

Gluteal Muscles

Superficial and Deep

A Simplified Overview of Origin, Insertion, Innervation, and Action

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Introduction to the Gluteal Region

- The gluteal muscles are a group of muscles located in the buttock (gluteal) region.
- They are among the largest and strongest muscles of the human body.
- They play a vital role in maintaining posture, stabilizing the pelvis, and producing movements of the hip joint.
- These muscles are essential for functional daily activities such as standing, walking, running, climbing stairs, and rising from a sitting position.

Classification of Gluteal Muscles

Superficial Group (4 Muscles)

Larger muscles primarily responsible for hip extension, abduction, and pelvic stabilization:

- Gluteus maximus
- Gluteus medius
- Gluteus minimus
- Tensor fasciae latae

Deep Group (5 Muscles)

Smaller muscles acting primarily as lateral (external) rotators of the hip joint:

- Piriformis
- Superior gemellus
- Obturator internus
- Inferior gemellus
- Quadratus femoris

1. Gluteus Maximus

Origin

- Outer surface of ilium behind the posterior gluteal line
- Dorsal surface of sacrum and side of coccyx
- Sacrotuberous ligament and thoracolumbar fascia
- Fascia covering the gluteus medius

Insertion

- Upper 3/4th into the iliotibial tract
- Lower 1/4th into the gluteal tuberosity of the femur

Blood Supply

- Inferior gluteal artery (Main supply)
- Superior gluteal artery (Upper part)

Actions

- Chief extensor of the hip joint (essential for running, climbing, rising from sitting)
- Lateral rotator of the thigh

**[Anatomical
Illustration:
Gluteus Maximus]**

*Visual reference representing
superficial posterior anatomy and
fiber orientations.*

2. Gluteus Medius

Origin

- Outer surface of the ilium between the posterior gluteal line and the anterior gluteal line

Insertion

- Lateral surface of the greater trochanter of the femur

Blood Supply

- Superior gluteal artery

Actions

- Powerful abductor of the thigh
- Medially rotates the thigh (anterior fibers)
- Key pelvic stabilizer: keeps the pelvis level during walking and single-leg stance phase

**[Anatomical
Illustration:
Gluteus Medius]**

Visual reference showcasing outer iliac surface origin and greater trochanter lateral insertion.

3. Gluteus Minimus

Origin

- Outer surface of the ilium between the anterior gluteal line and the inferior gluteal line

Insertion

- Anterior surface of the greater trochanter of the femur

Blood Supply

- Superior gluteal artery

Actions

- Abducts the thigh at the hip joint
- Medially rotates the thigh
- Acts together with gluteus medius to stabilize the pelvis

*[Anatomical
Illustration:
Gluteus
Minimus]*

*Visual reference displaying the
deepest superficial layer located
directly beneath the medius muscle.*

4. Tensor Fasciae Latae (TFL)

Origin

- Anterior part of the outer lip of the iliac crest
- Outer surface of the anterior superior iliac spine (ASIS)

Insertion

- Into the iliotibial tract, just below the level of the greater trochanter

Blood Supply

- Superior gluteal artery
- Lateral circumflex femoral artery

Actions

- Flexes the thigh at the hip joint
- Abducts and medially rotates the thigh
- Tenses the fascia lata and stabilizes the knee joint in extension

*[Anatomical
Illustration:
Tensor Fasciae
Latae]*

*Visual reference highlighting the
anterolateral muscle body
converging into the iliotibial tract.*

Overview of Deep Gluteal Muscles

Key Anatomical Features:

- **Location:** Situated deep to the inferior half of the gluteus maximus muscle.
- **Primary Function:** Act collectively as powerful lateral (external) rotators of the extended thigh and help stabilize the hip joint.
- **The Key Landmark (Piriformis):** The piriformis muscle acts as the structural landmark of the deep gluteal region. Structures leaving the pelvis emerge either above or below the piriformis.
- **Sciatic Nerve Relationship:** The large sciatic nerve emerges into the gluteal region directly inferior to the piriformis muscle.

*[Deep
Layer
Diagram]*

Visual layout of the small deep muscles relative to the bony pelvis and sciatic nerve.

5. Piriformis

Origin

- Anterior/pelvic surface of the sacrum (middle three pieces by three digitations)

Insertion

- Upper border of the greater trochanter of the femur

Blood Supply

- Superior gluteal artery
- Inferior gluteal artery
- Internal pudendal artery

Actions

- Lateral rotator of the extended thigh
- Abducts the flexed thigh at the hip joint
- Stabilizes the head of the femur in the acetabulum

**[Anatomical
Illustration:
Piriformis]**

Visual layout highlighting its pear-shaped belly exiting the greater sciatic foramen.

Deep Muscles: Gemelli & Quadratus Femoris

Muscle	Origin	Insertion	Blood Supply	Primary Action
6. Superior Gemellus	Spine of the ischium	Conjoint tendon into the medial surface of greater trochanter (above trochanteric fossa)	Inferior gluteal artery	Lateral rotator of thigh
7. Obturator Internus	Pelvic surface of obturator membrane & surrounding margins		Internal pudendal & inferior gluteal arteries	Lateral rotator of thigh
8. Inferior Gemellus	Upper part of ischial tuberosity		Inferior gluteal artery	Lateral rotator of thigh
9. Quadratus Femoris	Lateral border of the ischial tuberosity	Quadrate tubercle on the intertrochanteric crest of femur	Inferior gluteal & medial circumflex femoral arteries	Lateral rotator & adductor of thigh

Arterial Blood Supply of the Gluteal Region

The region contains a rich vascular tree originating primarily from internal iliac and profunda femoris branches:

- **Superior Gluteal Artery:** Branch of internal iliac artery; supplies gluteus medius, minimus, and tensor fasciae latae.
- **Inferior Gluteal Artery:** Branch of internal iliac artery; main vascular supply to the gluteus maximus and deep lateral rotators.
- **Medial & Lateral Femoral Circumflex Arteries:** Arise from the profunda femoris artery; curve around the femoral neck to supply local bone and muscle.
- **Deep Artery of Thigh & Perforating Branches:** Ascend and anastomose heavily with the inferior gluteal network.

Critical Anastomoses:

- **Trochanteric Anastomosis:** (Superior gluteal, inferior gluteal, medial & lateral circumflex femoral). Forms near trochanteric fossa; supplies the femoral head.
- **Cruciate Anastomosis:** (Inferior gluteal, medial circumflex, lateral circumflex, and 1st perforating artery). Located at the lesser trochanter level.

Anatomy map displaying the superior/ inferior gluteal branches, circumflex vessels, and perforating loops around the proximal femur.

[Vascular Tree: Image 1000389209.jpg]

Clinical Anatomy of the Gluteal Region

Trendelenburg Sign & Gait

Caused by weakness or paralysis of the gluteus medius and minimus (e.g., due to superior gluteal nerve lesion or hip dislocation). When the patient stands on the affected side, the pelvis drops on the opposite healthy, unsupported side. This results in a characteristic "lurching gait."

Piriformis Syndrome

The sciatic nerve passes directly inferior to the piriformis muscle. Hypertrophy, inflammation, or spasm of the piriformis compresses the sciatic nerve, mimicking nerve root sciatica with severe localized buttock pain radiating down the posterior lower limb.

Safe Intramuscular (IM) Injection Site

To avoid severe injury to the sciatic nerve and major gluteal vessels, intra-muscular injections are explicitly restricted to the **upper outer quadrant** of the gluteal region.

Gluteal Bursitis

Inflammation of the trochanteric or ischiadic bursae underneath the gluteus maximus, leading to exquisite localized tenderness during movement or prolonged sitting.

[Clinical Graphics]
- Drop pelvis showing safe zone (Upper-outer) vs Sciatic nerve line
- Quadrant map

Thank You!

Questions & Discussion

BD Chaurasia's Human Anatomy Reference Guide