

Gluteal Region: FAQs, MCQs and Viva Voce

Frequently Asked Questions — Gluteal Region

1. Why is the gluteus maximus called the antigravity muscle?

Because it helps maintain the erect posture by extending the hip joint when standing from a flexed position. It counteracts the pull of gravity on the trunk.

2. Which nerve supplies the gluteus maximus?

The **inferior gluteal nerve** (root value L5, S1, S2).

3. What is the nerve supply of gluteus medius and minimus?

Both are supplied by the **superior gluteal nerve** (root value L4, L5, S1).

4. What is the functional importance of gluteus medius and minimus?

They stabilize the pelvis during walking by preventing the pelvis from dropping on the opposite side (abductor mechanism).

5. What is the Trendelenburg sign?

When the gluteus medius and minimus of one side are paralyzed, the pelvis on the opposite side drops when standing on the affected limb. This indicates a **positive Trendelenburg sign**.

6. What is the key muscle of the gluteal region and why?

Piriformis — it divides the greater sciatic foramen into **suprapiriform** and **infrapiriform compartments**, guiding the passage of important vessels and nerves.

7. What is the “gateway” of the gluteal region?

The **greater sciatic foramen** — it allows communication between the pelvis and gluteal region.

8. Which quadrant is safe for intramuscular injection and why?

The **upper lateral quadrant**, because it is free from major nerves and vessels. Injections here avoid injury to the sciatic and inferior gluteal nerves.

9. What are the structures passing through the greater sciatic foramen above piriformis?

Superior gluteal nerve and vessels.

10. What are the structures passing below piriformis through the greater sciatic foramen?

Inferior gluteal nerve and vessels, sciatic nerve, posterior cutaneous nerve of thigh, pudendal nerve, internal pudendal vessels, nerve to obturator internus, and nerve to quadratus femoris.

11. What are the structures passing through the lesser sciatic foramen?

Tendon of obturator internus, pudendal nerve, internal pudendal vessels, and nerve to obturator internus.

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

L4, L5, S1, S2, S3.

13. Which muscle is tested when assessing hip extension against resistance?

Gluteus maximus.

14. What happens when the inferior gluteal nerve is injured?

Loss of extension at the hip joint — the patient cannot rise from sitting or climb stairs without assistance.

15. What happens when the superior gluteal nerve is injured?

Pelvic drop on the opposite side while walking — **positive Trendelenburg's sign.**

16. What is the common site of compression of the sciatic nerve?

Under the **piriformis muscle** (Piriformis Syndrome).

17. Why does prolonged sitting cause numbness in the leg (“sleeping foot”)?

Due to **compression of the sciatic nerve** between the ischial tuberosity and the seat surface.

18. What are the arteries supplying the gluteal region?

Superior gluteal, inferior gluteal, and internal pudendal arteries — all branches of the internal iliac artery.

19. What are the two important arterial anastomoses around the hip?

Trochanteric anastomosis (for femoral head and neck) and **cruciate anastomosis** (collateral circulation between internal and external iliac arteries).

20. Why is the gluteus maximus not used in ordinary walking?

Because it mainly acts during **forceful extension** (climbing stairs, running, rising from sitting), not during normal gait.

21. What is Weaver’s Bottom?

Inflammation of the **ischial bursa** due to prolonged sitting on hard surfaces — also known as **ischial bursitis**.

22. Why does hip disease cause pain referred to the knee?

Because both joints share sensory fibers via the **femoral and obturator nerves**, producing referred pain.

23. What is the relation between the sciatic nerve and piriformis muscle?

Normally the sciatic nerve passes **below piriformis**, but in some individuals, it divides and one part passes **through or above** the muscle — a cause of piriformis syndrome.

24. What are the main ligaments forming the boundaries of the greater and lesser sciatic foramina?

Sacrotuberous and sacrospinous ligaments.

25. What is the clinical importance of the internal pudendal artery?

It supplies the **perineum and external genitalia**; it can be blocked during obstetric procedures for **pudendal nerve block**.

Multiple Choice Questions — Gluteal Region

1. The largest muscle in the human body is:

- A. Gluteus medius
- B. Gluteus maximus
- C. Latissimus dorsi
- D. Rectus femoris

Answer: B. Gluteus maximus

Explanation: It forms the bulk of the buttock and is the chief extensor of the hip joint.

2. The main extensor of the hip joint is:

- A. Gluteus medius
- B. Gluteus minimus
- C. Gluteus maximus
- D. Hamstrings

Answer: C. Gluteus maximus

Explanation: Especially active during rising from sitting or climbing.

3. The chief abductor of the thigh is:

- A. Gluteus maximus
- B. Gluteus medius
- C. Piriformis
- D. Tensor fasciae latae

Answer: B. Gluteus medius

Explanation: Gluteus medius and minimus abduct the thigh and stabilize the pelvis during walking.

4. The superior gluteal nerve supplies all except:

- A. Gluteus medius
- B. Gluteus minimus
- C. Gluteus maximus
- D. Tensor fasciae latae

Answer: C. Gluteus maximus

Explanation: Gluteus maximus is supplied by the **inferior gluteal nerve**.

5. The nerve supply of gluteus maximus is:

- A. Femoral nerve
- B. Inferior gluteal nerve
- C. Sciatic nerve
- D. Superior gluteal nerve

Answer: B. Inferior gluteal nerve

6. The “key muscle” of the gluteal region is:

- A. Gluteus maximus
- B. Gluteus medius
- C. Piriformis
- D. Tensor fasciae latae

Answer: C. Piriformis

Explanation: It divides the greater sciatic foramen into supra- and infra-piriform compartments.

7. Which structure passes above the piriformis?

- A. Sciatic nerve
- B. Superior gluteal nerve
- C. Inferior gluteal nerve
- D. Pudendal nerve

Answer: B. Superior gluteal nerve

Explanation: It exits the pelvis through the greater sciatic foramen above piriformis.

8. The safe quadrant for intramuscular injection in the gluteal region is:

- A. Lower medial
- B. Upper medial
- C. Lower lateral
- D. Upper lateral

Answer: D. Upper lateral

Explanation: Avoids injury to sciatic nerve and major vessels.

9. The main arterial supply to gluteus maximus is:

- A. Superior gluteal artery
- B. Inferior gluteal artery
- C. Internal pudendal artery
- D. Lateral circumflex femoral artery

Answer: B. Inferior gluteal artery

10. The superior gluteal artery is a branch of:

- A. External iliac artery
- B. Femoral artery
- C. Internal iliac artery
- D. Profunda femoris artery

Answer: C. Internal iliac artery

11. Which structure passes through both greater and lesser sciatic foramina?

- A. Sciatic nerve
- B. Pudendal nerve
- C. Obturator nerve
- D. Inferior gluteal artery

Answer: B. Pudendal nerve

Explanation: Leaves pelvis through greater and re-enters through lesser sciatic foramen.

12. The main artery of the perineum is:

- A. Inferior gluteal artery
- B. Internal pudendal artery
- C. Superior gluteal artery
- D. Obturator artery

Answer: B. Internal pudendal artery

13. The nerve most likely injured in wrong gluteal injection is:

- A. Inferior gluteal nerve
- B. Superior gluteal nerve
- C. Sciatic nerve
- D. Pudendal nerve

Answer:

C.

Sciatic

14. Which nerve lies deep to gluteus medius?

- A. Superior gluteal nerve
- B. Inferior gluteal nerve
- C. Pudendal nerve
- D. Sciatic nerve

Answer: A. Superior gluteal nerve

15. The Trendelenburg sign is positive in injury to:

- A. Inferior gluteal nerve
- B. Superior gluteal nerve
- C. Sciatic nerve
- D. Pudendal nerve

Answer: B. Superior gluteal nerve

16. The main muscle affected in paralysis of inferior gluteal nerve is:

- A. Gluteus maximus
- B. Gluteus medius
- C. Gluteus minimus
- D. Tensor fasciae latae

Answer: A. Gluteus maximus

17. The greater sciatic foramen is converted from a notch by:

- A. Sacrotuberous ligament
- B. Sacrospinous ligament
- C. Both A and B
- D. Ischial spine

Answer: C. Both A and B

Explanation: Sacrotuberous forms posterior boundary; sacrospinous divides it from lesser sciatic foramen.

18. The root value of the sciatic nerve is:

- A. L2–L4

B. L4–S3

C. L5–S4

D. S1–S4

Answer: B. L4–S3

19. The main arterial supply to head and neck of femur is via:

- A. Inferior gluteal artery
- B. Medial circumflex femoral artery
- C. Superior gluteal artery
- D. Internal pudendal artery

Answer: B. Medial circumflex femoral artery

20. Weaver's bottom refers to:

- A. Gluteal abscess
- B. Ischial bursitis
- C. Trochanteric bursitis
- D. Sciatic nerve injury

Answer: B. Ischial bursitis

Explanation: Caused by friction over ischial tuberosity due to prolonged sitting.

21. The trochanteric anastomosis supplies:

- A. Gluteus maximus
- B. Femoral head and neck
- C. Hamstrings
- D. Sciatic nerve

Answer: B. Femoral head and neck

22. The cruciate anastomosis connects:

- A. Internal and external iliac arteries
- B. External iliac and popliteal arteries
- C. Profunda femoris and popliteal arteries
- D. Internal pudendal and obturator arteries

Answer: A. Internal and external iliac arteries

23. The artery passing between piriformis and superior gemellus is:

- A. Inferior gluteal artery
- B. Superior gluteal artery
- C. Internal pudendal artery
- D. Lateral circumflex femoral artery

Answer: A. Inferior gluteal artery

24. The nerve to obturator internus also supplies:

- A. Quadratus femoris
- B. Superior gemellus
- C. Inferior gemellus
- D. Coccyeus

Answer: B. Superior gemellus

25. The nerve to quadratus femoris also supplies:

- A. Inferior gemellus
- B. Superior gemellus
- C. Obturator internus
- D. Piriformis

Answer: A. Inferior gemellus

26. The internal pudendal artery passes:

- A. Only through greater sciatic foramen
- B. Only through lesser sciatic foramen
- C. Through both greater and lesser sciatic foramina
- D. None of the above

Answer: C. Through both greater and lesser sciatic foramina

27. The superior gluteal nerve lies between:

- A. Gluteus medius and minimus
- B. Gluteus maximus and medius
- C. Piriformis and gluteus medius
- D. Tensor fasciae latae and gluteus medius

Answer: A. Gluteus medius and minimus

28. The sciatic nerve leaves the pelvis through:

- A. Lesser sciatic foramen
- B. Obturator canal
- C. Greater sciatic foramen below piriformis
- D. Greater sciatic foramen above piriformis

Answer: C. Greater sciatic foramen below piriformis

29. The piriformis muscle is supplied by:

- A. Nerve to quadratus femoris
- B. Nerve to obturator internus
- C. Ventral rami of S1, S2
- D. Sciatic nerve

Answer: C. Ventral rami of S1, S2

30. The muscle involved in lateral rotation of the thigh is:

- A. Gluteus minimus
- B. Gluteus medius
- C. Obturator internus
- D. Tensor fasciae latae

Answer: C. Obturator internus

Viva Voce — Gluteal Region

1. What is the key muscle of the gluteal region?

Answer: Piriformis — it divides the greater sciatic foramen into supra- and infra-piriform compartments.

2. What is the nerve supply of gluteus maximus?

Answer: Inferior gluteal nerve (L5, S1, S2).

3. What is the main function of gluteus maximus?

Answer: Extension of the hip, especially when rising from sitting, running, or climbing stairs.

4. What is the nerve supply of gluteus medius and minimus?

Answer: Superior gluteal nerve (L4, L5, S1).

5. What is the function of gluteus medius and minimus?

Answer: Abduction and medial rotation of the thigh; they stabilize the pelvis during walking.

6. What happens when the superior gluteal nerve is injured?

Answer: Pelvic drop on the opposite side — **Trendelenburg's sign positive.**

7. What is Trendelenburg's sign?

Answer: When standing on one leg, the pelvis drops on the opposite side if the gluteus medius and minimus are paralyzed.

8. Which nerve is most commonly injured during gluteal injection?

Answer: Sciatic nerve.

9. Which quadrant of the gluteal region is safe for intramuscular injection?

Answer: Upper lateral quadrant.

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

Answer: L4, L5, S1, S2, S3.

11. Which structure passes through both greater and lesser sciatic foramina?

Answer: Pudendal nerve and internal pudendal vessels.

12. What is the function of the sacrotuberous and sacrospinous ligaments?

Answer: They prevent upward tilting of the lower end of sacrum and convert sciatic notches into foramina.

13. Which muscles laterally rotate the thigh in the gluteal region?

Answer: Piriformis, obturator internus, superior and inferior gemelli, and quadratus femoris.

14. What is the main artery supplying the gluteus maximus?

Answer: Inferior gluteal artery.

15. The superior gluteal artery is a branch of which artery?

Answer: Posterior division of the internal iliac artery.

16. What are the contents of the greater sciatic foramen above piriformis?

Answer: Superior gluteal nerve and vessels.

17. Name the structures passing through the greater sciatic foramen below piriformis.

Answer: Inferior gluteal nerve and vessels, sciatic nerve, posterior cutaneous nerve of thigh, pudendal nerve, internal pudendal vessels, and nerves to obturator internus and quadratus femoris.

18. Name the structures passing through the lesser sciatic foramen.

Answer: Tendon of obturator internus, pudendal nerve, internal pudendal vessels, and nerve to obturator internus.

19. What forms the trochanteric anastomosis?

Answer: Descending branch of superior gluteal, ascending branches of medial and lateral circumflex femoral, and inferior gluteal arteries.

20. What forms the cruciate anastomosis?

Answer: Inferior gluteal artery, transverse branches of medial and lateral circumflex femoral arteries, and first perforating artery of profunda femoris.

21. What is the clinical importance of the trochanteric anastomosis?

Answer: It supplies the head and neck of the femur; injury may cause avascular necrosis.

22. What is the clinical importance of the cruciate anastomosis?

Answer: Provides collateral circulation between internal and external iliac arteries when the femoral artery is blocked.

23. What is Weaver's bottom?

Answer: Ischial bursitis — inflammation of the bursa between gluteus maximus and ischial tuberosity due to prolonged sitting.

24. What is Piriformis Syndrome?

Answer: Compression of the sciatic nerve by a spastic or hypertrophied piriformis muscle, leading to buttock pain radiating down the thigh.

25. Why is the gluteus maximus called an antigravity muscle?

Answer: It maintains the erect posture and prevents the body from falling forward under gravity.

These viva questions encapsulate both **theoretical anatomy and clinical correlations**, covering everything typically asked in **practical exams** from the **gluteal region**.