



KNEE

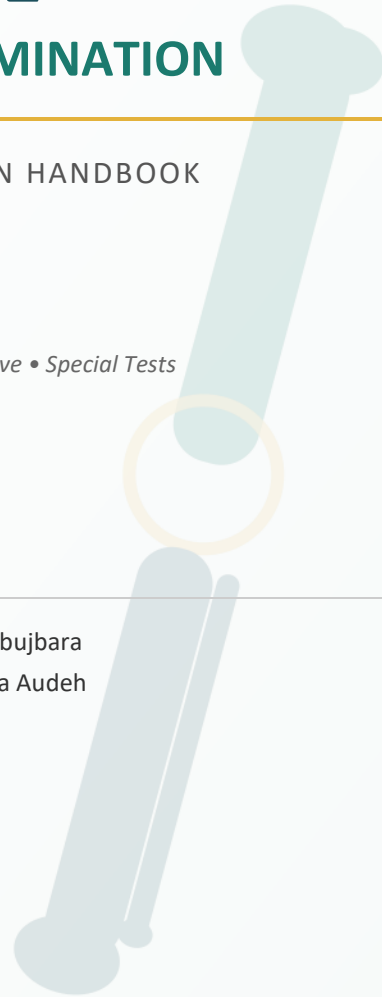
PHYSICAL EXAMINATION

MINI-OSCE REVISION HANDBOOK

High-Yield • Look, Feel, Move • Special Tests

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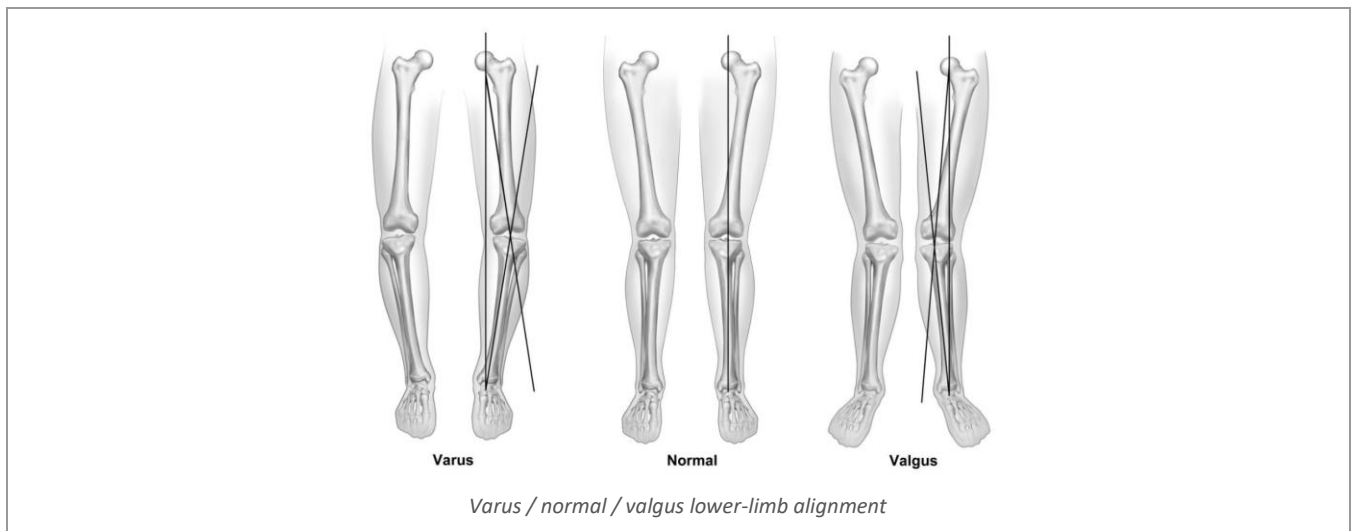
Edited by: Tamara Audeh



SECTION 1 -THE KNEE EXAMINATION-

LOOK (Inspection)

- **Patient position:** Standing, then walking, then supine on the couch with both legs fully exposed (groin to toes).
- **Standing exam:** Assess alignment from the front, side, and behind.
- **Gait:** Antalgic gait, varus/valgus thrust, ability to weight-bear.
- **Alignment:** Varus (bow-leg) or valgus (knock-knee) deformity.
- **Fixed flexion posture:** Knee held flexed, unable to fully straighten.



Supine inspection, look for:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Swelling / effusion • Quadriceps wasting • Muscle wasting (generalised) • Skin changes, redness | <ul style="list-style-type: none"> • Surgical scars, bruising • Patellar position (high/low riding) • Obvious deformity • Compare with the opposite knee |
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✦ CLINICAL PEARL

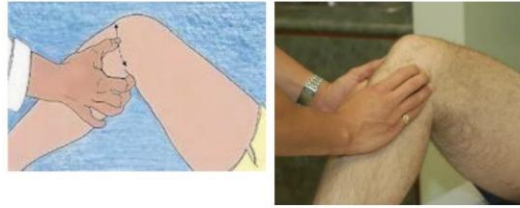
Always inspect and compare both knees together — asymmetry is often the first clue to pathology.

FEEL (Palpation)

Patient supine, knee relaxed in slight flexion (place a pillow/roll under the knee). Compare temperature and findings with the other side.

- **Temperature:** Back of hand over knee vs. thigh, warmth suggests inflammation/infection.
- **Effusion:** Patellar tap / sweep test.
- **Medial & lateral joint line:** Tenderness suggests meniscal or joint pathology.
- **Patella, patellar tendon, quadriceps tendon:** Tenderness suggests tendinopathy or rupture.
- **Tibial tuberosity:** Tenderness → Osgood-Schlatter (young patients).
- **Femoral condyles / fibular head:** Bony tenderness → fracture; fibular head → LCL/common peroneal nerve.
- **Popliteal fossa:** Palpate for a Baker's cyst or mass.

Joint line palpation



Joint line palpation technique

MOVE (Range of Motion)

Movement	Normal Range	Notes
Flexion	0–140°	Active then passive; note end-feel
Extension	0° (full)	Inability to reach 0° = fixed flexion deformity
Hyperextension	Up to 5–10°	Assess for ligamentous laxity

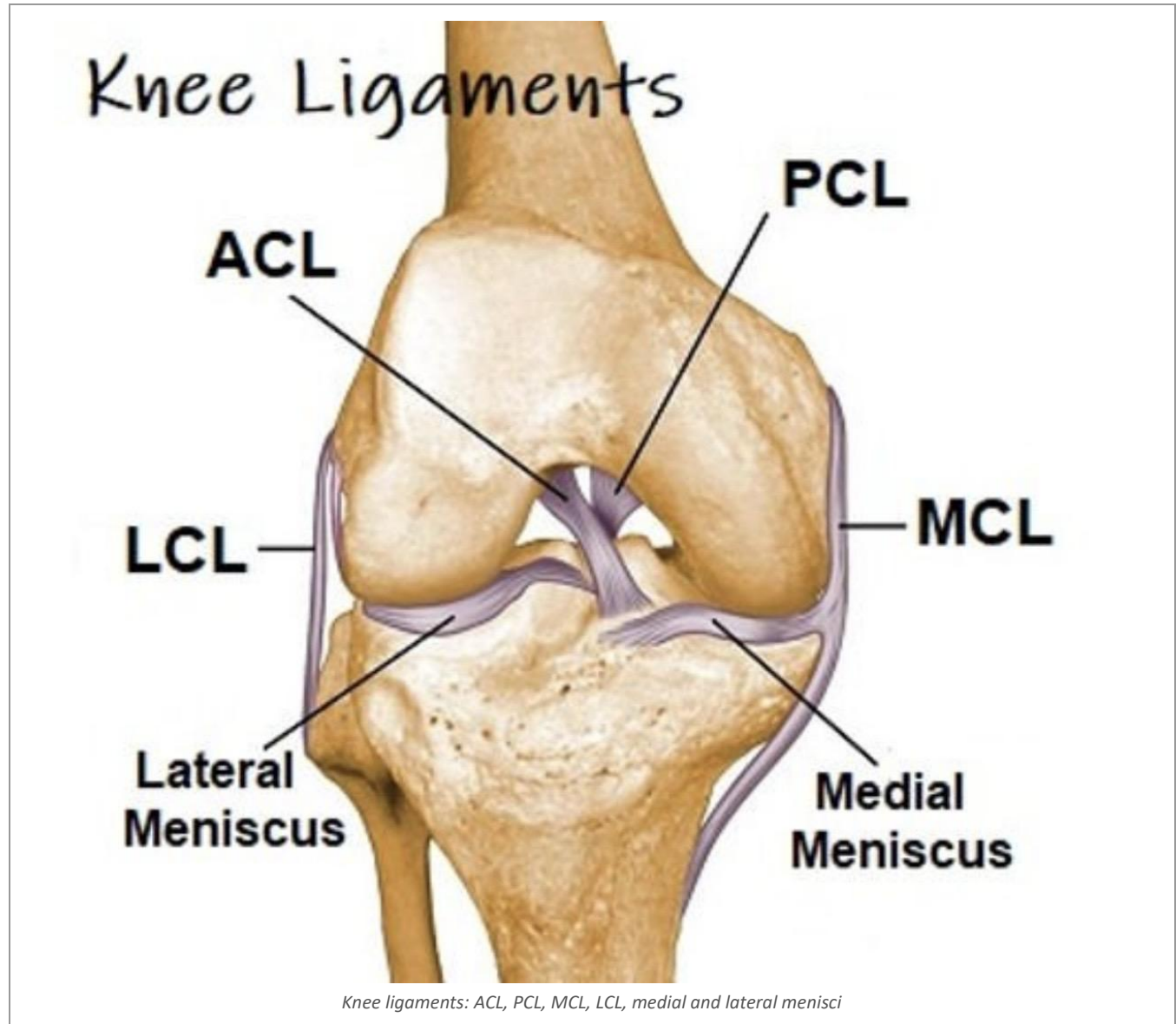
Fixed Flexion Deformity in Osteoarthritis

A common OSCE discussion point. The knee cannot fully extend, due to a combination of:

- Pain — patient avoids terminal extension
- Posterior capsule contracture — chronic shortening from disuse
- Osteophytes — bony blocks, especially in the intercondylar notch
- Mechanical block — loose bodies or joint destruction preventing full extension

SECTION 2 -SPECIAL TESTS OF THE KNEE-

Knee Anatomy (Essential Revision)



★ **HIGH-YIELD**

Multiple labeling questions from this figure were included in the most recent exam, so make sure you can identify all the labeled structures.

Effusion Tests

Bulge Sign — Tests: Small effusion	
Purpose	Detects small/subtle knee effusions.
Position	Patient supine, knee extended and relaxed.
Hand placement	Stroke/milk the medial side of the knee upward toward the suprapatellar pouch 2–3 times, then stroke the lateral side downward.
Technique	Watch the medial side of the joint for a fluid wave/bulge as fluid is pushed from lateral to medial.
Positive finding	A visible bulge or fluid wave reappears on the medial side.
Interpretation	Confirms presence of a small joint effusion.

Patellar Tap (Ballotable Patella) — Tests: Moderate–large effusion	
Purpose	Detects moderate-to-large effusions.
Position	Patient supine, knee extended.
Hand placement	One hand compresses the suprapatellar pouch to push fluid into the joint; index finger of the other hand pushes the patella sharply posteriorly.
Technique	Feel/observe for the patella ‘tapping’ against the femoral trochlea and floating back.
Positive finding	Palpable tap/click as the patella bounces off the femur.
Interpretation	Indicates a significant effusion.



Patellar Tap Test

Patellar Tap Test (or as it called Patellar Ballottement Test) is a useful technique for detecting the effusion of the knee joint.

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Patellar tap test — pressing the patella onto the trochlear groove

Ballottement Test — Tests: Large effusion (cross-check)	
Purpose	Confirms a large effusion, especially a tense knee.
Position	Patient supine, knee extended.
Hand placement	Compress suprapatellar pouch with one hand while pushing the patella down with the other.
Technique	Similar principle to patellar tap; assess the sensation of fluid displacement.
Positive finding	Patella can be pushed down and springs back — a palpable ‘floating’ patella.
Interpretation	Confirms a significant joint effusion.

Ligament Tests



Varus Stress Test — Tests: Lateral Collateral Ligament (LCL)

Purpose	Assesses integrity of the LCL.
Position	Supine, knee first at 0° (full extension), then repeated at 30° flexion.
Hand placement	One hand stabilises the medial thigh/femur; the other grips the ankle/lower leg.
Technique	Apply a varus (inward) force to the ankle while stabilising the femur, opening the lateral joint line.
Positive finding	Excessive lateral joint line opening or pain, compared to the other side.
Interpretation	Laxity at 30° only → isolated LCL injury. Laxity at 0° and 30° → LCL plus posterolateral corner/cruciate involvement.

Valgus Stress Test — Tests: Medial Collateral Ligament (MCL)

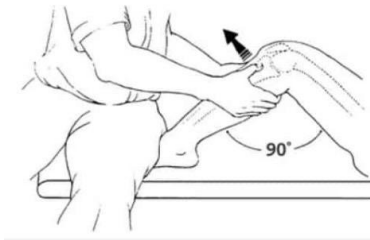
Purpose	Assesses integrity of the MCL.
Position	Supine, knee first at 0°, then repeated at 30° flexion.
Hand placement	One hand stabilises the lateral thigh/femur; the other grips the ankle/lower leg.
Technique	Apply a valgus (outward) force to the ankle while stabilising the femur, opening the medial joint line.
Positive finding	Excessive medial joint line opening or pain, compared to the other side.
Interpretation	Laxity at 30° only → isolated MCL injury. Laxity at 0° and 30° → MCL plus cruciate/capsular involvement.

Lachman Test — Tests: Anterior Cruciate Ligament (ACL) — most sensitive test

Purpose	Most sensitive bedside test for ACL integrity.
Position	Supine, knee flexed to 20–30°, hamstrings relaxed.
Hand placement	One hand stabilises the distal femur; the other cups the proximal tibia posteriorly.
Technique	Pull the tibia anteriorly while stabilising the femur.
Positive finding	Increased anterior tibial translation compared to the other side, with a soft or absent end-point.
Interpretation	Suggests ACL rupture.

**Lachman test***Lachman test — hand placement at 20–30° knee flexion***Anterior Drawer Test** — Tests: Anterior Cruciate Ligament (ACL)

Purpose	Assesses ACL integrity (less sensitive than Lachman).
Position	Supine, hip flexed 45°, knee flexed to 90°, foot flat on the couch.
Hand placement	Sit gently on the patient's foot to stabilise it; wrap both hands around the proximal tibia with thumbs on the tibial plateau.
Technique	Pull the tibia anteriorly, feeling for translation and the quality of the end-point.
Positive finding	Excessive anterior translation with a soft end-point.
Interpretation	Suggests ACL rupture; ensure hamstrings are relaxed to avoid a false negative.



Anterior Drawer Test of the Knee

- Anterior Drawer Test of the Knee is used to determine the integrity of the Anterior Cruciate Ligament (ACL), full or partial ACL tear.
- The patient is supine with the hip flexed 45° and the knee flexed 90°. The examiner sits on the edge of the examining table and uses his or her buttock to immobilize the patient's foot in the desired rotational position. The examiner then grasps the tibial head with both hands and pulls it anteriorly with the patient's knee flexors relaxed.
- This test is positive for an ACL tear when an abnormal anterior movement of the tibia occurs compared with the other extremity.

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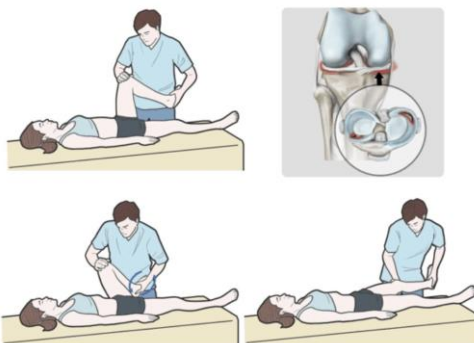
Anterior drawer test — knee flexed to 90°

Meniscus Test

McMurray Test — Tests: Medial or lateral meniscus

Purpose	Detects a meniscal tear.
Position	Supine, knee fully flexed.
Hand placement	One hand on the heel, the other hand's fingers on the joint line.
Technique	For the medial meniscus: externally rotate the foot and slowly extend the knee while palpating the medial joint line. For the lateral meniscus: internally rotate the foot and extend while palpating the lateral joint line.
Positive finding	A palpable or audible click/clunk with pain over the joint line during extension.
Interpretation	Suggests a tear of the corresponding meniscus.

McMurray meniscus test



McMurray test:
Patient lying supine.
Hold leg with one hand while other hand on knee joint line.
Bend patient's leg (knee flexion).
Internal & external knee rotation with force application while
straightening (extending) knee.
Feel click/pain.

McMurray test — combined rotation and extension of the knee

SECTION 3 -ADDITIONAL LOWER LIMB TESTS-

FABER Test (Patrick's Test)

FABER = Flexion, Abduction, External Rotation of the hip.

- **Technique:** Patient supine; place the ankle of the tested leg on the opposite knee ('figure-of-4' position). Gently apply downward pressure on the flexed knee while stabilising the opposite pelvis.
- **Positive finding:** Reproduction of groin pain (hip pathology) or posterior/buttock pain (sacroiliac joint pathology).
- **Assesses:** Hip joint pathology and sacroiliac joint pathology.



Knee Jerk — Patellar Reflex

- **Position:** Knee flexed to $\sim 90^\circ$, relaxed (dangling over the edge of the bed, or supported by the examiner's arm).
- **Technique:** Strike the patellar tendon directly with a tendon hammer.
- **Normal response:** Contraction of quadriceps causing knee extension.
- **Nerve root:** L3–L4.
- **Peripheral nerve:** Femoral nerve.



Eliciting the patellar (knee jerk) reflex — nerve root L3–L4

Ankle Jerk — Achilles Reflex

- **Position:** Knee flexed, hip externally rotated, foot held in slight dorsiflexion.
- **Technique:** Strike the Achilles tendon directly with a tendon hammer.
- **Normal response:** Plantarflexion of the foot.
- **Nerve root:** S1–S2.
- **Peripheral nerve:** Tibial nerve.

134. Which nerve root is tested by this reflex?



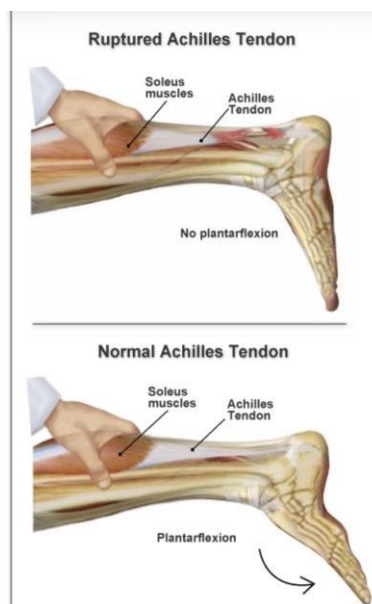
ANSWER : Ankle jerk S1-S2

Eliciting the ankle (Achilles) reflex — nerve root S1–S2

Thompson Test

Thompson Test — Tests: Complete Achilles tendon rupture

Purpose	Assesses for complete Achilles tendon rupture.
Position	Patient prone with the foot hanging freely off the end of the bed.
Technique	Squeeze the calf muscle belly firmly and observe the foot.
Positive finding	Absence of plantarflexion (no movement) of the foot on squeezing the calf.
Interpretation	A positive test (no plantarflexion) indicates a complete Achilles tendon rupture.



Calf squeeze — plantarflexion (intact) vs. no plantarflexion (ruptured)

★ **HIGH-YIELD**

A positive Thompson test = complete Achilles tendon rupture. This is a classic Mini-OSCE finding — know it cold.

★ **HIGH-YIELD**

Whatever part you are examining (knee, hip ,etc.), always include a neurovascular examination of the affected limb.