MEDICAL EDUCATION RESOURCE

Back of Thigh: FAQs, MCQs and Viva Voce

Frequently Asked Questions — Back of Thigh

1. What muscles form the hamstring group?

Semimembranosus, semitendinosus, biceps femoris (long head), and the ischial part of adductor magnus.

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2. Why are these muscles called “hamstrings”?

They form the string-like tendons at the back of the knee and were once used to “hamstring” animals by cutting these tendons.

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3. What are the common features of hamstring muscles?

All arise from the ischial tuberosity, cross both hip and knee joints, are supplied by the tibial part of the sciatic nerve, and act as extensors of the hip and flexors of the knee.

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4. Which muscle of the back of thigh is not a true hamstring?

The short head of biceps femoris — it arises from the femur, crosses only the knee joint, and is supplied by the common peroneal nerve.

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5. Which muscle forms the oblique popliteal ligament?

The semimembranosus — its reflected expansion forms the oblique popliteal ligament on the posterior capsule of the knee.

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6. What is the nerve supply of the hamstrings?

Tibial division of the sciatic nerve (except short head of biceps, supplied by the common peroneal division).

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7. What is the main arterial supply of the posterior thigh?

Perforating branches of the profunda femoris artery.

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8. What is the functional importance of the hamstrings?

They extend the hip, flex the knee, and stabilize the pelvis when standing or walking.

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9. What is the relation of the sciatic nerve to the hamstring muscles?

It lies superficial to adductor magnus and deep to the long head of biceps femoris.

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10. Where does the sciatic nerve divide?

Usually at the upper angle of the popliteal fossa into tibial and common peroneal nerves (but sometimes higher in the thigh or gluteal region).

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11. What is the root value of the sciatic nerve?

L4, L5, S1, S2, and S3.

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12. What is the clinical importance of the sciatic nerve?

Compression or irritation causes sciatica — pain radiating down the posterior thigh and leg. It is also vulnerable in gluteal injections.

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13. What is the extent of the posterior cutaneous nerve of the thigh?

It supplies the skin of the posterior thigh, lower gluteal region, and popliteal fossa.

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14. What are the chief anastomoses on the back of the thigh?

Between gluteal, circumflex femoral, and perforating arteries — maintaining collateral circulation when femoral flow is reduced.

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15. What is the companion artery of the sciatic nerve?

A small branch from the inferior gluteal artery, a remnant of the embryonic axial artery of the lower limb.

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16. Why is the posterior thigh a common site for referred pain in spinal disc herniation?

Because the sciatic nerve carries fibers from L4–S3 roots, which are frequently compressed in lumbar disc prolapse.

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17. What surface landmark helps locate the sciatic nerve in the thigh?

A line joining the ischial tuberosity and the greater trochanter; the nerve lies midway between

them.

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18. What is the functional consequence of hamstring paralysis?

Loss of knee flexion, weakened hip extension, and an unstable gait.

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19. Which artery gives the nutrient branch to the femur?

The second perforating artery from the profunda femoris artery.

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20. Why is the back of thigh a good site for intramuscular injections in infants?

Because it is muscular and well-vascularized, away from major nerves and vessels.

Multiple Choice Questions — Back of Thigh

1. The main nerve supply to the hamstring muscles is:

A. Femoral nerve

B. Obturator nerve

C. Tibial part of sciatic nerve

D. Common peroneal nerve

Answer: C. Tibial part of sciatic nerve

Explanation: All true hamstrings are supplied by the tibial division of the sciatic nerve.

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2. Which of the following is NOT a true hamstring muscle?

A. Semimembranosus

B. Semitendinosus

C. Biceps femoris (short head)

D. Adductor magnus (ischial part)

Answer: C. Biceps femoris (short head)

Explanation: It arises from the femur and is supplied by the common peroneal nerve.

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3. The common feature of true hamstring muscles is that they:

A. Arise from femur

B. Are supplied by femoral nerve

C. Are extensors of the knee

D. Arise from ischial tuberosity

Answer: D. Arise from ischial tuberosity

Explanation: All true hamstrings originate from the ischial tuberosity.

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4. The long head of biceps femoris is supplied by:

A. Tibial division of sciatic nerve

B. Common peroneal nerve

C. Femoral nerve

D. Obturator nerve

Answer: A. Tibial division of sciatic nerve

Explanation: The short head is supplied by the common peroneal nerve, but the long head by the tibial part.

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5. The short head of biceps femoris is supplied by:

A. Tibial nerve

B. Common peroneal nerve

C. Femoral nerve

D. Obturator nerve

Answer: B. Common peroneal nerve

Explanation: It is the only hamstring component supplied by the common peroneal division.

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6. The ischial part of adductor magnus is supplied by:

A. Obturator nerve

B. Tibial division of sciatic nerve

C. Common peroneal nerve

D. Femoral nerve

Answer: B. Tibial division of sciatic nerve

Explanation: This part acts as a hamstring and is supplied by the tibial division.

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7. The semimembranosus forms which ligament of the knee?

A. Patellar ligament

B. Oblique popliteal ligament

C. Arcuate popliteal ligament

D. Posterior cruciate ligament

Answer: B. Oblique popliteal ligament

Explanation: Its reflected tendon forms the oblique popliteal ligament.

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8. The artery accompanying the sciatic nerve is derived from:

A. Profunda femoris artery

B. Inferior gluteal artery

C. Superior gluteal artery

D. Popliteal artery

Answer: B. Inferior gluteal artery

Explanation: A small companion artery runs with the sciatic nerve, a remnant of the embryonic axial artery.

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9. The main arterial supply of the posterior compartment of thigh is by:

A. Popliteal artery

B. Femoral artery

C. Profunda femoris artery

D. Inferior gluteal artery

Answer: C. Profunda femoris artery

Explanation: It gives four perforating branches that supply the posterior thigh.

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10. The second perforating artery gives:

A. Nutrient artery to tibia

B. Nutrient artery to femur

C. Nutrient artery to fibula

D. Muscular branches to gluteus maximus

Answer: B. Nutrient artery to femur

Explanation: The nutrient artery to femur arises from the second perforating artery.

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11. The sciatic nerve usually divides at:

A. Upper part of thigh

B. Lower part of thigh

C. Upper part of popliteal fossa

D. Middle of thigh

Answer: C. Upper part of popliteal fossa

Explanation: Here it divides into tibial and common peroneal nerves.

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12. The root value of the sciatic nerve is:

A. L3–S1

B. L4–S3

C. L2–S2

D. L5–S4

Answer: B. L4–S3

Explanation: It is derived from the sacral plexus (L4–S3).

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13. Which muscle lies superficial to the sciatic nerve?

A. Gluteus minimus

B. Biceps femoris (long head)

C. Adductor magnus

D. Semimembranosus

Answer: B. Biceps femoris (long head)

Explanation: The nerve lies deep to this muscle in the posterior thigh.

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14. Which muscle of posterior thigh acts on both hip and knee joints?

A. Semitendinosus

B. Biceps femoris (short head)

C. Semimembranosus

D. A and C both

Answer: D. A and C both

Explanation: Both cross the hip and knee joints.

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15. The function of hamstring muscles at the hip joint is:

A. Flexion

B. Extension

C. Abduction

D. Rotation

Answer: B. Extension

Explanation: Hamstrings extend the thigh at the hip.

16. The function of hamstring muscles at the knee joint is:

A. Extension

B. Flexion

C. Abduction

D. Rotation

Answer: B. Flexion

Explanation: They flex the knee and rotate the leg when flexed.

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17. The hamstring muscles are antagonistic to:

A. Quadriceps femoris

B. Sartorius

C. Adductor magnus

D. Pectineus

Answer: A. Quadriceps femoris

Explanation: Quadriceps extend the knee, whereas hamstrings flex it.

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18. The sciatic nerve lies on which muscle in the thigh?

A. Adductor longus

B. Adductor brevis

C. Adductor magnus

D. Gracilis

Answer: C. Adductor magnus

Explanation: It runs along the posterior surface of adductor magnus.

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19. Which muscle forms part of the pes anserinus?

A. Semimembranosus

B. Semitendinosus

C. Biceps femoris

D. Gracilis

Answer: B. Semitendinosus

Explanation: Along with gracilis and sartorius, semitendinosus forms pes anserinus.

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20. In sciatic nerve injury, which of the following is true?

A. Loss of hip abduction

B. Loss of knee flexion

C. Foot drop with sensory loss below knee

D. Both B and C

Answer: D. Both B and C

Explanation: Sciatic nerve lesion leads to hamstring paralysis (loss of knee flexion) and paralysis below knee (foot drop).

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21. Which nerve is responsible for referred pain from the posterior thigh to the knee?

A. Obturator nerve

B. Tibial nerve

C. Sciatic nerve

D. Femoral nerve

Answer: C. Sciatic nerve

Explanation: Because of its wide sensory distribution along the posterior thigh and leg.

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22. Which artery connects the internal iliac and femoral systems through the back of thigh?

A. Inferior gluteal artery

B. Lateral circumflex femoral artery

C. Obturator artery

D. Popliteal artery

Answer: A. Inferior gluteal artery

Explanation: It anastomoses with branches of the profunda femoris.

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23. The perforating arteries pass through which muscle?

A. Adductor longus

B. Adductor magnus

C. Pectineus

D. Gracilis

Answer: B. Adductor magnus

Explanation: They pierce the adductor magnus to reach the back of the thigh.

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24. The sciatic nerve may divide high in:

A. Gluteal region

B. Thigh

C. Popliteal fossa

D. Leg

Answer: A. Gluteal region

Explanation: Sometimes divides high, giving separate tibial and common peroneal trunks.

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25. The hamstring part of adductor magnus acts as:

A. Flexor of hip

B. Extensor of hip

C. Adductor of thigh

D. Rotator of thigh

Answer: B. Extensor of hip

Explanation: It acts along with hamstrings as an extensor of the thigh.

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26. Which structure forms the lateral boundary of the posterior thigh?

A. Biceps femoris

B. Semimembranosus

C. Semitendinosus

D. Adductor magnus

Answer: A. Biceps femoris

Explanation: It forms the lateral border of the posterior compartment.

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27. The sciatic nerve passes midway between:

A. Ischial tuberosity and greater trochanter

B. PSIS and greater trochanter

C. ASIS and pubic symphysis

D. Iliac crest and ischial tuberosity

Answer: A. Ischial tuberosity and greater trochanter

Explanation: This midpoint is the safest landmark to locate the nerve.

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28. The nerve affected in piriformis syndrome is:

A. Tibial nerve

B. Sciatic nerve

C. Obturator nerve

D. Femoral nerve

Answer: B. Sciatic nerve

Explanation: Compression under piriformis causes sciatica-like pain.

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29. The hamstring tendons form boundaries of which fossa?

A. Adductor canal

B. Popliteal fossa

C. Femoral triangle

D. Suboccipital triangle

Answer: B. Popliteal fossa

Explanation: Semimembranosus and semitendinosus form the medial border, biceps femoris forms the lateral border.

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30. The function of the sciatic nerve is to supply:

A. Only gluteal muscles

B. Posterior thigh and entire leg below knee (except medial side)

C. Only anterior compartment of leg

D. Lateral compartment of leg only

Answer: B. Posterior thigh and entire leg below knee (except medial side)

Explanation: Sciatic nerve supplies all compartments below knee through tibial and peroneal branches

Viva Voce — Back of Thigh

1. Name the muscles forming the hamstring group.

Semimembranosus, semitendinosus, biceps femoris (long head), and ischial part of adductor magnus.

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2. Why are these muscles called “hamstrings”?

Because their tendons on the back of the knee resemble string-like cords used to "hamstring"

animals in the past.

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3. What are the characteristics of true hamstring muscles?

They originate from the ischial tuberosity, are supplied by the tibial division of the sciatic nerve, cross both hip and knee joints, and act as hip extensors and knee flexors.

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4. Which muscle of the posterior thigh is not a true hamstring?

The short head of biceps femoris—it arises from the femur and is supplied by the common peroneal nerve.

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5. What is the main function of hamstring muscles?

To extend the hip and flex the knee joint; they also stabilize the pelvis during standing and walking.

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6. What is the nerve supply of the posterior thigh muscles?

Tibial division of sciatic nerve, except the short head of biceps femoris (common peroneal division).

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7. What is the blood supply to the back of thigh?

Perforating branches of profunda femoris artery.

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8. What is the surface marking of the sciatic nerve in the thigh?

A line joining the ischial tuberosity and greater trochanter; the nerve lies midway between them.

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9. Where does the sciatic nerve divide?

Usually at the upper angle of the popliteal fossa into tibial and common peroneal nerves.

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10. What is the root value of the sciatic nerve?

L4, L5, S1, S2, and S3.

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11. What is the largest nerve in the body?

The sciatic nerve.

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12. What is the anatomical relation of the sciatic nerve to the hamstrings?

It lies deep to the long head of biceps femoris and superficial to adductor magnus.

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13. Which structure forms the oblique popliteal ligament?

The reflected tendon of semimembranosus.

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14. What is the clinical importance of the sciatic nerve?

It is commonly injured by misplaced gluteal injections, causing *sciatica* and *foot drop*.

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15. What is sciatica?

Pain radiating along the course of the sciatic nerve due to irritation or compression of its roots, commonly from intervertebral disc herniation.

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16. What is the arterial companion of the sciatic nerve?

The artery to the sciatic nerve, a branch of the inferior gluteal artery.

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17. Which muscle covers the sciatic nerve in the posterior thigh?

The long head of the biceps femoris.

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18. Which muscle forms the medial boundary of the posterior compartment?

Semimembranosus and semitendinosus.

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19. Which muscle forms the lateral boundary of the posterior compartment?

Biceps femoris.

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20. What movements are lost if the sciatic nerve is injured?

Knee flexion, dorsiflexion, plantar flexion, and all movements of the foot (leading to foot drop).