

# Venous and Lymphatic Drainage; Segmental and Sympathetic Innervation FAQs, MCQs and Viva Voce

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## ? Frequently Asked Questions

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### 1. What are the two main systems of veins in the lower limb?

? The **superficial system** (in superficial fascia) and the **deep system** (accompanying arteries). They communicate via **perforating veins**.

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### 2. What are the main superficial veins of the lower limb?

? **Long (great) saphenous vein** and **short (small) saphenous vein**.

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### 3. What is the course of the long saphenous vein?

? Begins at the medial end of the dorsal venous arch, passes **anterior to the medial malleolus**, ascends along the **medial side of leg and thigh**, and drains into the **femoral vein** through the **saphenous opening**.

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### 4. What is the course of the short saphenous vein?

? Begins at the lateral end of the dorsal venous arch, passes **behind the lateral malleolus**, ascends along the **back of the leg**, and drains into the **popliteal vein**.

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### 5. Which vein is commonly used for coronary artery bypass grafting (CABG)?

? **Long (great) saphenous vein** — due to its length, accessibility, and wall thickness.

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### 6. What is the direction of venous flow in perforating veins?

? From **superficial** ? **deep veins** only, due to the presence of **valves**.

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### 7. What are the major named perforating veins of the leg?

? **Cockett's** (lower leg), **Boyd's** (upper leg), and **Dodd's** (thigh).

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**8. What is a varicose vein?**

? A **dilated, tortuous vein** due to **valvular incompetence** in superficial or perforating veins.

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**9. Where are venous ulcers commonly seen?**

? Just above the **medial malleolus** due to chronic venous stasis.

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**10. What is a saphenous varix?**

? Localized dilatation of the **terminal part of long saphenous vein** at the saphenous opening, often confused with a femoral hernia.

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**11. What are the factors aiding venous return from the lower limb?**

? **Muscle pump, venous valves, deep fascia compression, arterial pulsation, and respiratory suction.**

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**12. What is deep vein thrombosis (DVT)?**

? Thrombus formation in deep veins (usually in calf veins) due to **stasis or hypercoagulability**, with risk of **pulmonary embolism**.

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**13. What are the groups of inguinal lymph nodes?**

? **Superficial** (horizontal and vertical) and **deep** groups.

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**14. What does the horizontal group of superficial inguinal lymph nodes drain?**

? Lower anterior abdominal wall, gluteal region, perineum, and external genitalia (except testis).

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**15. What does the vertical group of superficial inguinal lymph nodes drain?**

? Superficial lymphatics from the **lower limb** via the **long saphenous vein**.

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**16. What is the node of Cloquet (Rosenmüller)?**

? The **highest deep inguinal lymph node**, located in the **femoral canal** beneath the inguinal ligament.

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**17. Where does the lymph from the lateral side of foot drain first?**

? Into **popliteal lymph nodes**, then to **deep inguinal nodes**.

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**18. What is the lymphatic drainage of the glans penis or clitoris?**

? Directly into **deep inguinal lymph nodes**.

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**19. What is the clinical significance of lymphadenopathy in the groin?**

? Indicates infection or malignancy in the **lower limb, perineum, or external genitalia**.

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**20. What are the sympathetic functions in the lower limb?**

? **Vasomotor** (vessel tone), **sudomotor** (sweat secretion), and **pilomotor** (hair erection).

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**21. What is the spinal origin of sympathetic fibers to the lower limb?**

? **T10–L2 spinal segments**.

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**22. What are the effects of lumbar sympathectomy?**

? **Warm, dry skin** due to loss of vasomotor and sudomotor tone.

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**23. What is the dermatome of the great toe?**

? **L4**.

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**24. What is the dermatome of the little toe?**

? **S1**.

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**25. Which nerve root is tested by the knee jerk reflex?**

? **L3–L4**.

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**26. Which nerve root is tested by the ankle jerk reflex?**

? **S1–S2**.

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**27. Which nerve root is responsible for dorsiflexion of the foot?**

? **L4–L5 (Tibialis anterior)**.

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**28. Which nerve root is responsible for plantar flexion?**

? **S1–S2 (Gastrocnemius, Soleus).**

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**29. Why are dermatomes of the lower limb spiral in arrangement?**

? Due to **medial rotation of the limb buds** during embryonic development.

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**30. What is the difference in rotation between upper and lower limbs during development?**

? **Upper limb rotates laterally, lower limb rotates medially.**

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**31. What is the preaxial and postaxial border of the lower limb?**

? **Preaxial:** Medial (great toe side); **Postaxial:** Lateral (little toe side).

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**32. What are the main differences between upper and lower limbs?**

? Upper limb is for **mobility and manipulation**, lower limb for **support and locomotion**.

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**33. What is the commonest nerve lesion of lower limb?**

? **Common peroneal nerve injury**, producing **foot drop**.

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**34. What are the spinal segments for plantar reflex?**

? **L5–S1.**

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**35. What are the spinal segments for anal reflex?**

? **S3–S5.**

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**36. What is saddle anesthesia?**

? Loss of sensation over perineum (S3–S5 dermatomes) ? seen in **cauda equina syndrome**.

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**37. Which reflex tests corticospinal tract integrity?**

? **Plantar reflex** — Babinski's sign indicates upper motor neuron lesion.

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**38. What does the term "musculovenous pump" mean?**

? Calf muscle contraction squeezes deep veins, forcing blood upward — aided by valves

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preventing backflow.

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**39. Why is the long saphenous vein prone to varicosity?**

? Because it runs a long superficial course and has multiple tributaries with valves that can become incompetent.

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**40. Why is the foot often swollen in lymphatic obstruction?**

? The tight deep fascia of leg restricts upward lymph flow, leading to **distal accumulation**.

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### ? Multiple Choice Questions

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1. The long (great) saphenous vein begins at:

- A. Lateral end of dorsal venous arch
- B. Medial end of dorsal venous arch
- C. Behind lateral malleolus
- D. Popliteal fossa

? **Answer: B**

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2. The short (small) saphenous vein ends in:

- A. Femoral vein
- B. External iliac vein
- C. Popliteal vein
- D. Posterior tibial vein

? **Answer: C**

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3. The long saphenous vein passes:

- A. Behind the medial malleolus
- B. Anterior to the medial malleolus
- C. Behind the lateral malleolus

D. Between tibia and fibula

? **Answer:** B

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4. The short saphenous vein passes:

- A. In front of lateral malleolus
- B. Behind lateral malleolus
- C. In front of medial malleolus
- D. Behind medial malleolus

? **Answer:** B

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5. The vein commonly used for coronary artery bypass grafting (CABG) is:

- A. Short saphenous vein
- B. Long saphenous vein
- C. Popliteal vein
- D. Femoral vein

? **Answer:** B

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6. Perforating veins connect:

- A. Arteries and veins
- B. Deep veins and superficial veins
- C. Lymphatics and veins
- D. Deep arteries and superficial arteries

? **Answer:** B

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7. Valves in veins of lower limb prevent:

- A. Backward flow of blood
- B. Venous collapse
- C. Arterial reflux
- D. Varicose ulcers

? **Answer:** A

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8. In varicose veins, the most common site is:

- A. Short saphenous vein
- B. Long saphenous vein and its tributaries

- C. Deep femoral vein
- D. Perforators only

? **Answer: B**

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**9.** Cockett's perforators are located in:

- A. Thigh
- B. Upper leg
- C. Lower leg near ankle
- D. Groin

? **Answer: C**

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**10.** The saphenous varix is:

- A. Dilatation of popliteal vein
- B. Dilatation of terminal part of long saphenous vein
- C. Dilatation of femoral vein
- D. Dilatation of deep vein

? **Answer: B**

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**11.** The node of Cloquet is located in:

- A. Popliteal fossa
- B. Cribriform fascia
- C. Femoral canal
- D. Saphenous opening

? **Answer: C**

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**12.** Lymph from the lateral side of foot drains first into:

- A. Superficial inguinal nodes
- B. Deep inguinal nodes
- C. Popliteal nodes
- D. External iliac nodes

? **Answer: C**

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**13.** Lymph from glans penis drains into:

- A. Superficial inguinal nodes

- B. Deep inguinal nodes
- C. External iliac nodes
- D. Lumbar nodes

? **Answer: B**

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14. Superficial inguinal lymph nodes receive lymph from all except:

- A. Lower abdominal wall
- B. Perineum
- C. Testis
- D. External genitalia

? **Answer: C**

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15. Popliteal lymph nodes drain into:

- A. Superficial inguinal nodes
- B. Deep inguinal nodes
- C. External iliac nodes
- D. Common iliac nodes

? **Answer: B**

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16. Sympathetic supply to lower limb arises from:

- A. T1–T5
- B. T6–T9
- C. T10–L2
- D. L3–S2

? **Answer: C**

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17. Which of the following functions is not sympathetic?

- A. Vasomotor
- B. Sudomotor
- C. Pilomotor
- D. Voluntary movement

? **Answer: D**

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18. The dermatome of the great toe corresponds to:

- A. L3
- B. L4
- C. L5
- D. S1

? **Answer:** B

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19. The dermatome of the little toe corresponds to:

- A. L3
- B. L4
- C. L5
- D. S1

? **Answer:** D

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20. Dorsiflexion of foot tests which spinal segment?

- A. L2
- B. L3
- C. L4–L5
- D. S1

? **Answer:** C

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21. Plantar flexion of foot depends mainly on:

- A. L2–L3
- B. L3–L4
- C. L4–L5
- D. S1–S2

? **Answer:** D

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22. Knee jerk reflex tests integrity of:

- A. L2–L3
- B. L3–L4
- C. L5–S1
- D. S1–S2

? **Answer:** B

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**23.** Absence of ankle jerk indicates lesion at:

- A. L3–L4
- B. L5–S1
- C. S1–S2
- D. T12–L1

? **Answer:** C

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**24.** Plantar reflex is mediated through:

- A. L2–L3
- B. L3–L4
- C. L5–S1
- D. S2–S4

? **Answer:** C

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**25.** Babinski sign indicates:

- A. Lower motor neuron lesion
- B. Sensory loss
- C. Upper motor neuron lesion
- D. Peripheral neuropathy

? **Answer:** C

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**26.** Dermatomes of the lower limb are arranged:

- A. Longitudinally
- B. Spirally
- C. Horizontally
- D. Randomly

? **Answer:** B

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**27.** The upper limb rotates \_\_\_\_\_ during development, while the lower limb rotates \_\_\_\_\_.

- A. Laterally, medially
- B. Medially, laterally
- C. Anteriorly, posteriorly
- D. Posteriorly, anteriorly

?

**Answer:**

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**28.** Preaxial border of the lower limb is:

- A. Lateral
- B. Medial
- C. Posterior
- D. Anterior

? **Answer: B**

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**29.** Postaxial border of the lower limb is:

- A. Medial
- B. Lateral
- C. Posterior
- D. Anterior

? **Answer: B**

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**30.** The most common nerve injury in the lower limb causing foot drop involves:

- A. Tibial nerve
- B. Common peroneal nerve
- C. Femoral nerve
- D. Obturator nerve

? **Answer: B**

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**31.** The arches of the foot are maintained by all except:

- A. Plantar aponeurosis
- B. Peroneus longus tendon
- C. Adductor longus
- D. Spring ligament

? **Answer: C**

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**32.** Functionally, the upper limb is specialized for:

- A. Stability
- B. Locomotion
- C. Manipulation

D. Weight bearing

? **Answer: C**

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**33.** Functionally, the lower limb is specialized for:

A. Fine movement

B. Weight bearing

C. Grasping

D. Rotation

? **Answer: B**

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**34.** The commonest deformity after common peroneal nerve injury is:

A. Foot drop

B. Claw foot

C. Flat foot

D. Club foot

? **Answer: A**

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**35.** The reflex testing integrity of corticospinal tract is:

A. Knee jerk

B. Ankle jerk

C. Plantar reflex

D. Cremasteric reflex

? **Answer: C**

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**36.** The dermatome of the posterior thigh corresponds mainly to:

A. L4

B. L5

C. S1

D. S2

? **Answer: D**

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**37.** The lymph from testis drains into:

A. Superficial inguinal nodes

B. Deep inguinal nodes

C. Para-aortic (lumbar) nodes

D. Internal iliac nodes

? **Answer:** C

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**38.** The horizontal group of superficial inguinal nodes lies:

A. Below the inguinal ligament

B. Along femoral vein

C. Around saphenous opening

D. Over the adductor canal

? **Answer:** A

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**39.** The node receiving lymph from glans penis is:

A. Superficial inguinal

B. Deep inguinal

C. External iliac

D. Popliteal

? **Answer:** B

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**40.** Loss of vasomotor and sudomotor tone after sympathectomy leads to:

A. Pale, cold limb

B. Warm, dry limb

C. Blue, moist limb

D. Cold, cyanotic limb

? **Answer:** B

### ? Viva Voce – Lower Limb: Venous, Lymphatic, and Neural Drainage

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**1.** What are the two systems of veins in the lower limb?

? **Superficial** and **deep** venous systems, interconnected by **perforating veins**.

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2. What is the function of perforating veins?

? They connect superficial veins to deep veins and contain valves that allow flow **only from superficial to deep**.

---

3. Name the major superficial veins of the lower limb.

? **Long (great) saphenous vein** and **short (small) saphenous vein**.

---

4. Where does the long saphenous vein terminate?

? In the **femoral vein** at the **saphenous opening**.

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5. Where does the short saphenous vein terminate?

? In the **popliteal vein** in the popliteal fossa.

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6. Which vein passes in front of the medial malleolus?

? **Long saphenous vein**.

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7. Which vein passes behind the lateral malleolus?

? **Short saphenous vein**.

---

8. What are Cockett's perforators?

? Perforating veins connecting the **posterior arch vein** with **posterior tibial veins** in the lower leg.

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9. What causes varicose veins?

? **Incompetence of venous valves**, leading to reversal of blood flow and venous dilation.

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10. Why are venous ulcers common near the medial malleolus?

? Due to **chronic venous stasis** and poor tissue oxygenation in varicose veins.

---

11. What is a saphenous varix?

? A **localized dilation** of the terminal part of the **long saphenous vein** at the saphenous opening.

---

12. What factors help venous return from the lower limb?

? **Muscle pump, venous valves, deep fascia compression, arterial pulsation, and respiratory movements.**

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13. What is the musculo-venous pump?

? Action of **calf muscles** compressing deep veins during walking, forcing blood upward toward the heart.

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14. Which lymph nodes drain the superficial tissues of the lower limb?

? **Superficial inguinal lymph nodes.**

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15. Which lymph nodes drain the deep structures of the lower limb?

? **Deep inguinal lymph nodes.**

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16. Into which lymph nodes does the lateral side of foot drain first?

? **Popliteal lymph nodes.**

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17. Which is the highest deep inguinal lymph node?

? **Node of Cloquet (Rosenmüller)** — located in the **femoral canal**.

---

18. What is the drainage of the glans penis or clitoris?

? Directly into **deep inguinal lymph nodes**.

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19. Lymph from the testis drains into which nodes?

? **Para-aortic (lumbar) lymph nodes.**

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20. What are the sympathetic root levels supplying the lower limb?

? **T10–L2.**

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21. What structures receive sympathetic supply in the lower limb?

? **Blood vessels, sweat glands, and arrector pili muscles.**

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22. What are the effects of lumbar sympathectomy?

? **Warm, dry limb** due to loss of vasomotor and sudomotor tone.

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23. What are the components of sympathetic function in the limb?

? **Vasomotor, sudomotor, and pilomotor.**

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24. Which dermatome corresponds to the medial side of leg and great toe?

? **L4.**

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25. Which dermatome corresponds to the lateral side of foot and little toe?

? **S1.**

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26. Which spinal segment controls dorsiflexion of the foot?

? **L4–L5.**

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27. Which spinal segment controls plantar flexion?

? **S1–S2.**

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28. What is the root value of knee jerk reflex?

? **L3–L4.**

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29. What is the root value of ankle jerk reflex?

? **S1–S2.**

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30. What is the root value of plantar reflex?

? **L5–S1.**

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31. What does a positive Babinski sign indicate?

? **Upper motor neuron lesion** of the corticospinal tract.

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32. Why are dermatomes of the lower limb spiral in arrangement?

? Due to **medial rotation** of the limb buds during development.

---



33. Which border of the lower limb is preaxial and which is postaxial?

? **Preaxial:** Medial (great toe side)

**Postaxial:** Lateral (little toe side)

---

34. How does the development of upper and lower limbs differ?

? Upper limb rotates **laterally**, lower limb rotates **medially**.

---

35. What is the functional difference between upper and lower limbs?

? **Upper limb:** Mobility and manipulation.

**Lower limb:** Support and locomotion.

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36. Which muscle corresponds to the flexor digitorum superficialis of hand?

? **Flexor digitorum brevis** of foot.

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37. Which muscle corresponds to the flexor digitorum profundus of hand?

? **Flexor digitorum longus** of foot.

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38. Which deformity occurs after common peroneal nerve injury?

? **Foot drop.**

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39. Which deformity occurs after tibial nerve injury?

? **Calcaneovalgus deformity** — loss of plantar flexion.

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40. Which is the commonest site for varicose ulcer?

? **Above the medial malleolus.**

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41. What causes lymphoedema of the lower limb?

? **Obstruction of lymphatic drainage** due to filariasis, surgery, or malignancy.

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42. What is elephantiasis?

? **Gross thickening and enlargement** of the limb due to **chronic filarial lymphatic obstruction.**

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43. Which reflex tests the integrity of S3–S5 segments?

? **Anal reflex.**

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44. What is saddle anesthesia?

? Loss of sensation over perineum (S3–S5 dermatomes), seen in **cauda equina syndrome.**

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45. Which nerve lesion is tested by loss of dorsiflexion of the foot?

? **Common peroneal nerve lesion.**

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46. Which nerve lesion causes loss of plantar flexion?

? **Tibial nerve lesion.**

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47. What maintains the longitudinal arches of the foot?

? **Tibialis posterior, plantar aponeurosis, spring ligament, and flexor tendons.**

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48. What maintains the transverse arch of the foot?

? **Peroneus longus tendon, adductor hallucis (transverse head), and deep transverse metatarsal ligament.**

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49. What are the homologous arteries of the upper and lower limbs?

? **Brachial artery ? Femoral artery.**

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50. What are the homologous nerves of the upper and lower limbs?

? **Median nerve ? Medial plantar nerve; Ulnar nerve ? Lateral plantar nerve.**