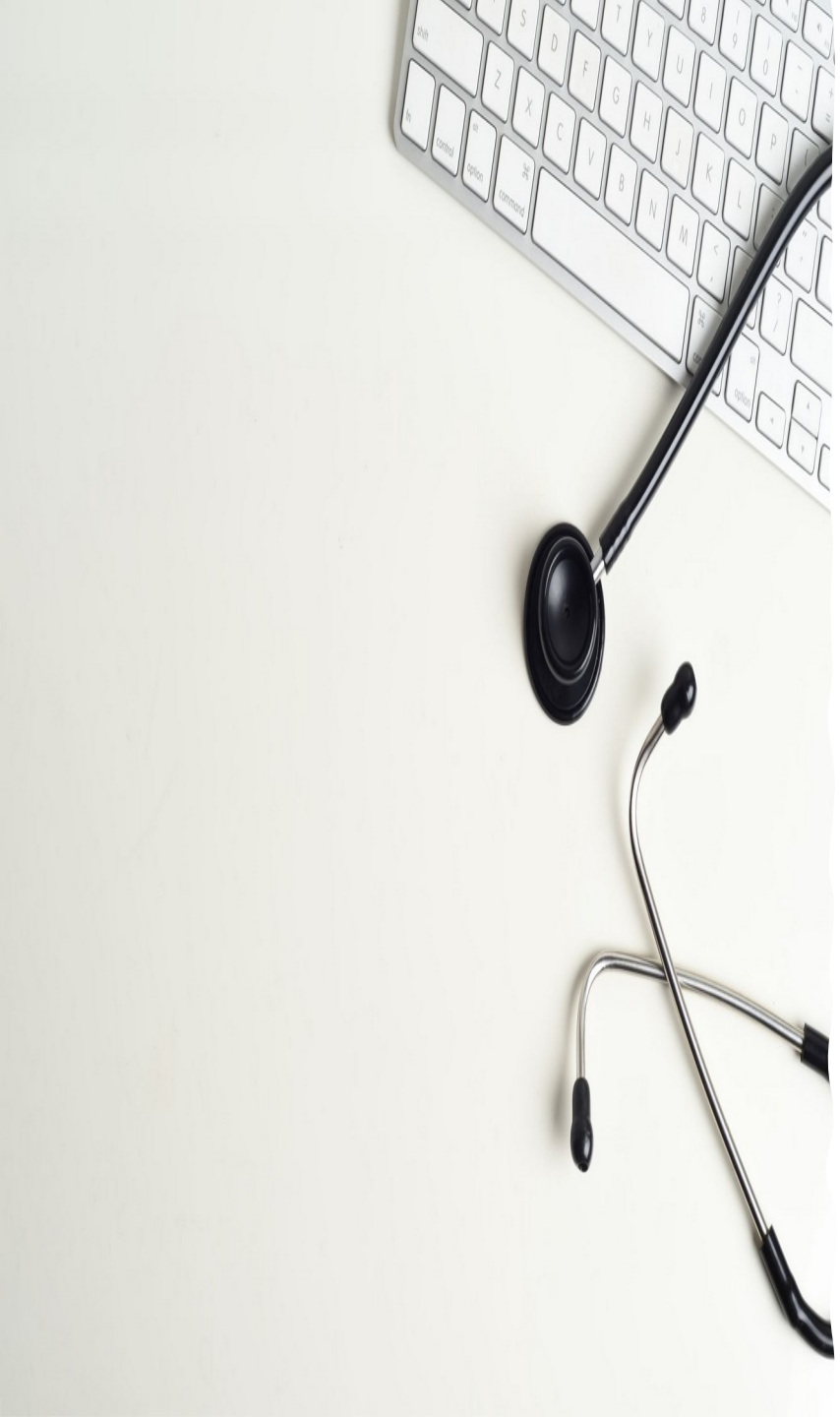
- Clinical Examination in the exam is not different than in the clinic. Develop your way and keep training
- Carefully listen and understand the exam question and if in doubt ask the examiner to repeat the question
- Start the examination by introducing you self , greet the patient and take permission
- Check Privacy – Close curtains and chaperon if female
- Check environment: Temperature, light , space to move , cleanliness
- Wash hands before and after the examination
- Always concentrate on the patient not the examiner
- When examining limbs always expose both and compare
- Always follow : Look , Feel , Move , Special tests

Approaching the Knee Examination

Divide the examination to make it easier to remember:

- First –Standing
- Second – setting
- Third – Supine
- Fourth - Prone
- Fifth - Completion of exam





Standing

- Start the examination while the patient is walking into the room
- Look for :

  Gait, Posture, Special Aids , Deformities
- Expose patient from waist down- but maintain dignity and explain
- Stand the patient and look from front , side and back to check for

  Scars, Deformities ,Posture , Patella ,Q-angle
- Again , Ask the patient to walk - Foot Progression angle, Patella progression angle
- Check for Hyperlaxity – Beighton’s score

Sitting

- Ask the patient to sit at the edge of the table while legs hanging freely
- Ask the patient to flex and extend both knees , look for asymmetry
- Assess the patellar motion : J-sign

Supine

- Look – Scars, Deformity , Skin colour, Position of the patella.
- Move- Active then Passive
- Feel : Always ask for pain site, keep eye contact

  Temperature , Bony Prominences, Joint lines , Soft tissue .
- Special Test while Supine

  Effusion -

  ACL : Lechman , Anterior Drawer, Pivot Shift test

  PCL : Posterior Sag , Active Quadracips , Posterior Drawer

  MCL – Valgus stress

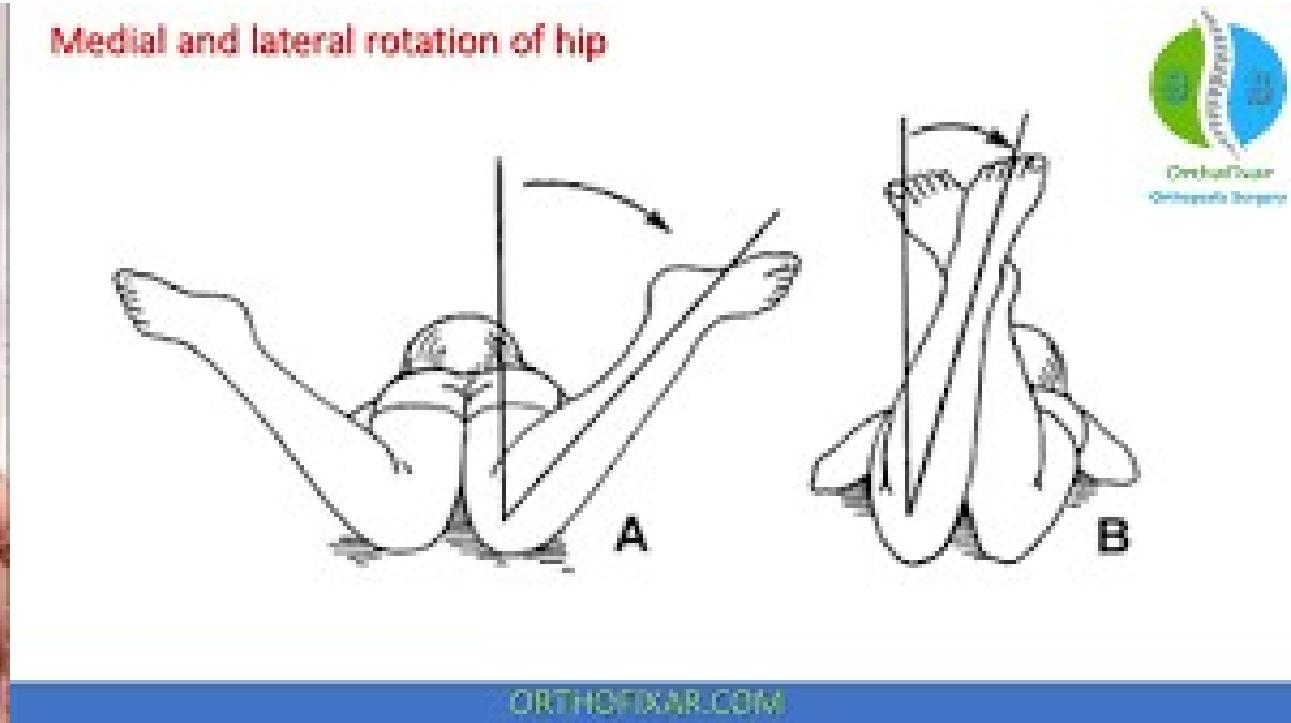
  LCL – Varus Stress

  Meniscus : Macmurry Test, Apply Grind test , Thassali test

  Patella – Translation , Apprehension

Prone

- Look , Feel , Move
- Special Tests :
- Dial Test - 30 , 90 degree
- Apley’s grind test
- Completion of Rotational Profile



Special Tests- effusion

- Fluid displacement tests (Bulge , wipe, Stroke tests)- Can detect mild effusion

- Patellar Tap, Ballottement and fluctuation tests : For moderate to severe effusion

Stroke Test Grading Scale

Grade	Test Result
Zero	No wave produced on downstroke
Trace	Small wave on medial side with downstroke
1+	Larger bulge on medial side with downstroke
2+	Effusion spontaneously returns to medial side after upstroke (no downstroke necessary)
3+	So much fluid that it is not possible to move the effusion out of the medial aspect of the knee

Special Test – ACL

Lachman Test :

Sensitivity :87%

Specificity : 93%

End- Point: Firm , absent

Special Test – ACL

Anterior Drawer Test :

Sensitivity :18-92%

Specificity : 78-98%

Grades:

Grade 1 :5 mm

Grade 2: 5-10 mm

Grade 3 :>10 mm

Special Test – ACL

Pivot Shift test :

Sensitivity :24

Specificity : 98%

Hip – Abduction and Flexion

Knee – Start on Extension , internal Rotation and Valgus stress to Flexion

Special Test – PCL

- Posterior Sag Sign:

  Sensitivity :79-100%

  Specificity : 100%
- Active Knee Quadriceps test

Special Test – PCL

Posterior Drawer test:

Sensitivity :90%

Specificity : 99%

Special Test – Meniscus

McMurrays' Test :

- Medial Meniscus : Start will Flexion and Neutral Rotation to Extension , External Rotation and Valgus while palpating the joint line .
- Lateral Meniscus :Start from neutral and flexion to Extension , Internal Rotation , and varus

Senstivity :54%

Specificity :79%

Special Test – Meniscus

Thessaly Test :

Standing with knee bent 5 and 20 degrees and then Internal and External Rotation

Sensitivity : 66-89 %

Specificity : 96%

Special Test – Meniscus

Apley's Test :

Prone : 90-degree flexion with axial force and rotation

Specificity : 71%

Sensitivity : 83%

Special Test – MCL

Valgus Stress :

At zero both Cruciate ligaments and MCL are tight but with knee flexion to 30 cruciate ligaments relax and any valgus laxity is due to MCL

Sensitivity : 70-90%

Specificity : 80-95%

Special Test – LCL

- Varus Stress :

At zero both Cruciate ligaments and MCL are tight but with knee flexion to 30 cruciate ligaments relax and any valgus laxity is due to MCL

Sensitivity : 70-90%

Specificity : 80-95%

- Palpation of the LCL

Special Test – PLC

- Dial Test : Patient Prone , Stabilize both femurs , External Rotation of the tibial by holding the malleoli ,Difference of 10 degrees is positive
- At 30 is PLC because the PCL is lax
- At 90 PCL – the PLC is lax
- At 30 and 90- PCL+PLC
- At all degrees – check PMC

Sensitivity : 20% - 80%

Specificity : 50-90%

Special Test – PFJ

- PFJ grind test : Extend Knee ,Push Patella posteriorly and distally while patient contract Quadriceps

Sensitivity : 90%

Specificity : 50%

- Patella shift test- Normal < 2 Quadrants
- PFJ Apprehension test : Start from Extension , Gently push Patella and flex knee passively to 30 degrees while looking at patient face

Sensitivity : 90-100%

Specificity : 90%

Completion of the Examination and Conclusion

- Don’t forget to examine the joints above and below and compare .
- Examine the neurovascular status for the limb :Distal pulses , sensory and motor assessment
- Summarize and document all the findings
- Thank the patient and the examiners and leave on time