MEDICAL EDUCATION RESOURCE

Back of Thigh

Back of Thigh — Introduction

- The **back of the thigh** extends from the **gluteal fold above** to the **popliteal fossa below**.
- It is mainly composed of the **hamstring muscles** covered by fascia and skin.
- The **sciatic nerve** and **branches of the profunda femoris artery** traverse this region.

Muscles and Nerves

- The muscles on the back of thigh are the **hamstring muscles** — **semimembranosus**, **semitendinosus**, **biceps femoris (long head)**, and the **ischial part of adductor magnus**

  Volume 2, BD Chaurasia's Human …

  .

- **Common features:**
  - Origin from **ischial tuberosity**.
  - Insertion into bones of the **leg**.
  - Supplied by the **tibial part of the sciatic nerve**.
  - Act as **hip extensors** and **knee flexors**.

Muscles of the Back of Thigh

1. **Semitendinosus**
    - Origin: Inferomedial impression of ischial tuberosity (common with biceps femoris).
    - Insertion: Upper medial surface of tibia (part of *pes anserinus*).
    - Action: Extends hip, flexes knee, and medially rotates leg.
    - Nerve: Tibial part of sciatic nerve.
2. **Semimembranosus**
    - Origin: Superolateral impression of ischial tuberosity.
    - Insertion: Posterior surface of medial condyle of tibia; forms oblique popliteal ligament.
    - Action: Extends thigh and flexes knee.
    - Nerve: Tibial part of sciatic nerve.
3. **Biceps Femoris**
    - Long head: From ischial tuberosity.
    - Short head: From linea aspera and lateral supracondylar ridge.
    - Insertion: Head of fibula.
    - Action: Flexes knee; long head extends thigh.

- Nerve: Long head by tibial part, short head by common peroneal part of sciatic nerve.

4. **Ischial Head of Adductor Magnus**
    - Origin: Ischial tuberosity.
    - Insertion: Adductor tubercle of femur.
    - Action: Extends thigh.
    - Nerve: Tibial part of sciatic nerve.

Dissection Guide

- Make a **vertical incision** along posterior thigh.
- Reflect the **skin and fascia** to expose hamstrings.
- Identify **sciatic nerve** and trace its **branches** to muscles.
- Separate hamstrings to reveal **ischial part of adductor magnus**.
- Observe **profunda femoris artery** and its **perforating branches** crossing through the muscles

  Volume 2, BD Chaurasia’s Human …

  .

Clinical Anatomy

- **Hamstring Injury (Tear or Avulsion):** Common in athletes during sudden acceleration; causes posterior thigh pain and bruising.
- **Hamstring Contracture:** Shortened hamstrings limit forward bending (cannot touch toes).
- **Semimembranosus Bursitis:** Inflammation of bursa under semimembranosus; may present as swelling in upper popliteal region.
- **“Sleeping Foot” Phenomenon:** Prolonged sitting compresses the **sciatic nerve** between the femur and seat edge, causing temporary numbness

  Volume 2, BD Chaurasia’s Human …

  .

Sciatic Nerve

- Largest nerve in the body; continuation of sacral plexus (L4–S3).
- **Course:**
  - Enters gluteal region via greater sciatic foramen below piriformis.
  - Descends deep to gluteus maximus and lies on adductor magnus.
  - Divides at upper angle of popliteal fossa into **tibial** and **common peroneal** nerves.
- **Relations:**
  - Posteriorly covered by gluteus maximus and hamstrings.
  - Anteriorly related to adductor magnus.

- **Branches:**
    - Muscular: To semitendinosus, semimembranosus, biceps femoris, and ischial head of adductor magnus.
    - Articular: To hip joint.

Clinical Anatomy of Sciatic Nerve

- **Sciatica:** Pain radiating along posterior thigh and leg due to nerve compression (herniated lumbar disc).
- **Intragluteal Injection Safety:** Inject in **upper outer quadrant** of buttock to avoid sciatic nerve injury.
- **Sciatic Nerve Injury:**
    - Paralysis of hamstrings, leg flexors, and all muscles below knee.
    - Loss of sensation below knee (except medial side).
    - Foot hangs as **foot drop**.
- **Piriformis Syndrome:** Compression of the nerve by the piriformis muscle, causing buttock pain radiating down the thigh.

Arteries of the Back of the Thigh

- The **main arterial supply** of the back of the thigh is through the **perforating branches of the profunda femoris artery** (deep artery of the thigh).

- Additional small contributions come from the **medial and lateral circumflex femoral arteries** (branches of profunda femoris).

- These arteries create rich **anastomoses** ensuring collateral circulation between the internal iliac, femoral, and popliteal systems.

Perforating Branches of Profunda Femoris

- **Number:** Four perforating arteries.

- **Course:**
  Each artery arises on the front of the thigh, passes through the **adductor longus**, **adductor brevis**, and **adductor magnus**, then winds around the back of the femur to reach the hamstrings.

- **Distribution:**

  - **Muscular branches** ? Hamstrings and adductor magnus.

  - **Cutaneous and anastomotic branches** ? Posterior thigh skin and arterial networks.

  - **Second perforating artery** gives the **nutrient artery to femur**.

- **Termination:**
  The **fourth perforating artery** is the terminal branch of the profunda femoris.

Anastomoses on the Back of the Thigh

Two main **longitudinal arterial chains** are found posteriorly:

1. **Superficial Chain:**

- Lies on or within the **adductor magnus**.

2. **Deep Chain:**
    - Lies close to the **linea aspera** of the femur.

Sources of Anastomosis:

- **Internal iliac branches:** Gluteal arteries.
- **Femoral system:** Medial and lateral circumflex femoral arteries.
- **Popliteal artery** (via its muscular branches).

Important Sites of Communication:

1. **Gluteal arteries ? Circumflex femoral arteries.**
2. **Circumflex femoral arteries ? First perforating artery** ? forms the **cruciate anastomosis**.
3. **Perforating arteries ? Each other** ? ensure longitudinal continuity.
4. **Fourth perforating artery ? Muscular branches of popliteal artery.**
5. **Companion artery of sciatic nerve ? Perforating arteries** ? forms a small anastomotic link on the nerve's surface.

Functional Significance:
These anastomotic networks act as **collateral channels** maintaining blood flow to the lower limb when the **external iliac or femoral arteries** are obstructed.