

Arterial Supply of the Lower Limb

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The lower limb is mainly supplied by the femoral artery at the thigh, popliteal artery at the knee and tibial arteries at the lower leg and foot. The femoral artery is an important vessel as it is frequently used to access the arterial circulation during invasive procedures such as coronary angiography. Other vessels such as popliteal, posterior tibial and dorsalis pedis are also palpable.



Origin of the Arteries of the Lower Limbs

The abdominal aorta **splits into right and left common iliac arteries**. Each common iliac artery divides into an internal and an external branch. The external iliac artery becomes the femoral artery as it crosses under the inguinal ligament, to enter the femoral triangle. The internal iliac artery gives off an anterior and a posterior trunk. Each trunk gives off further branches, of which the obturator artery and the superior and inferior gluteal arteries supply the lower limb.

Femoral Artery

The **femoral artery** is the main artery supplying the [structures of the thigh](#). The femoral artery continues as the **superficial femoral artery** and travels through the **adductor canal**, which starts at the beginning of the **femoral triangle** and ends at the **adductor hiatus**. **Adductor hiatus** allows the femoral artery to enter the posterior compartment of the thigh, where it becomes the **popliteal artery**.

The femoral artery gives off four superficial branches:

- Superficial circumflex artery
- Superficial epigastric artery
- Superficial external pudendal artery
- Deep external pudendal artery.

The **profunda femoris artery** is the deep branch of the femoral artery supplying the [hip joint](#), proximal and posterior thigh. The [adductor, flexor and extensor muscles of the thigh](#) are supplied by this branch. The profunda femoris artery gives off two branches namely **medial and lateral circumflex arteries**.

The lateral circumflex artery further divides into three branches:

- Descending artery
- Ascending artery
- Transverse artery.

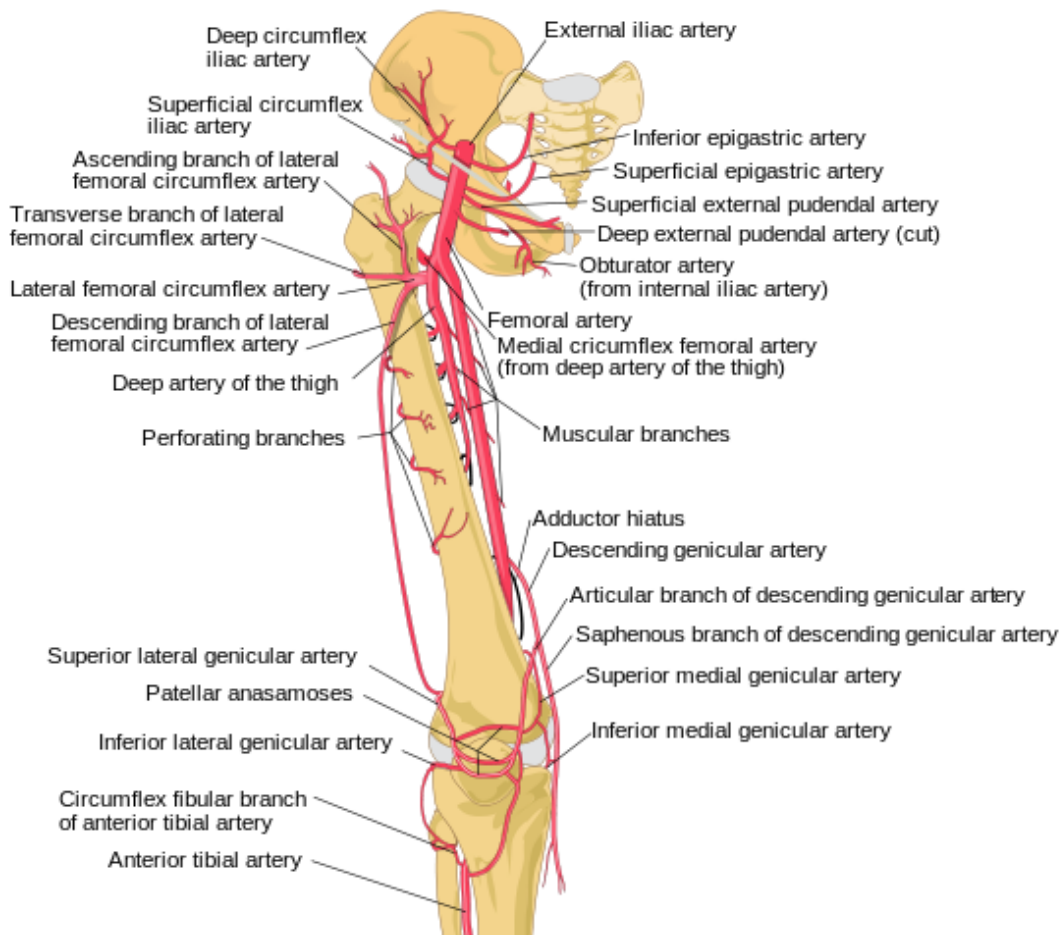
The medial circumflex artery has two branches:

- Ascending artery, which anastomoses with the ascending branch of the lateral circumflex artery.
- Transverse branch, which anastomoses with the transverse branch of the lateral circumflex artery.

Profunda femoris terminates as perforating branches, which perforate the adductor Magnus muscle. There are about 3-4 perforating branches, which give off an ascending and descending branch to form a longitudinal channel.

Just before entering the adductor hiatus, the femoral artery gives off a descending genicular branch, which further **divides into two main branches:**

- Saphenous branch, which passes medially and anastomoses with the superior medial genicular artery.
- Articular branch anastomosing around the [knee joint](#).



[Image:](#) "This diagram shows the arteries supplying the hip joint, thigh, and knee joint." Original uploader was Jecowa at en.wikipedia derivative work: Mcstrother (talk) - Human_leg_bones_labeled.svg. License: [CC BY 3.0](#)

Popliteal Artery

The popliteal artery passes between the **gastrocnemius and popliteus muscles**, where it gives off the following **genicular branches** supplying the **knee joint**:

- Superior lateral genicular artery
- Superior medial genicular artery
- Middle genicular artery
- Inferior lateral genicular artery
- Inferior medial genicular artery

As the popliteal artery descends, it divides into **anterior and posterior tibial arteries**.

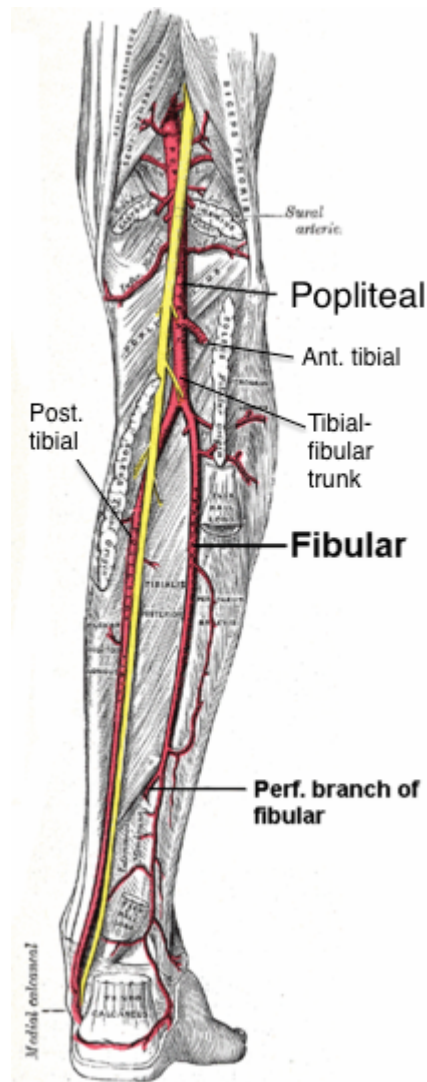


Image: "Popliteal artery and its branches" by Bakerstmd - Own work. License: [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/)

Posterior tibial artery

The **posterior tibial artery** descends along the superficial surface of the deep posterior muscles of the posterior compartment. Here, it gives off the **circumflex fibular artery**, which anastomoses with the **inferior lateral genicular artery**. The posterior tibial artery also gives off the **fibular artery**, which supplies the lateral compartment of the leg. It has a communicating branch and a few calcaneal branches.

The posterior tibial descends to give **malleolar branches** to supply the **medial malleolus**. It has a communicating branch, which anastomoses with the communicating branch of the **fibular artery**, as shown in the diagram beside.

It then enters the foot via the **tarsal tunnel**, winding behind the medial malleolus, and then splits into **medial and lateral plantar arteries**. These are present on the plantar aspect of the foot. The posterior tibial artery is palpable infero-posteriorly behind the **medial malleolus**.

Anterior tibial artery

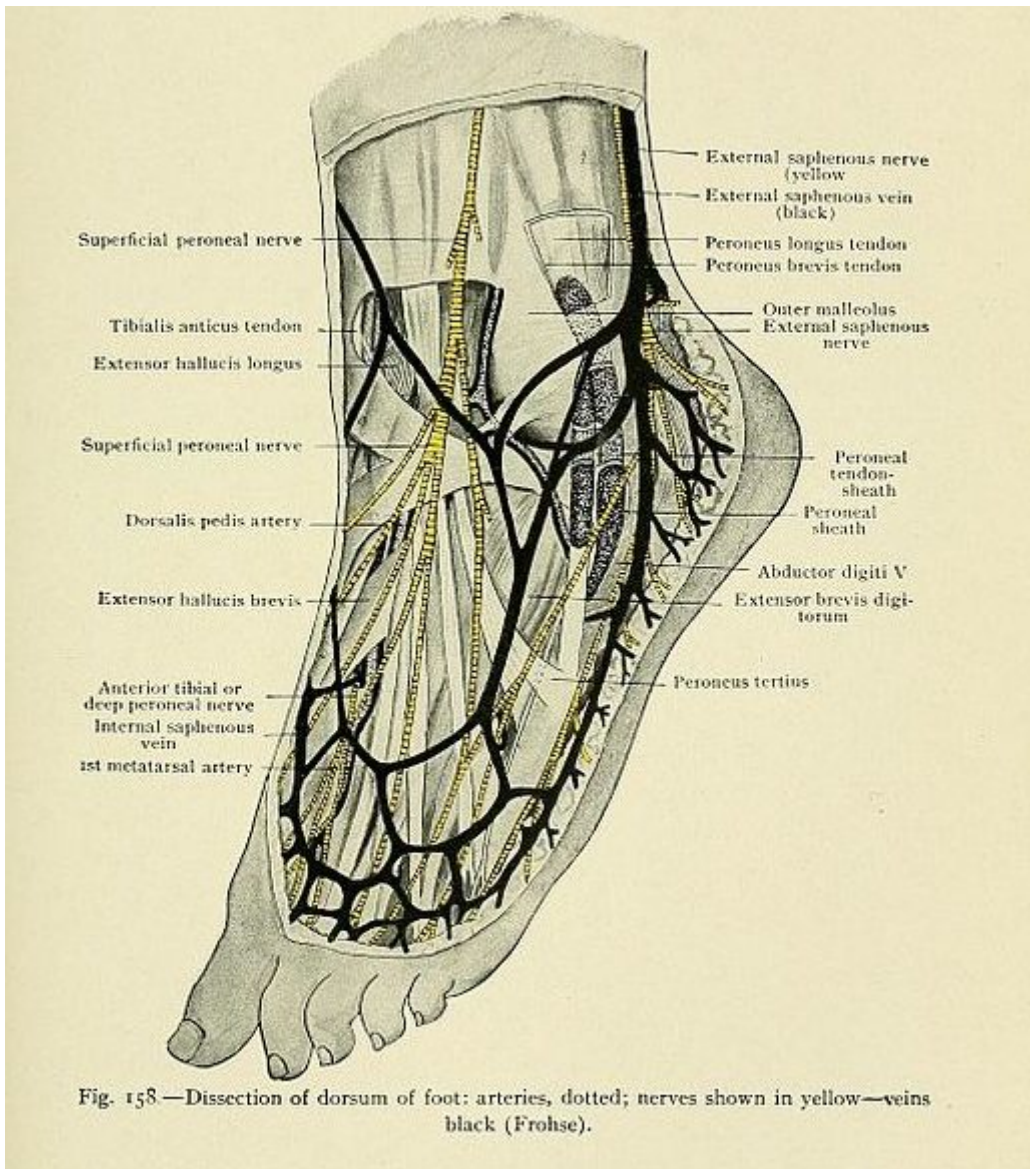
The anterior tibial artery passes into the anterior compartment of the leg through a gap in

the interosseous membrane between the tibia and the fibula. It gives off **two branches**:

1. **Anterior tibial recurrent artery**, which anastomoses with the lateral inferior genicular branch of the popliteal artery
2. **Posterior tibial recurrent artery**.

It then descends and becomes the **dorsalis pedis artery** at the level of the foot.

The dorsalis pedis artery gives off **deep plantar artery** between the first and second **metatarsals**. This anastomoses with the branch of the **lateral plantar artery**, on the plantar surface of the foot, to form the **deep plantar arch**.



[Image](https://www.flickr.com/photos/internetarchivebookimages/14594169167/): "Dissection of dorsum of the foot: arteries dotted, nerves shown in yellow, veins black" by Internet Archive Book Images - <https://www.flickr.com/photos/internetarchivebookimages/14594169167/> Source book page: <https://archive.org/stream/textbookofclinic00eise/textbookofclinic00eise#page/n502/mode/1up>. License: [Flickr API](https://www.flickr.com/photos/internetarchivebookimages/14594169167/)

Gluteal Arteries

The inferior gluteal artery is the branch of the anterior trunk of the internal iliac artery. It exits via the greater sciatic foramen. It runs deep to gluteus muscles and supplies the gluteus maximus and [hip joint](#). The superior gluteal artery is the branch of the posterior

trunk of the internal iliac artery. It supplies the gluteus maximus, gluteus medius, gluteus minimus, and hip joint. Both superior and inferior gluteal arteries take part in the cruciate anastomosis around the hip joint.

Obturator Artery

The obturator artery is also a branch of the anterior trunk of the internal iliac artery. It runs around the upper part of the obturator internus muscle on the lateral pelvic wall. It then runs around the obturator foramen and exits via the obturator canal. It supplies the medial thigh and hip.

It divides into **pubic, acetabular, anterior and posterior branches**. The anterior branch supplies the **pectineus, obturator externus, adductor muscles** and **gracilis** while the posterior branch supplies **deep gluteal muscles**.

References

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[Anatomy Tables - Arteries of the Lower Limb](#) via Medical Gross Anatomy at med.umich.edu

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