

Back of Thigh: Facts to Remember and Clinicoanatomical Problems

Facts to Remember

- The **sciatic nerve** is the **thickest nerve** in the body.
- The “**sleeping foot**” is a temporary condition due to compression of the sciatic nerve during prolonged sitting.
- **Hamstrings** act as **flexors of the knee** and **weak extensors of the hip**.
- **Adductor magnus** is a **hybrid muscle**—partly supplied by the obturator nerve and partly by the tibial component of the sciatic nerve.
- The thin **artery accompanying the sciatic nerve** represents a remnant of the **axial artery of the lower limb**.

Clinicoanatomical Problem

A **26-year-old woman** presents with **severe pain in the back of her right thigh and leg**.

- **Question 1:** Which nerve is likely involved, and what is its root value?
? The **sciatic nerve**, with root values **L4 to S3**, is affected.
- **Question 2:** What is the **Straight Leg Raising (SLR) Test**, and how is it interpreted?
? In this test, the patient lies supine, and the affected leg is raised with the knee extended.
? Pain radiating down the posterior thigh and leg when the leg is raised between **30°–70°** indicates **sciatic nerve irritation**, commonly due to **lumbar intervertebral disc**

herniation compressing **L5 or S1 nerve roots**.

- **Question 3:** Why is this pain called **sciatica**?
? Because it radiates along the distribution of the **sciatic nerve**, from the gluteal region to the foot.
- **Question 4:** What are common causes of sciatica?
? **Herniated disc, piriformis syndrome, nerve compression, or pelvic tumor** impinging on the sciatic nerve.

Clinicoanatomical Problems — Back of Thigh

1. Hamstring Strain (“Pulled Hamstring”)

A 22-year-old sprinter suddenly feels a sharp pain at the back of his thigh during a 100-meter sprint.

- **Anatomical Basis:** Hamstring muscles (especially *biceps femoris long head*) are overstretched when hip is flexed and knee extended.
- **Common Site:** At or near the ischial tuberosity where tendons originate.
- **Clinical Signs:** Pain, bruising, tenderness, and difficulty in extending the hip or flexing the knee.
- **Rehabilitation:** Rest, ice, compression, and physiotherapy; severe cases may need surgical repair.

2. Avulsion Fracture of the Ischial Tuberosity

A gymnast complains of pain in the lower buttock after forceful kicking.

- **Cause:** Violent contraction of hamstrings detaches the *ischial tuberosity apophysis* (in adolescents).

- **Finding:** Pain on resisted knee flexion and tenderness over the ischial region.
 - **Mechanism:** Sudden hip flexion with knee extension (e.g., hurdling).
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3. Semimembranosus Bursitis

An elderly patient presents with swelling in the upper medial part of the popliteal fossa.

- **Cause:** Inflammation of bursa between semimembranosus tendon and medial head of gastrocnemius.
 - **Clinical Note:** Swelling becomes prominent on extending the knee — can mimic a Baker's cyst.
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4. Baker's (Popliteal) Cyst due to Hamstring Dysfunction

Chronic knee arthritis causes fluid to collect in the semimembranosus bursa.

- **Pathophysiology:** Communication between the knee joint and the bursa allows synovial fluid to herniate posteriorly.
 - **Relevance:** Patients may report tightness or lump in the popliteal fossa when extending the knee.
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5. Entrapment of Sciatic Nerve — Piriformis Syndrome

A patient complains of deep buttock pain radiating down the thigh after prolonged sitting.

- **Mechanism:** Compression or irritation of the sciatic nerve by the piriformis muscle as it passes below or through it.
 - **Symptoms:** Radiating pain, numbness, tingling, or weakness in posterior thigh and leg.
 - **Diagnosis:** Pain worsens on hip internal rotation or flexion (Fair test).
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6. Sciatic Nerve Injury due to Faulty Intramuscular Injection

A nurse gives a gluteal IM injection in the lower medial quadrant, leading to foot weakness.

- **Mechanism:** Injury to sciatic nerve branches in gluteal region.
 - **Clinical Features:** Loss of knee flexion (hamstrings), paralysis below the knee, and *foot drop*.
 - **Prevention:** Injections should be given in **upper outer quadrant** of gluteal region.
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7. Compression Neuropathy — “Wallet Sciatica”

A man who keeps a thick wallet in his back pocket reports numbness in the posterior thigh and calf.

- **Cause:** Prolonged pressure on the sciatic nerve while sitting.
 - **Finding:** Local tenderness over the nerve exit point below piriformis.
 - **Solution:** Removing the wallet or sitting posture modification.
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8. Posterior Thigh Pain from Lumbar Disc Herniation

A 40-year-old office worker complains of pain radiating from buttock to foot.

- **Mechanism:** Herniation of L4–L5 or L5–S1 disc compressing sciatic nerve roots.
 - **Clinical Test:** Straight leg raising test positive.
 - **Finding:** Decreased ankle reflex, sensory loss on lateral leg and foot.
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9. Sciatic Nerve Entrapment During Hamstring Repair Surgery

A surgeon operating near ischial tuberosity inadvertently stretches the sciatic nerve.

- **Result:** Postoperative weakness in knee flexion and dorsiflexion.
 - **Lesson:** The sciatic nerve runs **midway between the ischial tuberosity and greater trochanter** — should be avoided in posterior incisions.
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10. Referred Pain from the Hamstrings to the Knee Joint

Patients with hamstring strain may complain of knee discomfort.

- **Explanation:** The tibial part of sciatic nerve supplies both hamstrings and the knee joint, producing referred pain along shared sensory pathways.
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11. Hamstring Weakness in Stroke or Nerve Lesion

A patient with upper motor neuron lesion exhibits difficulty rising from sitting or climbing stairs.

- **Reason:** Weakness of hip extensors (hamstrings) and gluteus maximus.
 - **Compensation:** Uses hands to push up from seated position.
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12. Fibrotic Myopathy of Biceps Femoris (Rider's Strain)

Seen in horse riders or cyclists due to repeated minor trauma.

- **Finding:** Hard tender band in posterior thigh.
- **Treatment:** Rest and physiotherapy.