MEDICAL EDUCATION RESOURCE

Nerves, Arteries and Clinical Terms

? Femoral Nerve

- **Root value:** L2, L3, L4 (posterior divisions of ventral rami).
- **Origin and course:**
  - Arises in the **abdomen** within *psoas major* and emerges at its **lateral border**.
  - Descends between **psoas major** and **iliacus**, passes under the **inguinal ligament** into the thigh, **lateral to the femoral artery**.
- **Branches in the abdomen:** to psoas major and iliacus.
- **Branches in the thigh:**
  - *Anterior cutaneous branches* (medial and intermediate cutaneous nerves of thigh).
  - *Muscular branches* ? sartorius, pectineus, quadriceps femoris.
  - *Articular branches* ? hip and knee joints.
  - *Saphenous nerve* — the terminal sensory branch supplying the medial leg and foot.

?? Obturator Nerve

- **Root value:** L2, L3, L4 (ventral divisions).
- **Course:**
  - Emerges from the **medial border of psoas major**, crosses the pelvic brim, and runs along the **lateral wall of the pelvis** to reach the **obturator foramen**.
  - Divides into **anterior and posterior divisions** separated by *adductor brevis*.
- **Branches:**
  - *Anterior division* ? pectineus, adductor longus, adductor brevis, gracilis, hip joint.
  - *Posterior division* ? obturator externus, adductor magnus (adductor part), knee joint.
  - *Cutaneous branch* to the medial thigh.

?? Accessory Obturator Nerve

- **Present in ? 30 % of people.**
- **Root value:** L3 and L4 (ventral divisions).
- **Course and branches:**
  - Runs along the **medial border of psoas major**, crosses the **superior ramus of pubis**, passes **behind pectineus**.

- Supplies *pectineus*, *hip joint*, and gives a communicating branch to the anterior division of the obturator nerve.

?? Superior Gluteal Nerve

- **Root value:** L4, L5, S1 (dorsal divisions).
- **Course:** Leaves the pelvis through the **greater sciatic foramen above piriformis**, running between *gluteus medius* and *gluteus minimus* to end in *tensor fasciae latae*.
- **Branches:** to gluteus medius, gluteus minimus, and tensor fasciae latae.
- **Clinical note:** Injury ? **Trendelenburg gait** due to loss of hip abductors.

?? Inferior Gluteal Nerve

- **Root value:** L5, S1, S2 (dorsal divisions).
- **Course:** Enters the gluteal region via the **greater sciatic foramen below piriformis**.
- **Branches:** to *gluteus maximus* only — the main antigravity extensor of the hip.
- **Clinical note:** Injury ? difficulty in climbing stairs or rising from sitting.

?? Nerve to Quadratus Femoris

- **Root value:** L4, L5, S1 (ventral divisions).

- **Branches:** to *quadratus femoris*, *inferior gemellus*, and the *hip joint*.

?? Nerve to Obturator Internus

- **Root value:** L5, S1, S2 (ventral divisions).
- **Course and branches:** Leaves the pelvis through the **greater sciatic foramen below piriformis**, enters the **lesser sciatic foramen**, and supplies *obturator internus* and *superior gemellus*.

?? Sciatic Nerve

- **Largest nerve in the body.**
- **Root value:** L4, L5, S1, S2, S3 (mixed dorsal and ventral divisions).
- **Parts:**
  - *Tibial part* — ventral divisions (L4–S3).
  - *Common peroneal part* — dorsal divisions (L4–S2).
- **Course:**
  - Leaves the pelvis through the **greater sciatic foramen below piriformis**.
  - Descends deep to *gluteus maximus*, crosses *gemelli*, *obturator internus*, and *quadratus femoris* to enter the posterior thigh.

    - Lies between the **ischial tuberosity** and **greater trochanter**, then beneath the long head of *biceps femoris*.

- **Termination:** At the upper angle of the popliteal fossa, divides into **tibial** and **common peroneal nerves**.

- **Clinical note:** Injury causes *foot drop* and posterior-thigh sensory loss.

?? Tibial Nerve

- **Root value:** L4–S3 (ventral divisions).

- **Course:**

    - Larger terminal branch of the **sciatic nerve**.

    - Passes through **popliteal fossa**, deep to soleus, along the posterior leg, and deep to **flexor retinaculum**.

    - Ends by dividing into **medial and lateral plantar nerves**.

- **Branches:**

    - *Muscular*: To gastrocnemius, soleus, plantaris, popliteus, tibialis posterior, flexor digitorum longus, flexor hallucis longus.

    - *Cutaneous*: Medial calcaneal branches to heel.

    - *Articular*: Knee, ankle, and superior tibiofibular joints.

- *Terminal*: Medial and lateral plantar nerves.

- **Clinical note:**
  - Injury ? paralysis of plantar flexors and intrinsic sole muscles ? **inability to stand on toes** and **loss of plantar sensation**.
  - Leads to **trophic ulcers** on sole due to sensory loss

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?? Common Peroneal Nerve

- **Root value:** L4–S2 (dorsal divisions).
- **Course:**
  - Smaller terminal branch of the **sciatic nerve**.
  - Passes laterally along **biceps femoris tendon**, winds around **neck of fibula**, then divides into **superficial and deep peroneal nerves**.
- **Branches:**
  - *Muscular:* To short head of biceps femoris.
  - *Cutaneous:* Lateral cutaneous nerve of calf.
  - *Articular:* Superior and inferior lateral genicular nerves; recurrent genicular.
  - *Terminal:* Deep and superficial peroneal nerves

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- **Clinical note:**
  - Commonly injured at **neck of fibula**.
  - Leads to **foot drop** due to paralysis of dorsiflexors and evertors.

?? Deep Peroneal Nerve

- **Root value:** L4–S1.
- **Course:**
  - Begins at the bifurcation of the common peroneal nerve.
  - Enters the **anterior compartment of the leg** with the **anterior tibial artery**.
  - Passes beneath **extensor retinacula** to end on the **dorsum of the foot** between the first and second toes.
- **Branches:**
  - *Muscular:* To tibialis anterior, extensor digitorum longus, extensor hallucis longus, peroneus tertius, and extensor digitorum brevis.
  - *Articular:* To ankle and tarsal joints.
  - *Cutaneous:* First interdigital cleft.
- **Clinical note:**

- Injury ? sensory loss in **first web space** and weakness of dorsiflexion.

?? Superficial Peroneal Nerve

- **Root value:** L4–S1.
- **Course:**
  - Arises in the **lateral compartment** of the leg; descends between *peroneus longus* and *brevis*; pierces fascia in the lower third of leg.
- **Branches:**
  - *Muscular:* Peroneus longus and peroneus brevis.
  - *Cutaneous:* Skin of lower anterolateral leg and most of the dorsum of foot except first web space.
- **Clinical note:**
  - Injury ? sensory loss over **dorsum of foot** with weak eversion

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?? Plantar Nerves

Both arise from the **tibial nerve** beneath the flexor retinaculum

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Medial Plantar Nerve (L4, L5)

- Larger terminal branch — analogous to the **median nerve** of the hand.
- **Course:** Between *abductor hallucis* and *flexor digitorum brevis*.
- **Branches:**
    - *Muscular:* Abductor hallucis, flexor digitorum brevis, first lumbrical, flexor hallucis brevis.
    - *Cutaneous:* Medial 3½ toes and adjacent nail beds.
    - *Articular:* Joints of medial 2/3 of foot.

Lateral Plantar Nerve (S1, S2)

- Smaller terminal branch — corresponds to the **ulnar nerve** of the hand.
- **Course:** Runs obliquely between the first and second layers of the sole to the base of 5th metatarsal, dividing into **superficial** and **deep branches**.
- **Branches:**
    - *Superficial branch:* Supplies 4th dorsal interosseous, flexor digiti minimi brevis, digital nerves to 4th web space.
    - *Deep branch:* Supplies 2nd–4th lumbricals, adductor hallucis, and all interossei.
- **Cutaneous area:** Lateral 1½ toes and lateral third of sole

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? Arteries of the Lower Limb

Main arteries and their features

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ARTERY	COURSE / BRANCHES	AREA SUPPLIED
Femoral artery	Continuation of external iliac artery; passes through femoral triangle ? adductor canal ? becomes popliteal artery.	Thigh muscles and skin.
Popliteal artery	Continuation of femoral artery through adductor hiatus; ends at lower border of popliteus ? divides into anterior and posterior tibial arteries.	Knee joint, leg muscles.
Anterior tibial artery	Passes through interosseous membrane ? dorsalis pedis artery at ankle.	Anterior leg and dorsum of foot.
Posterior tibial artery	Larger branch; runs with tibial nerve ? divides into medial and lateral plantar arteries.	Posterior leg and sole.
Peroneal (fibular) artery	Branch of posterior tibial artery; runs along fibula.	Lateral and posterior compartments of leg.
Medial and Lateral plantar arteries	Terminal branches of posterior tibial artery; form **plantar arch**.	Sole and toes.

? Clinical Anatomy — Nerves and Arteries of the Lower Limb

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1. Femoral Nerve Lesion

- **Causes:** Pelvic or inguinal trauma, retroperitoneal hematoma, diabetic neuropathy.
- **Motor loss:** Paralysis of **quadriceps femoris** ? loss of knee extension and weakened hip flexion.
- **Sensory loss:** Over **anterior thigh** and **medial side of leg and foot** (via saphenous nerve).
- **Clinical sign: Knee-jerk reflex absent.**

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2. Obturator Nerve Lesion

- **Causes:** Pelvic surgery, obturator hernia, childbirth.
- **Motor loss:** Paralysis of **adductor muscles** ? weakness of thigh adduction.
- **Sensory loss:** Small patch on **medial thigh.**
- **Gait disturbance:** Patient widens stance while walking.

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3. Superior Gluteal Nerve Injury

- **Cause:** Faulty gluteal intramuscular injection, pelvic fracture.
- **Effect:** Paralysis of **gluteus medius and minimus.**

- **Sign: Positive Trendelenburg sign** — pelvis falls on unsupported side when standing on one leg.
- **Gait:** Compensatory **lurch** toward the affected side.

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4. Inferior Gluteal Nerve Injury

- **Effect:** Paralysis of **gluteus maximus** ? loss of power in **hip extension.**
- **Clinical feature:** Difficulty in **climbing stairs, running, or rising from sitting.**

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5. Sciatic Nerve Lesion

- **Common causes:** Hip dislocation, posterior intramuscular injection, pelvic tumors.
- **Motor loss:** Hamstrings and all muscles below knee ? **foot drop** and **flail limb.**
- **Sensory loss:** Posterior thigh, leg, and most of the foot.
- **Special note:** Pain radiating down leg is **sciatica**, due to L4–S3 root irritation by herniated disc.

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6. Common Peroneal Nerve Injury

- **Vulnerable site:** Around **neck of fibula** (superficial course).
- **Motor loss:** Dorsiflexors and evertors of foot ? **foot drop** with **steppage gait.**
- **Sensory loss:** Lateral and anterior leg and **most of dorsum of foot.**
- **Ankle jerk:** Remains intact (tibial nerve spared).

7. Deep Peroneal Nerve Injury

- **Cause:** Tight footwear, anterior-compartment syndrome.
- **Motor loss:** Weak dorsiflexion of ankle and extension of toes.
- **Sensory loss:** Small area between **first and second toes** (first web space).
- **Result:** “Ski-boot neuropathy.”

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8. Superficial Peroneal Nerve Injury

- **Cause:** Lateral leg trauma, fibular fracture.
- **Motor loss:** Weakness of **eversion of foot.**
- **Sensory loss:** Over **anterolateral leg and dorsum of foot** except first web space.

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9. Tibial Nerve Lesion

- **Causes:** Popliteal fossa trauma, posterior dislocation of knee, tarsal-tunnel compression.
- **Motor loss:** Paralysis of **plantar flexors** and **intrinsic muscles of sole** ? loss of toe flexion, inability to stand on toes.
- **Sensory loss:** Entire **sole** and plantar aspects of toes.
- **Chronic complication: Trophic ulcers** on sole due to anesthesia.

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10. Plantar Nerve Lesions

- **Medial plantar nerve:**
  - Pain or burning in medial sole and toes (“Jogger’s foot”).
  - Loss of sensation over **medial 3½ toes.**
- **Lateral plantar nerve:**
  - Affects small intrinsic muscles; loss of sensation on **lateral 1½ toes.**
  - May mimic **ulnar-nerve lesion** of the hand.

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11. Posterior Tibial Artery Occlusion

- **Cause:** Atherosclerosis at the ankle.
- **Sign:** Absent **posterior tibial pulse** posterior to the medial malleolus.
- **Effect:** Ischemic pain and **ulceration of toes and sole.**

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12. Dorsalis Pedis Artery Palpation

- **Site:** Lateral to tendon of **extensor hallucis longus** on dorsum of foot.
- **Clinical relevance:** Absence of pulse indicates **peripheral arterial occlusive disease (PAOD).**

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13. Femoral Artery Aneurysm / Injury

- **Clinical test:** Distinct pulsatile swelling below the inguinal ligament.

- **Complication: Femoral hernia** may compress the artery or vein.
- **Femoral-pulse site:** Mid-inguinal point — crucial for arterial cannulation or pressure control in hemorrhage.

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14. Popliteal Artery Aneurysm

- **Clinical sign:** Pulsatile mass in popliteal fossa with bruit.
- **Complication:** May compress tibial nerve ? calf pain and sensory deficit.
- **Palpation:** Flex the knee and feel deeply in the mid-fossa.

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15. Compartment Syndrome of Leg

- **Cause:** Increased intracompartmental pressure after trauma or tight cast.
- **Result:** Compression of **deep peroneal nerve** and **anterior tibial vessels.**
- **Sign:** Severe pain, weakness of dorsiflexion, sensory loss in first web space.
- **Management: Emergency fasciotomy.**

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16. Atheromatous Disease of Lower Limb Arteries

- **Common sites:** Femoral bifurcation, popliteal artery, posterior tibial artery.
- **Clinical triad:** Claudication pain ? loss of pulse ? ischemic ulcer/gangrene.
- **Diagnosis:** Doppler or angiography.

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17. Varicose Veins and Venous Ulcers

- **Cause:** Valve incompetence in **great or small saphenous veins**.
- **Clinical feature:** Dilated, tortuous superficial veins and **pitting edema**.
- **Complication:** Chronic ulceration over the **medial malleolus**.

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18. Venous Thrombosis (DVT)

- **Cause:** Prolonged immobilization or hypercoagulability.
- **Sign:** Swelling, tenderness, increased local temperature of calf.
- **Risk: Pulmonary embolism** if thrombus dislodges.

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19. Arterial vs Venous Ulcer (Contrast)

- **Arterial ulcer:** Painful, distal, with pale necrotic edges and absent pulses.
- **Venous ulcer:** Shallow, over medial malleolus, with pigmentation and edema.

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20. Clinical Correlation Summary Table

STRUCTURE INVOLVED	KEY DEFICIT / SIGN	CLASSIC PRESENTATION
Femoral nerve	Weak knee extension	Loss of patellar reflex
Sciatic nerve	Foot drop & sensory loss	Posterior thigh pain
Common peroneal	Painless foot drop	Steppage gait

STRUCTURE INVOLVED	KEY DEFICIT / SIGN	CLASSIC PRESENTATION
Tibial nerve	Loss of plantar flexion	Cannot stand on toes
Posterior tibial artery	Absent pulse	Claudication & ulcer
Dorsalis pedis artery	Absent pulse	Ischemic foot
Great saphenous vein	Dilatation	Varicose veins
Deep peroneal nerve	Loss between toes	Ski-boot neuropathy

? Clinical Terms

1. Ankle Clonus

Rhythmic involuntary contractions of calf muscles following sudden dorsiflexion of the foot; a sign of upper motor-neuron lesion.

2. Anterior Compartment Syndrome

Raised pressure in the anterior compartment of the leg compresses the **deep peroneal nerve** and **anterior tibial artery**, producing severe pain and foot-drop.

3. Arterial Claudication

Cramping pain in the calf on walking, relieved by rest, caused by **femoral or popliteal arterial insufficiency**.

4. Deep Vein Thrombosis (DVT)

Formation of thrombus in deep veins of the leg (especially in the calf). Presents with pain, swelling, and warmth; dangerous because of risk of **pulmonary embolism**.

5. Foot Drop

Paralysis of dorsiflexors due to lesion of **common or deep peroneal nerve**; foot hangs in plantar flexion, producing **steppage gait**.

6. Flat Foot (Pes planus)

Loss of medial longitudinal arch from weakening of ligaments or plantar aponeurosis; may be congenital or acquired in long-standing cases.

7. Hammer Toe

Hyperextension of metatarsophalangeal joint with flexion of interphalangeal joints, often due to ill-fitting footwear or muscle imbalance.

8. Intermittent Claudication

Pain during exercise (walking or running) due to ischemia from **arteriosclerosis obliterans** of femoral or popliteal arteries.

9. Ischemic Contracture (Volkmann type)

Necrosis and fibrosis of flexor muscles of leg following ischemia from compartment syndrome; produces claw-like deformity of toes.

10. Pes Cavus (Claw Foot)

Exaggerated medial longitudinal arch of the foot, usually from imbalance between flexor and extensor muscles or upper motor-neuron disease.

11. Popliteal Aneurysm

Localized dilatation of the popliteal artery causing pulsatile swelling in the fossa and possible compression of the tibial nerve.

12. Sciatica

Pain radiating along the course of the **sciatic nerve**, usually from herniation of the lower lumbar intervertebral disc compressing L4–S3 roots.

13. Tarsal Tunnel Syndrome

Compression of the **tibial nerve** beneath the **flexor retinaculum** behind the medial malleolus; produces burning pain and paresthesia in the sole.

14. Trendelenburg Gait

Dropping of the pelvis on the unsupported side due to paralysis of **gluteus medius and minimus** (superior gluteal nerve injury).

15. Varicose Veins

Dilated, tortuous superficial veins (usually **great saphenous**) caused by valve incompetence and chronic venous stasis; may lead to **venous ulcers**.

16. Shin Splints

Pain along the tibia from repetitive traction injury to **tibialis anterior origin** during overuse (running, marching).

17. Valvular Incompetence

Failure of venous valves leading to reflux of blood, venous dilatation, edema, and chronic ulceration.

18. Fasciotomy

Surgical decompression of a tight fascial compartment to relieve ischemia and prevent muscle necrosis, especially in **anterior compartment syndrome**.

19. Popliteal Pulse

Palpated with the knee flexed; its absence may indicate **popliteal artery occlusion** or embolism.

20. Posterior Tibial Pulse

Felt behind the **medial malleolus**; absent in **peripheral arterial occlusive disease**.

? Multiple Choice Questions

1. The femoral nerve arises from which spinal segments?
   A. L2–L4 **B.** L1–L3 **C.** L3–L5 **D.** L4–S1
   ? Correct Answer: A

2. The obturator nerve supplies all of the following except:
   A. Gracilis **B.** Pectineus **C.** Adductor longus **D.** Adductor brevis
   ? Correct Answer: B

3. The superior gluteal nerve supplies:
   A. Gluteus maximus **B.** Gluteus medius **C.** Piriformis **D.** Quadratus femoris
   ? Correct Answer: B

4. Injury to the inferior gluteal nerve results in:
   A. Foot drop **B.** Inability to abduct thigh **C.** Inability to extend hip **D.** Loss of knee jerk
   ? Correct Answer: C

5. Trendelenburg gait occurs due to paralysis of:
   A. Gluteus maximus **B.** Gluteus medius **C.** Tensor fasciae latae **D.** Iliopsoas
   ? Correct Answer: B

6. The nerve commonly injured at the neck of the fibula is:
   A. Tibial **B.** Common peroneal **C.** Deep peroneal **D.** Sural
   ? Correct Answer: B

7. Foot drop results from lesion of:
   A. Deep peroneal nerve **B.** Tibial nerve **C.** Femoral nerve **D.** Saphenous nerve
   ? Correct Answer: A

8. The posterior compartment of the leg is supplied by:
   A. Superficial peroneal nerve **B.** Tibial nerve **C.** Deep peroneal nerve **D.** Sural nerve
   ? Correct Answer: B

9. Medial plantar nerve is analogous to which nerve of the hand?
   A. Median **B.** Ulnar **C.** Radial **D.** Axillary
   ? Correct Answer: A

10. Lateral plantar nerve corresponds to which nerve of the hand?
    A. Ulnar **B.** Median **C.** Radial **D.** Musculocutaneous
    ? Correct Answer: A

11. The main artery of the gluteal region is:
    A. Superior gluteal **B.** Inferior gluteal **C.** Femoral **D.** Profunda femoris
    ? Correct Answer: A

12. The main artery of the anterior compartment of the leg is:
    A. Posterior tibial **B.** Anterior tibial **C.** Peroneal **D.** Popliteal
    ? Correct Answer: B

13. The dorsalis pedis artery is a continuation of:
    A. Popliteal artery **B.** Posterior tibial artery **C.** Anterior tibial artery **D.** Peroneal artery
    ? Correct Answer: C

14. The pulse of the dorsalis pedis artery is felt:
    A. Behind medial malleolus **B.** Lateral to extensor hallucis longus tendon **C.** In popliteal fossa **D.** Over femoral triangle
    ? Correct Answer: B

15. Varicose veins commonly involve:
    A. Deep veins **B.** Perforating veins **C.** Great saphenous vein **D.** Popliteal vein
    ? Correct Answer: C

16. Tarsal tunnel syndrome involves compression of:
    A. Common peroneal nerve **B.** Tibial nerve **C.** Deep peroneal nerve **D.** Sural nerve
    ? Correct Answer: B

17. Foot drop in anterior compartment syndrome is due to involvement of:
    A. Deep peroneal nerve **B.** Tibial nerve **C.** Femoral nerve **D.** Lateral plantar nerve
    ? Correct Answer: A

18. Popliteal artery aneurysm may compress:
    A. Tibial nerve **B.** Common peroneal nerve **C.** Femoral nerve **D.** Obturator nerve
    ? Correct Answer: A

19. The posterior tibial pulse is best felt:
    A. Over dorsum of foot **B.** Behind medial malleolus **C.** In popliteal fossa **D.** Over adductor canal
    ? Correct Answer: B

20. The artery supplying the lateral compartment of the leg is:
    A. Anterior tibial **B.** Peroneal **C.** Posterior tibial **D.** Dorsalis pedis
    ? Correct Answer: B

? Spots on Lower Limb

1. **Femoral triangle**
2. **Adductor canal**
3. **Popliteal fossa**
4. **Great saphenous vein (at ankle)**
5. **Small saphenous vein (behind lateral malleolus)**

6. **Femoral artery (in femoral triangle)**
7. **Popliteal artery**
8. **Posterior tibial artery (behind medial malleolus)**
9. **Dorsalis pedis artery**
10. **Medial malleolus**
11. **Lateral malleolus**
12. **Head of fibula**
13. **Tibial tuberosity**
14. **Patella**
15. **Anterior superior iliac spine (ASIS)**
16. **Ischial tuberosity**
17. **Greater trochanter**
18. **Saphenous opening**
19. **Flexor retinaculum (medial ankle)**
20. **Superior and inferior extensor retinacula**
21. **Gluteal region (site for intramuscular injection)**
22. **Posterior superior iliac spine (PSIS)**

23. **Sciatic nerve (gluteal region)**
24. **Trendelenburg test site**
25. **Popliteal pulse site**
26. **Posterior tibial pulse site**
27. **Femoral pulse site**
28. **Adductor tubercle**
29. **Tendo calcaneus (Achilles tendon)**
30. **Plantar aponeurosis (sole)**

? Answers — Spots on Lower Limb

1. **Femoral triangle:** Upper third of thigh below inguinal ligament, bounded by inguinal ligament, sartorius, and adductor longus.
2. **Adductor canal:** Middle third of thigh between vastus medialis and adductor longus.
3. **Popliteal fossa:** Posterior knee area bounded by biceps femoris (laterally) and semimembranosus + semitendinosus (medially).
4. **Great saphenous vein:** In front of the medial malleolus.
5. **Small saphenous vein:** Behind the lateral malleolus, along the tendocalcaneus.
6. **Femoral artery:** From midinguinal point to adductor tubercle.

7. **Popliteal artery:** Midline of fossa from adductor hiatus to lower border of popliteus.
8. **Posterior tibial artery:** Behind medial malleolus between tendocalcaneus and malleolus.
9. **Dorsalis pedis artery:** Lateral to tendon of extensor hallucis longus on dorsum of foot.
10. **Medial malleolus:** Medial ankle prominence of tibia.
11. **Lateral malleolus:** Lateral ankle prominence of fibula.
12. **Head of fibula:** Palpable on lateral aspect just below knee joint.
13. **Tibial tuberosity:** Below patella, insertion of ligamentum patellae.
14. **Patella:** Largest sesamoid bone in front of knee.
15. **ASIS:** Anterior end of iliac crest; attachment of inguinal ligament.
16. **Ischial tuberosity:** Inferior projection of ischium; weight-bearing while sitting.
17. **Greater trochanter:** Lateral prominence below neck of femur.
18. **Saphenous opening:** 4 cm below and lateral to pubic tubercle.
19. **Flexor retinaculum:** Between medial malleolus and medial side of heel.
20. **Extensor retinacula:** Superior—between tibia and fibula; Inferior—Y-shaped on dorsum of foot.
21. **Gluteal injection site:** Upper outer quadrant of buttock (safe zone).
22. **PSIS:** Dimple on posterior iliac crest level with S2 spine.

23. **Sciatic nerve:** Midway between ischial tuberosity and greater trochanter.

24. **Trendelenburg test:** Standing on one leg to test superior gluteal nerve integrity.

25. **Popliteal pulse:** Deep in popliteal fossa with knee flexed.

26. **Posterior tibial pulse:** Behind medial malleolus.

27. **Femoral pulse:** At midinguinal point.

28. **Adductor tubercle:** Bony projection above medial condyle of femur.

29. **Tendo calcaneus:** Thick tendon behind ankle; insertion of gastrocnemius + soleus.

30. **Plantar aponeurosis:** Thick central fascia in sole maintaining arches of foot.