

Knee Exam:

Palpation:

Palpate the knee in 3 positions: Sitting, Supine, and Prone

Sitting: Compare the 2 sides for skin temperature. Gently palpate the entire knee for abnormal swelling or bony prominences. Start at the joint line anteriorly and palpate all the way around, first medially, then laterally, with the thumb and index finger. Next, palpate up and down the extensor mechanism from the joint line to the superior pole of the patella to the tibial tubercle. Move on to the femoral condyles and the proximal tibia. Palpate the Pes Anserine insertion and the Tubercle of Gerdy for tenderness, and then along the ilio-tibial band. Finally, slide your fingers around the back of the knee and palpate the popliteal fossa for fullness, comparing one side to the other. Next, place one palm on the patella which the other hand passively extends the knee, feeling for any crepitus or clicking.

Supine: Feel the sides of the knee medially and laterally for any changes in bony prominences or any masses. Repeat the palpation of the popliteal fossa in extension to detect any new fullness. As the knee extends, if there is a popliteal cyst (Baker's Cyst), extending the knee will force the fluid in the cyst posteriorly, producing a palpable bubble-like prominence. Press the patella gently but firmly into the femur, then push it medially and laterally, looking for crepitus and pain ("patellar grinding test"). Milk any effusion from proximal down to the patella, then while holding your proximal hand against the femur to keep any fluid trapped, test the patella for "ballottement". If there is an effusion, the trapped fluid will lift the patella off the femur and you will feel a sense of a tapping as the patella bounces off the femur which pressed posteriorly. As you release your upper hand, the patella will fall back onto the femur and the tapping will disappear. You may also be able to palpate fluid pushing out around the patella while your proximal hand is still in place against the femur. Measure the circumference of each thigh and calf with a tape measure. It is not important how far from the patella you measure, only that you do so at the same point on each leg.

Prone: Again palpate the popliteal fossa with the knee in full extension and slight flexion looking for any fullness or a cyst. Also palpate the posterior joint line for tenderness. You can also palpate the hamstring tendons and the insertion of the gastrocnemius tendons at this point. In the case of suspected flexion contractures of the knee, a "prone hang test" will reveal subtle flexion contractures (see below)

Special Tests: These are the tests I find most useful in my Knee Practice:

Patellar tracking (The "J" Sign): Observe the patella as the patient bends and straightens the knee. Pay particular attention to the terminal 15 to 20 degrees. If the patella tails off laterally, this can be a sign of a lateral tracking abnormality. The pattern of the patella moving off the midline will trace the letter "J".

Patellar Apprehension: Gently force the patella laterally while watching the patient's face for grimacing and feeling for crepitus. If the patient has a patellar subluxation or dislocation problem, this will provoke obvious anxiety as the patella approaches the point of lateral instability.

Quadriceps Lag (Extensor Lag) vs. Flexion Contracture:

With a Quad Lag, the patient cannot fully extend the knee against gravity but with your assistance, the knee comes to full extension. With a Flexion Contracture, the knee cannot be actively nor passively extended beyond a certain limit. Sometimes the patient will have both conditions. He will only be able to extend to a certain point short of complete, but with assistance, the knee extends further, although not completely straight.

Prone Hang Test: Place the patient prone with his knees at the edge of the exam table and his tibias and feet overhanging. Ask the patient to relax into as much knee extension as comfortable. Compare the height of his heels. Elevation of one heel higher than the other indicates the presence of a flexion contracture at the knee. Each cm. of elevation roughly equates to 1 degree of contracture.

Figure-4 Test: Have the patient sit with the affected knee crossed over the opposite leg in a figure of 4 position. Palpate the lateral joint for a firm vertical structure that feels like a pencil. It extends from the lateral epicondyle to the fibular head. This is the Lateral Collateral Ligament.

Collateral Ligament Tests: Force the knee into Varus and Valgus while palpating for any laxity in the collateral ligaments. This should be done at both full extension, and at about 30 degrees of flexion. In extension, the collaterals will feel tight unless the ACL and/or PCL are ruptured. In mild flexion, any isolated collateral laxity will be revealed.

McMurray's maneuver: With your proximal hand on the knee to feel for clicks, wind the knee from valgus to varus as you flex and then extend the knee. Repeat this motion while winding the knee in the opposite direction from varus to valgus.

Apley's grinding test: With the patient prone, bend the knee to 90 degrees, then twist the foot from internal to external rotation while forcing the leg into the back of the knee with your body weight. If this elicits pain, repeat the test while lifting up on the leg to distinguish collateral ligament pain from meniscal pain (Apley's distraction test)

Sag Test: With the patient supine and the knee flexed 90 degrees, observe the level of the tibial tubercle on each side. If the PCL is lax, the tibia will be seen to "sag" back toward the exam table on the affected side.

Pivot Shift and Flexion-Rotation Drawer Tests: These will be demonstrated and are meant to simulate the mechanism of instability the patient senses in an Anterior Cruciate Deficient knee

Dial Test: With the patient supine, bend the leg to 90 degrees, then twist the foot as far internally and externally as it will move. This is usually not uncomfortable and can reveal combined “Rotatory Instabilities” that can complicate ACL or PCL injuries.

Patellar Squint: This is not really a test but a sign. With the patient standing in front of you, observe the position of the patellae. They should face directly forward. If they face somewhat toward each other, this is a sign of malposition due to a rotational misalignment of the knee joint, often due to internal femoral torsion.

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