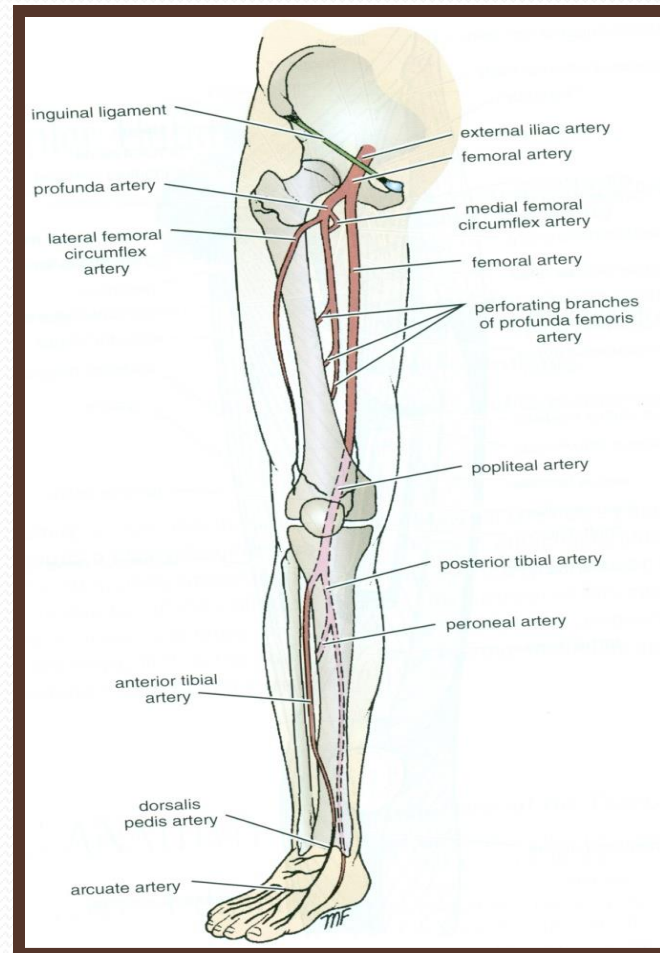


Vasculature of LL

Dr ESSAM
ELDIN

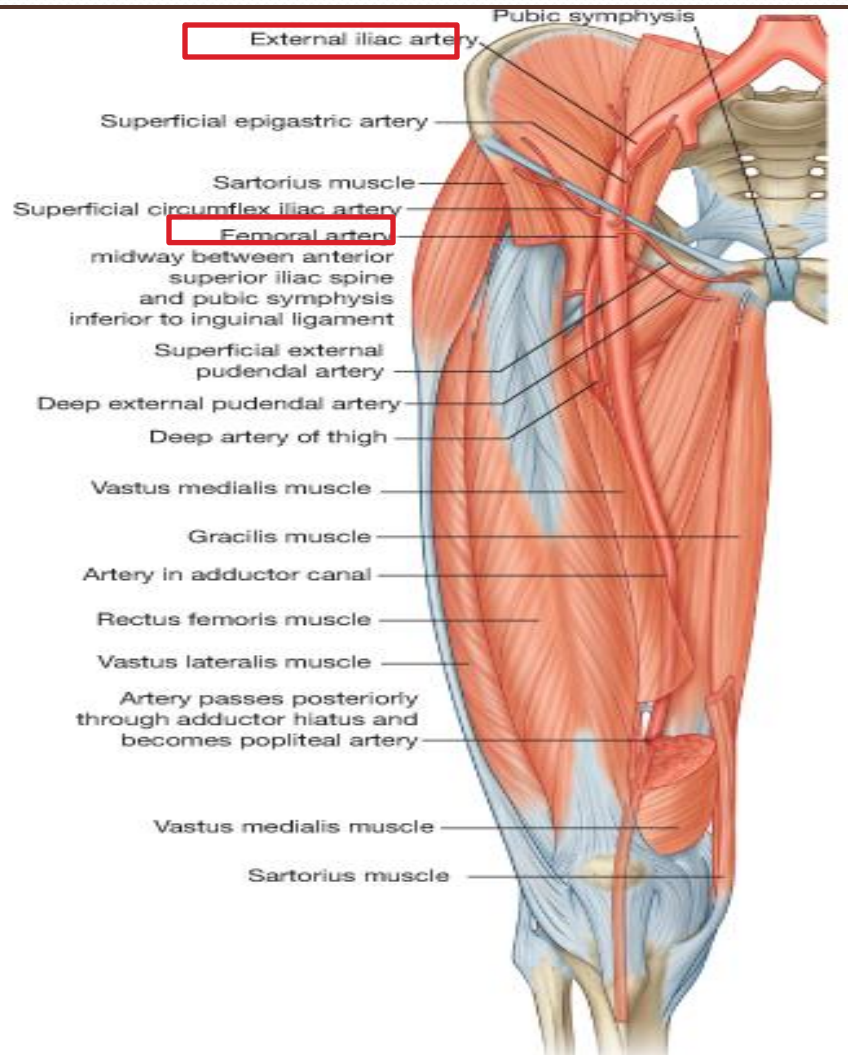


Dr JAMILA
ELMEDANY

Objectives

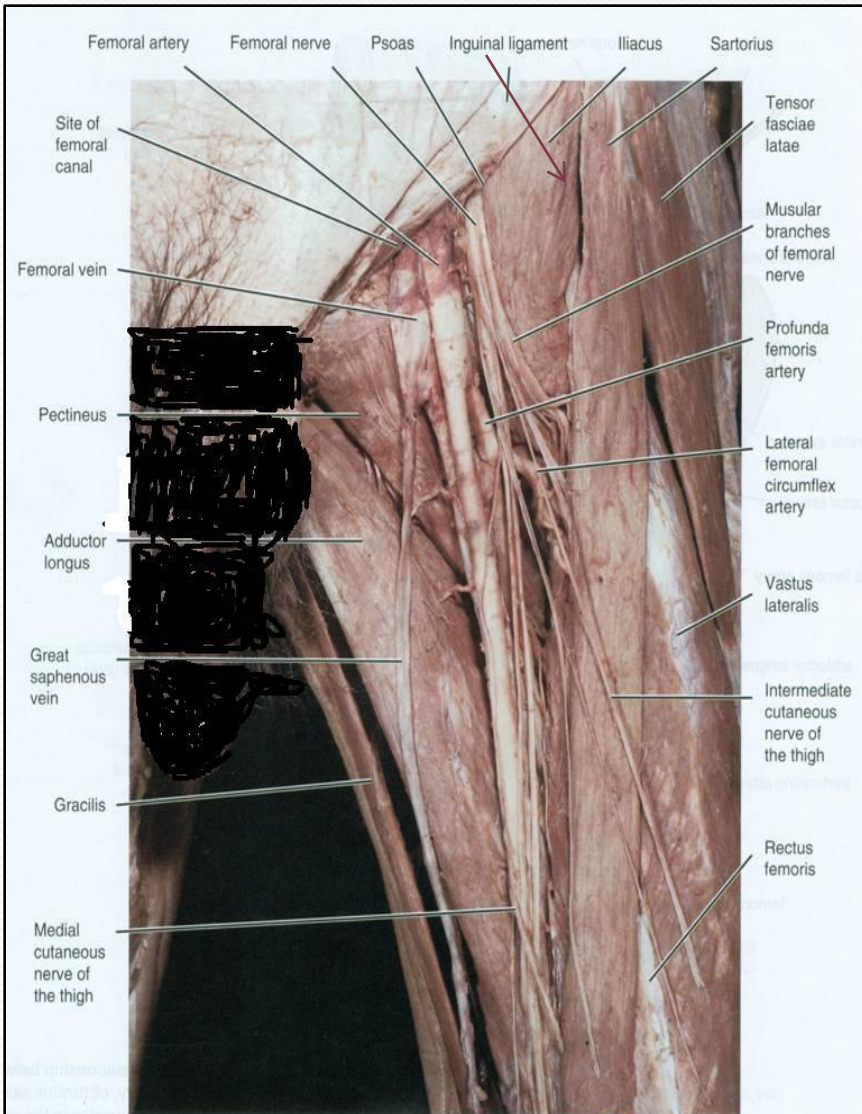
- **At the end of the lecture, students should be able to:**
- **List the main arteries of the lower limb.**
- **Describe their origin, course distribution & branches.**
- **List the main arterial anastomosis.**
- **List the sites where you feel the arterial pulse.**
- **Differentiate the veins of LL into superficial & deep**
- **Describe their origin, course & termination and tributaries**
- **Some related clinical points**

Femoral Artery



- *It is the main arterial supply to the lower limb.*
- *Origin:*
- *It is the continuation of the **External iliac artery.***
- *How it enters the thigh?*
- *Behind the inguinal ligament, midway between the anterior superior iliac spine and the symphysis pubis.*

Relations



❖ Anterior:

- Upper part: Skin & fascia.
- Lower part: Sartorius.

❖ Posterior:

- Psoas (separates it from the hip joint), Pectineus & Adductor longus

❖ Medial:

- Femoral vein.

❖ Lateral :

- Femoral nerve and its branches.

Femoral Artery & femoral Vein

❖ At the inguinal ligament:

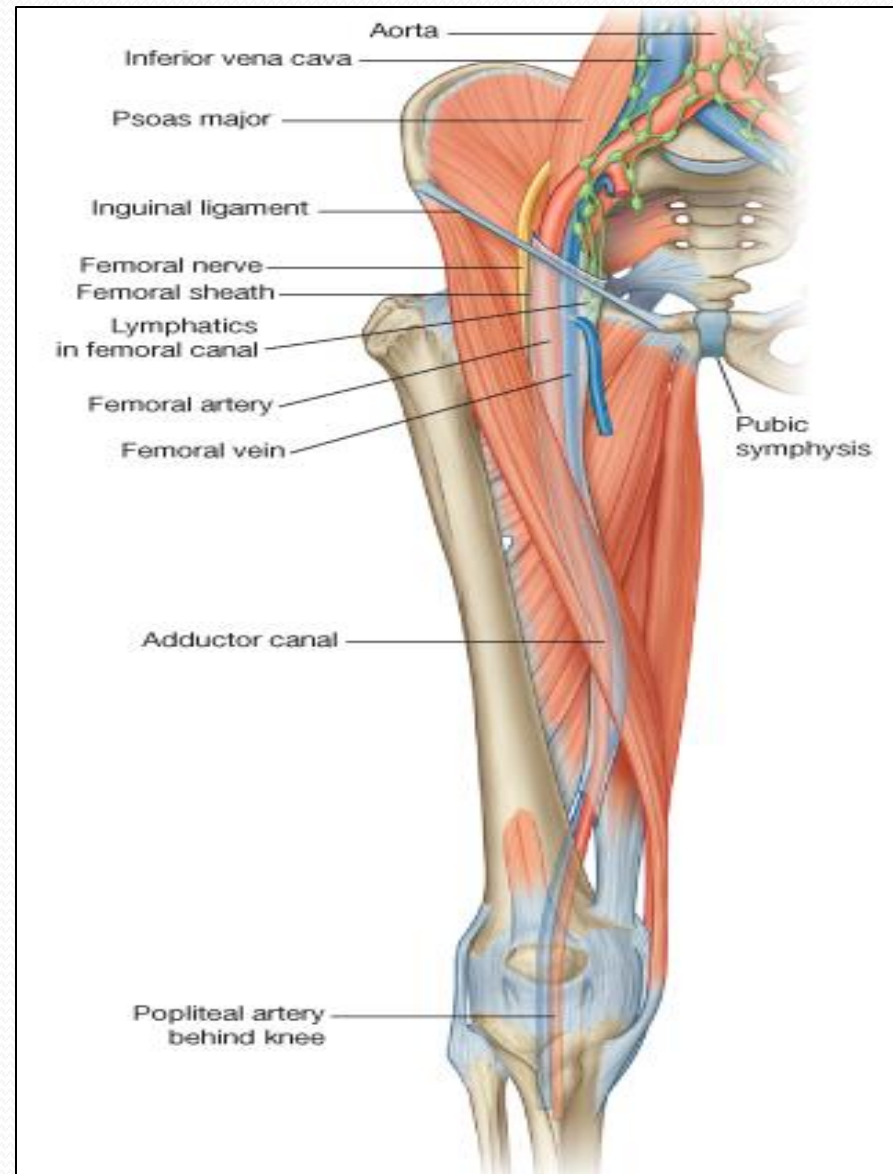
- The vein lies medial to the artery.

❖ At the apex of the femoral triangle:

- The vein lies posterior to the artery.

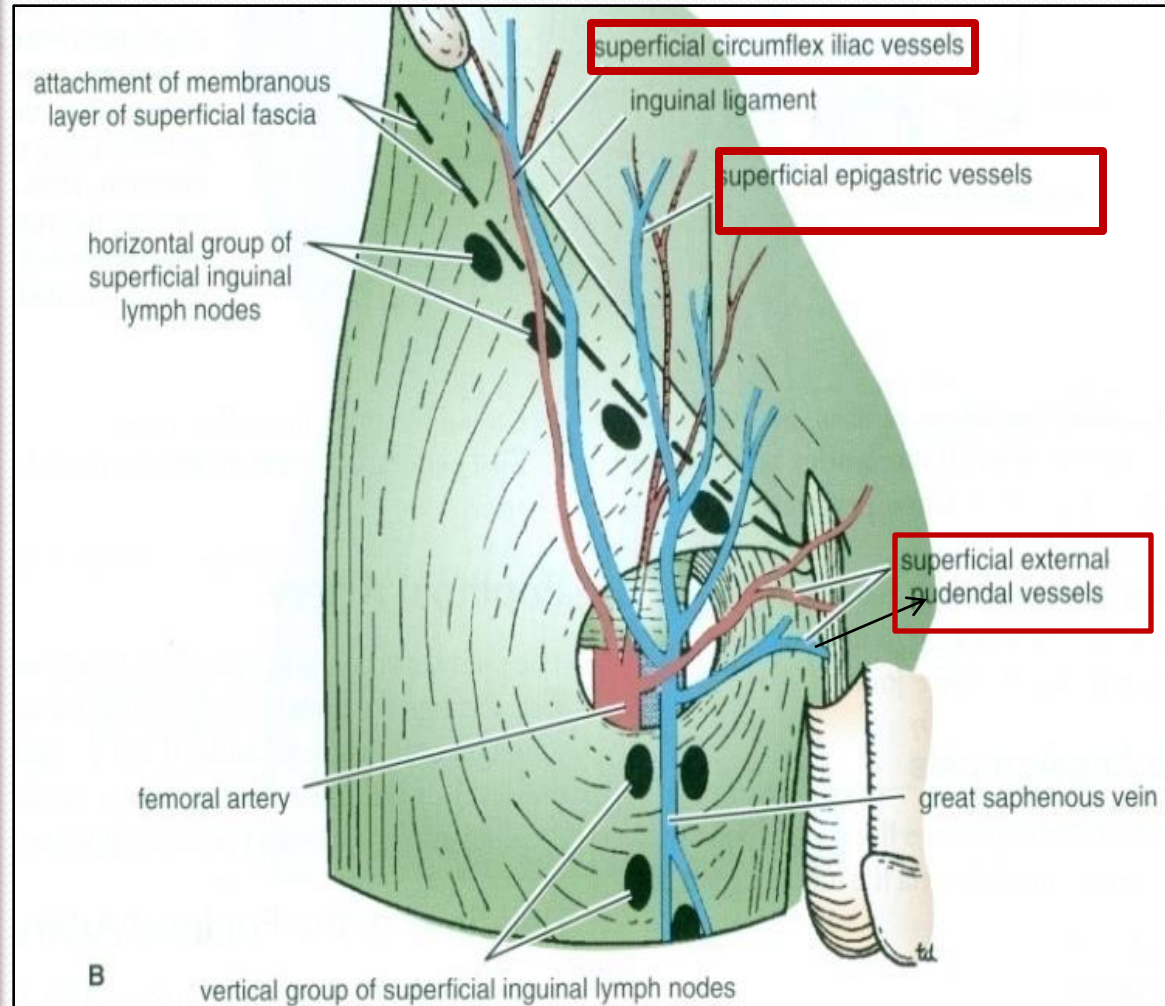
❖ At the opening in the adductor magnus:

- The vein lies lateral to the artery.



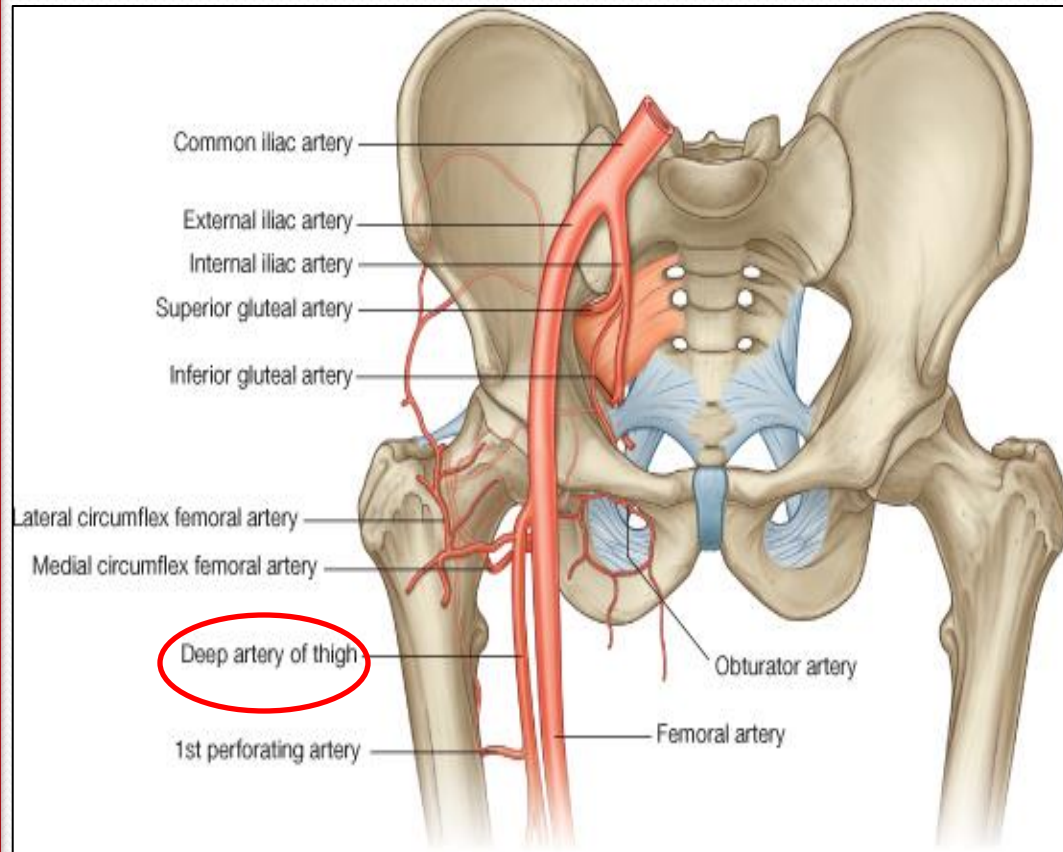
Branches of Femoral Artery

- 1. Superficial Epigastric.*
- 2. Superficial Circumflex iliac.*
- 3. Superficial External Pudental.*
- 4. Deep External Pudental.*
- 5. Profunda Femoris*



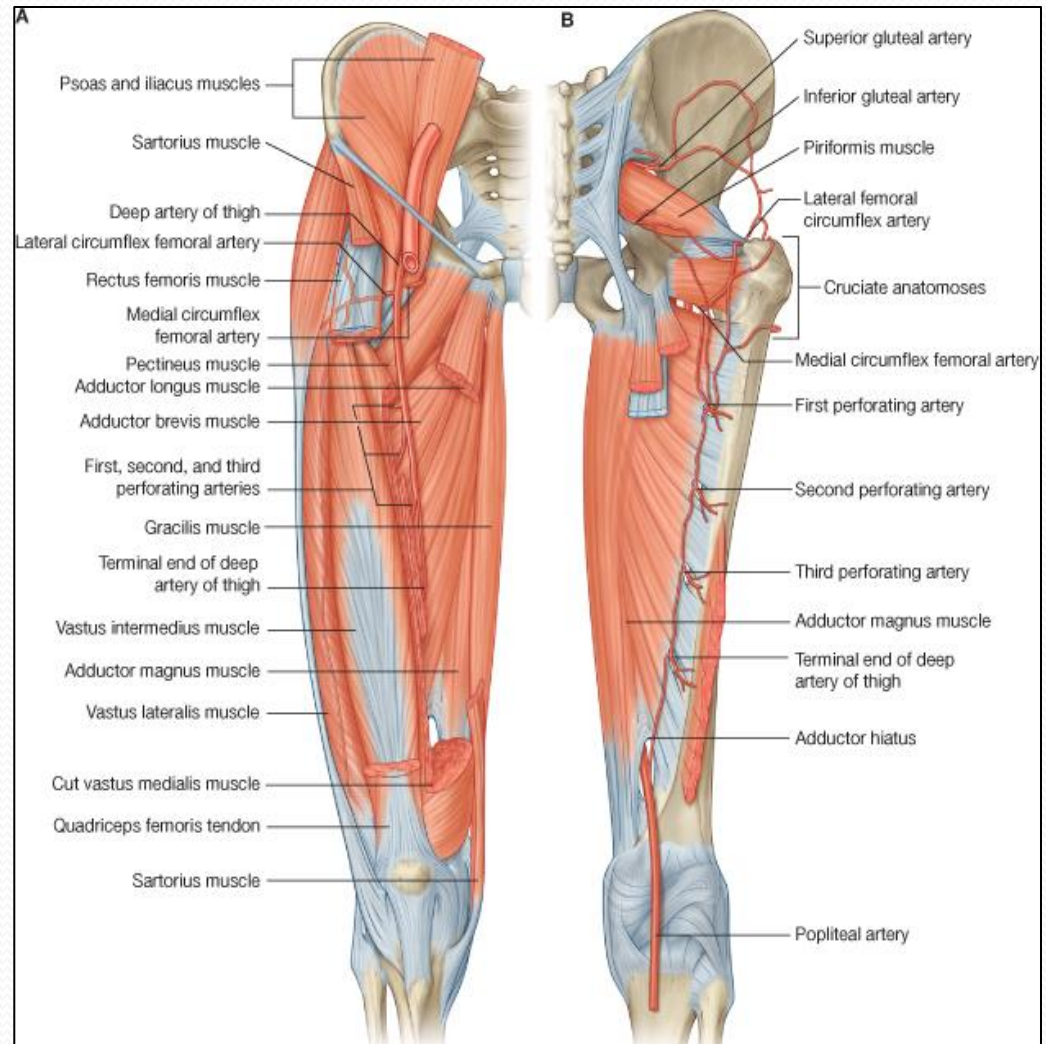
Profunda Femoris Artery

- It is an important, large artery to the medial compartment of the thigh.*
- Arises from the lateral side of the femoral artery (4cm below the inguinal ligament).*
- It Passes medially behind the femoral vessels.*

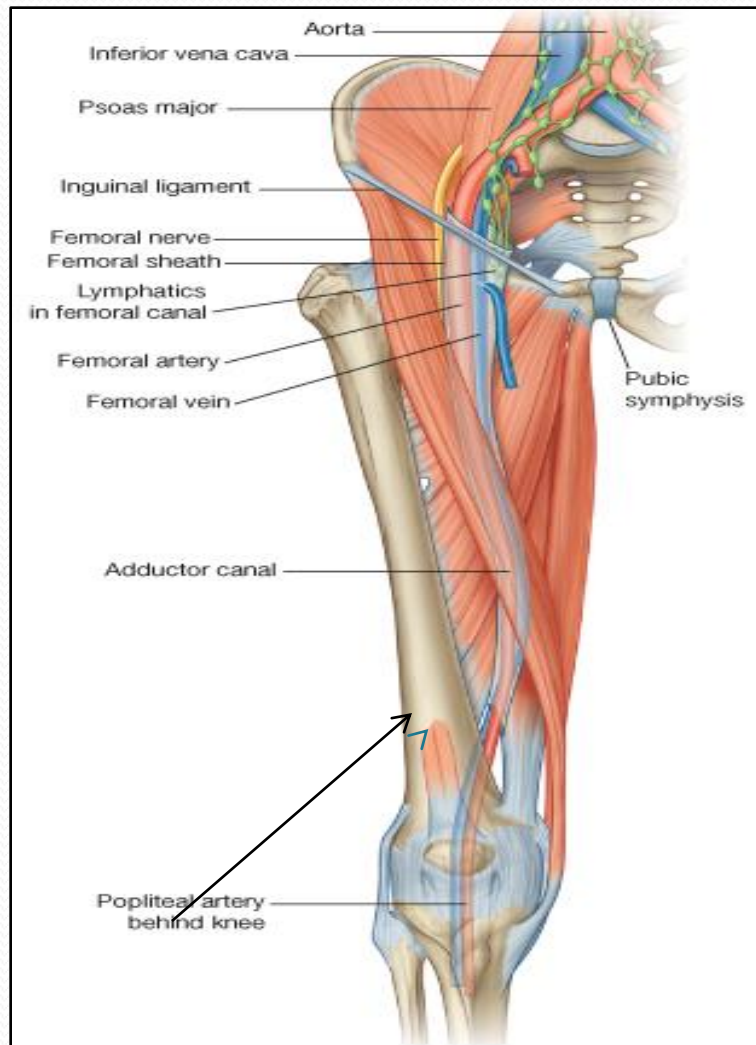


Branches

- *Medial & Lateral circumflex femoral arteries.*
- *Three Perforating arteries.*
- *It ends by becoming the 4th perforating artery.*

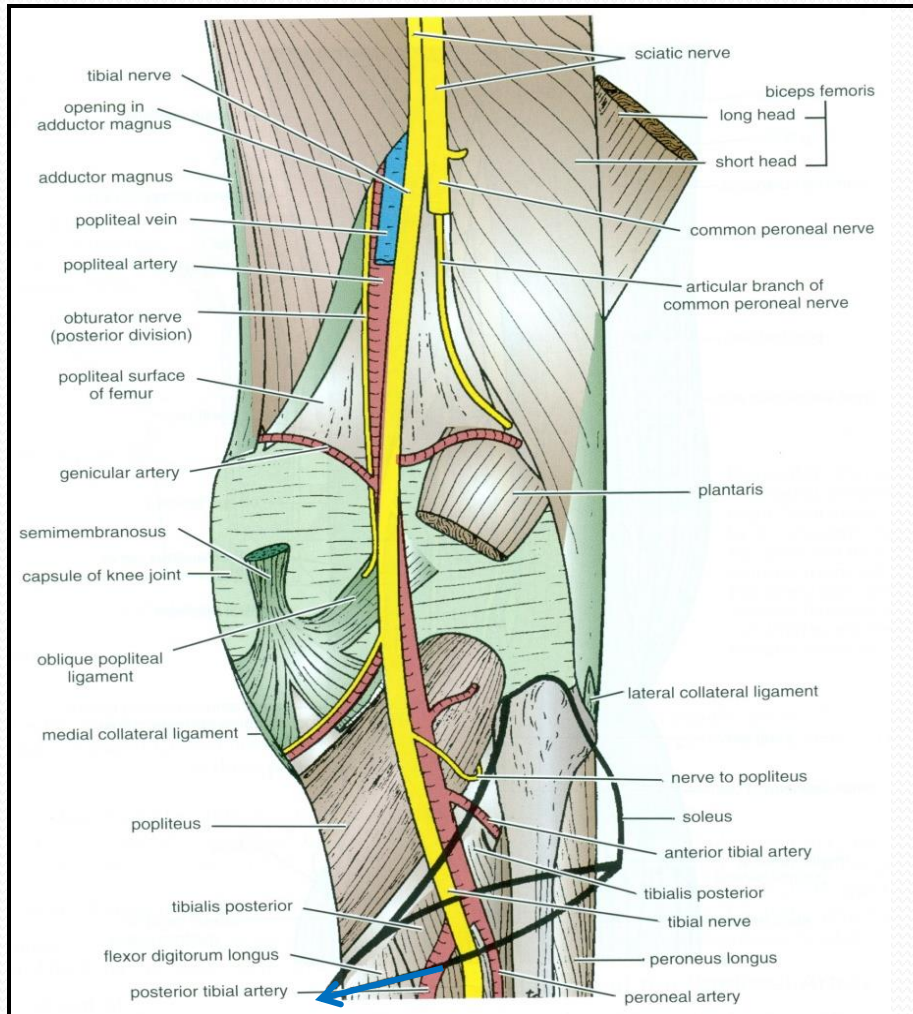


Popliteal Artery



- *It is the continuation of Femoral artery.*
- *It enters the Popliteal fossa through an opening in the **Adductor magnus**.*

Relations & Branches



- **Relations**

- **Anterior:**

- *Popliteal surface of the femur.*
- *Knee joint.*
- *Popliteus muscle.*

- **Posterior:**

- *Popliteal vein, Tibial nerve*
- *skin and fascia.*

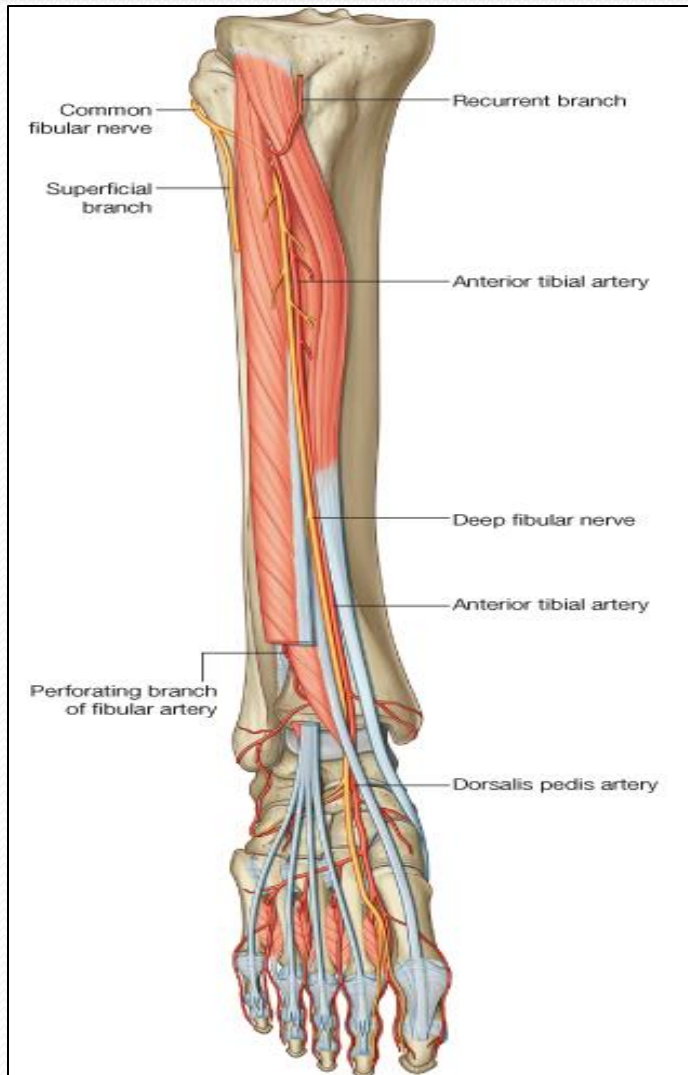
- **Branches:**

Muscular & Articular to the knee joint.

- **Termination:**

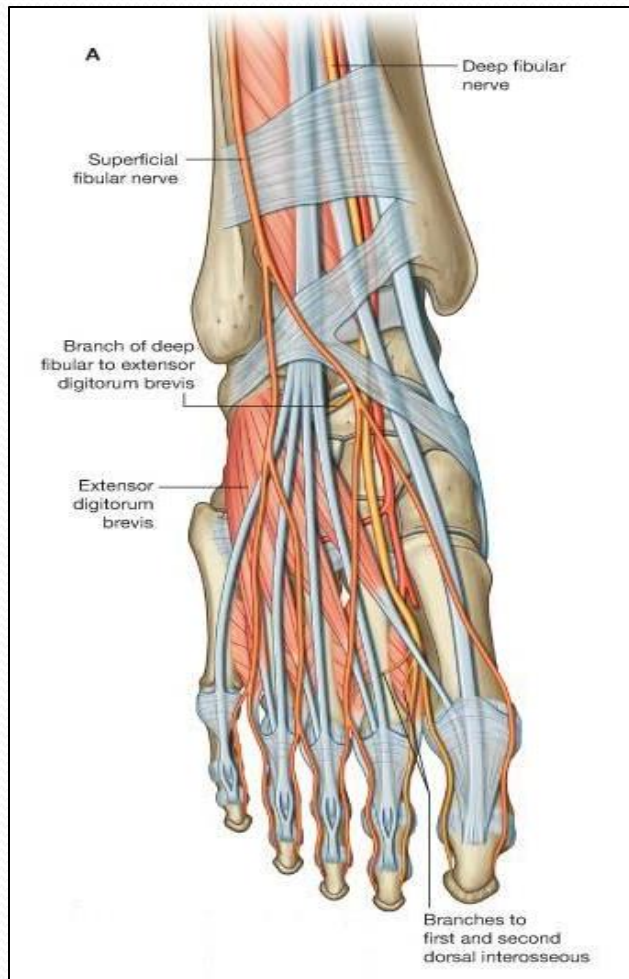
- *At the lower border of Popliteus muscle, it divides into:*
- *Anterior and Posterior Tibial Arteries.*

Anterior Tibial Artery



- *It is the smaller of the two terminal branches of the popliteal artery.*
- *It enters the anterior compartment of the leg through an opening in the upper part of the interosseous membrane.*
- *It descends with the **Deep Peroneal nerve**.*
- *In its upper part, it is **Deep**.*
- *In its lower part, it is **Superficial** (in front of the lower end of the tibia)*
- **Branches:**
- *Muscular & Anastomotic*

Dorsalis Pedis Artery



- *Begins in front of ankle joint as a continuation of the **Anterior Tibial artery**.*
- *It is superficial in position.*
- *Crossed by the inferior extensor retinaculum and the first tendon of extensor digitorum brevis.*
- *Medially:*
- *Tendon of extensor hallucis longus.*
- *Laterally:*
- *Deep peroneal nerve & extensor digitorum longus*

Posterior Tibial Artery

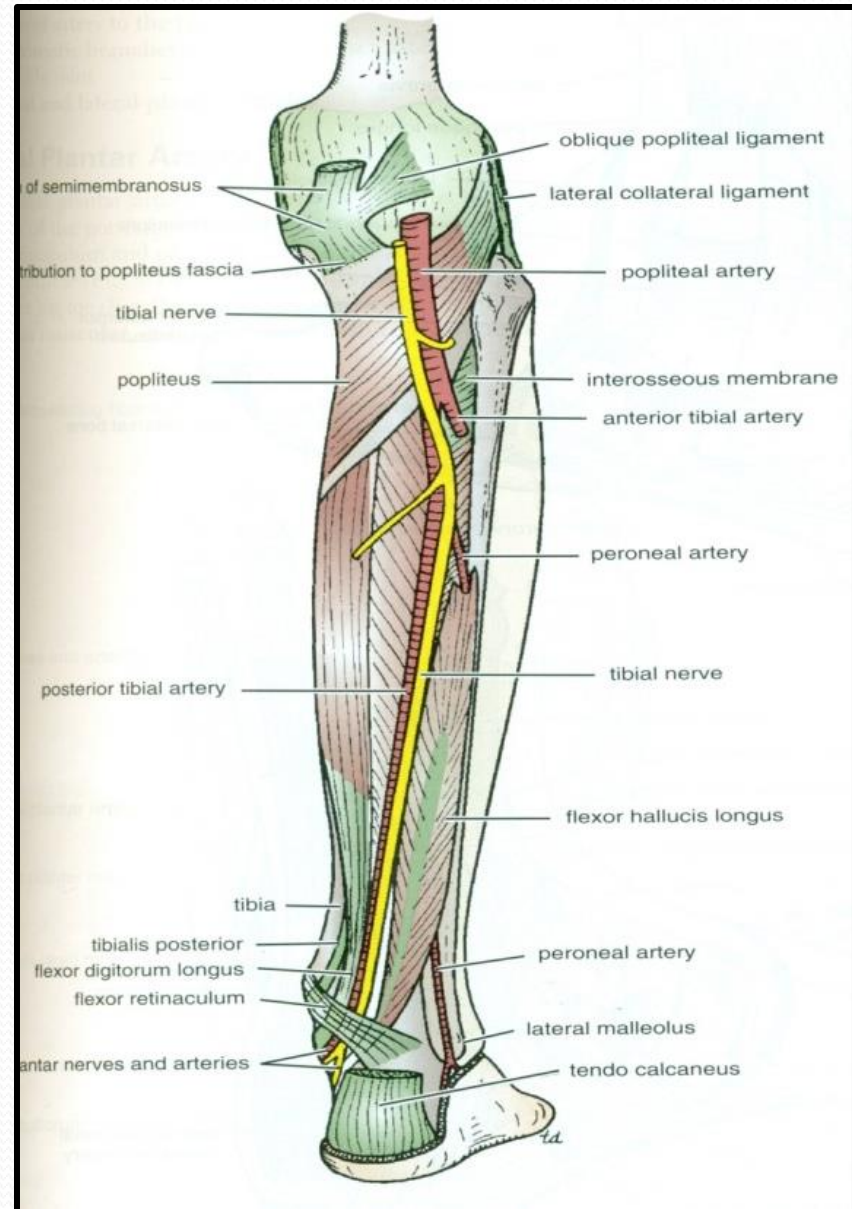
The larger terminal branch of the popliteal A.

Above, lies on the posterior surface of **Tibialis Posterior**.

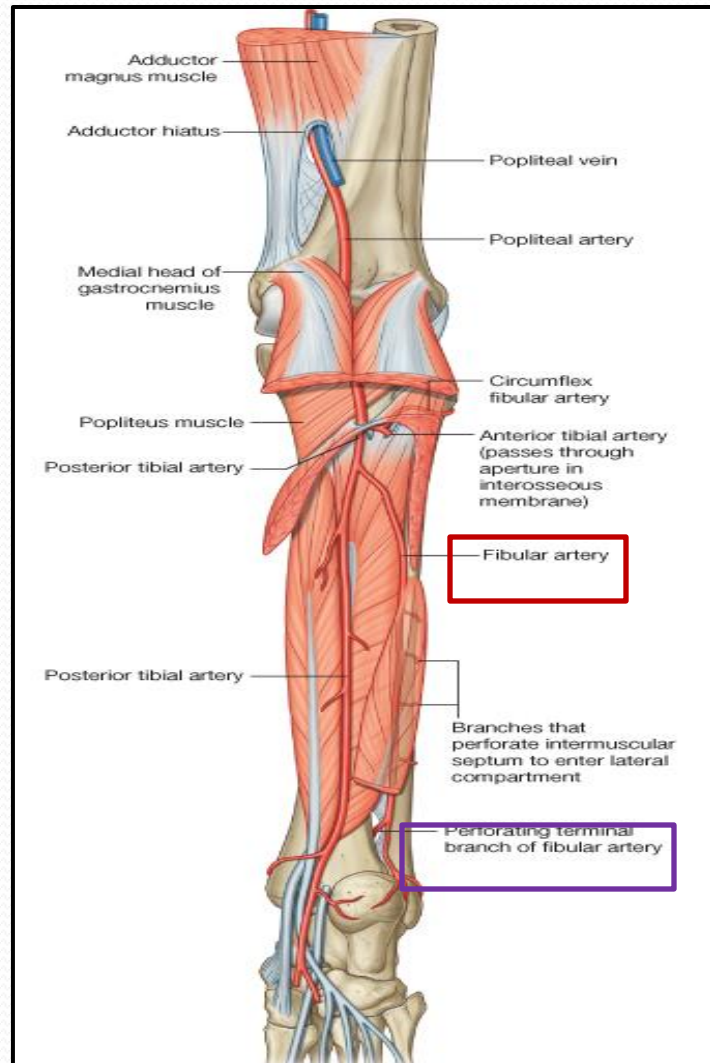
Below on the posterior surface of **Tibia**.

Its lower part is covered by Skin & Fascia.

Passes **Behind Medial Malleolus**, Deep to **Flexor Retinaculum**.



Posterior Tibial Artery



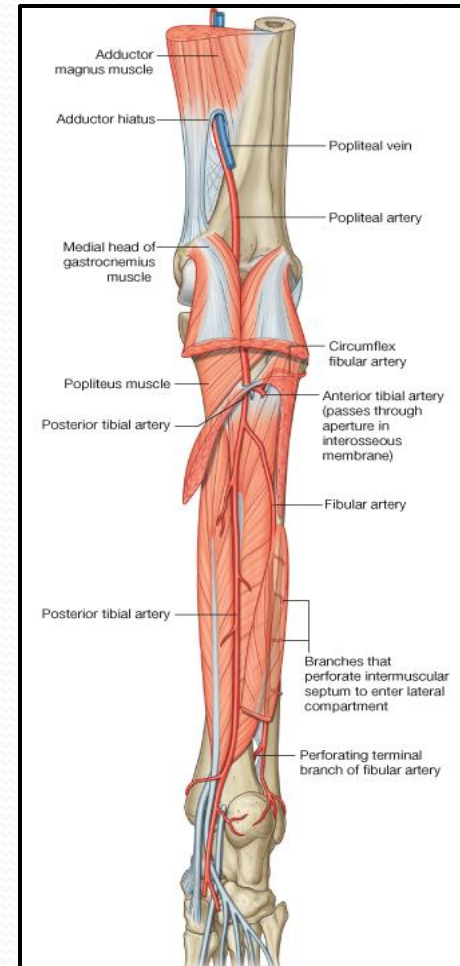
- *Terminates by dividing into: Medial & Lateral plantar arteries.*
- Branches:
- 1. Peroneal (Fibular) artery:
- *A large artery, descends behind the fibula (the artery of the lateral compartment of the leg).*
- It gives :
- *A. Nutrient artery to the fibula.*
- *B. Muscular branches.*
- *C. Perforating branch to lower part of front of leg.*
- *D. Shares in the Anastomosis around the ankle joint.*

Branches of Posterior Tibial Artery

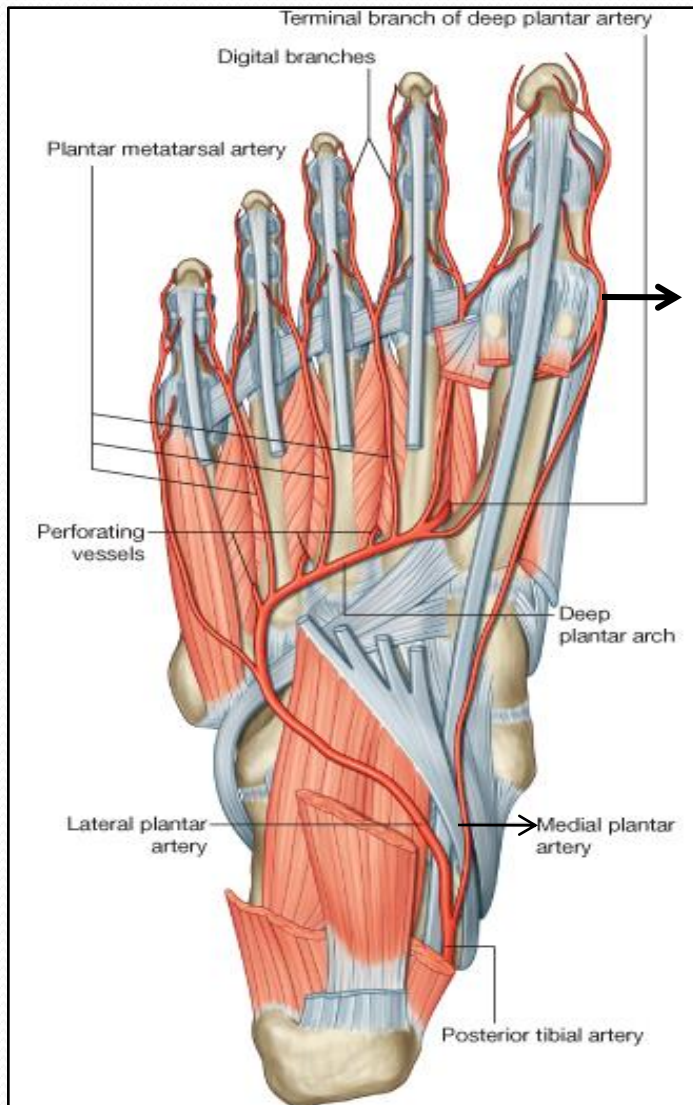
2. Nutrient artery to the tibia.

3. Anastomotic branches to anastomosis around ankle joint.

4. Medial & Lateral plantar arteries.

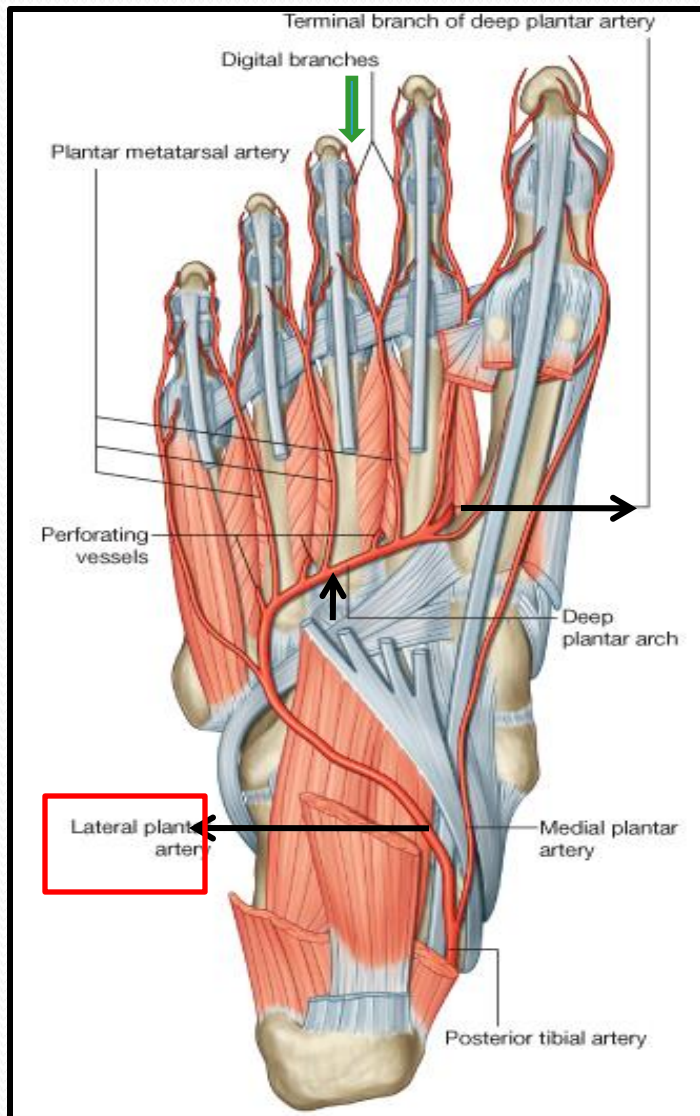


Medial Plantar Artery



- *The smaller terminal branch of the posterior tibial artery.*
- *Arises beneath the Flexor Retinaculum.*
- *Branches:*
- *Muscular, Articular and Cutaneous.*
- *Ends by supplying the medial side of the big toe.*

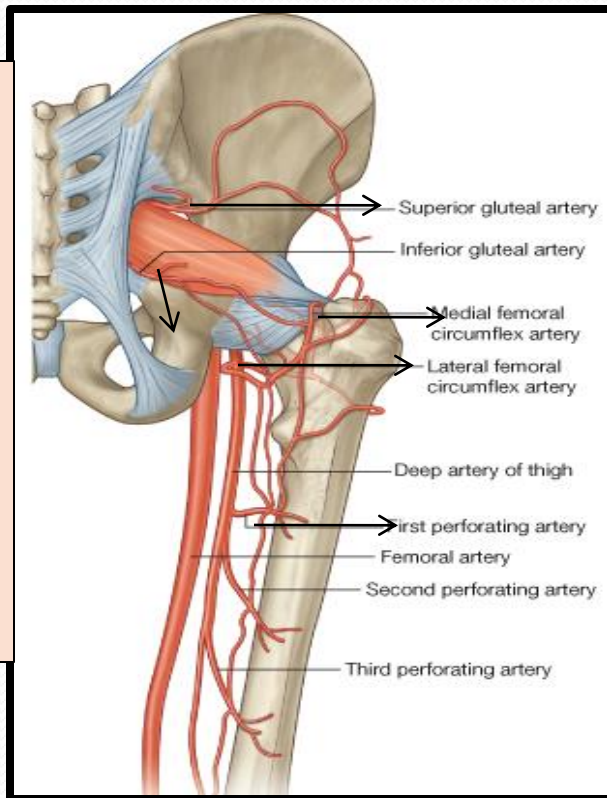
Lateral Plantar Artery



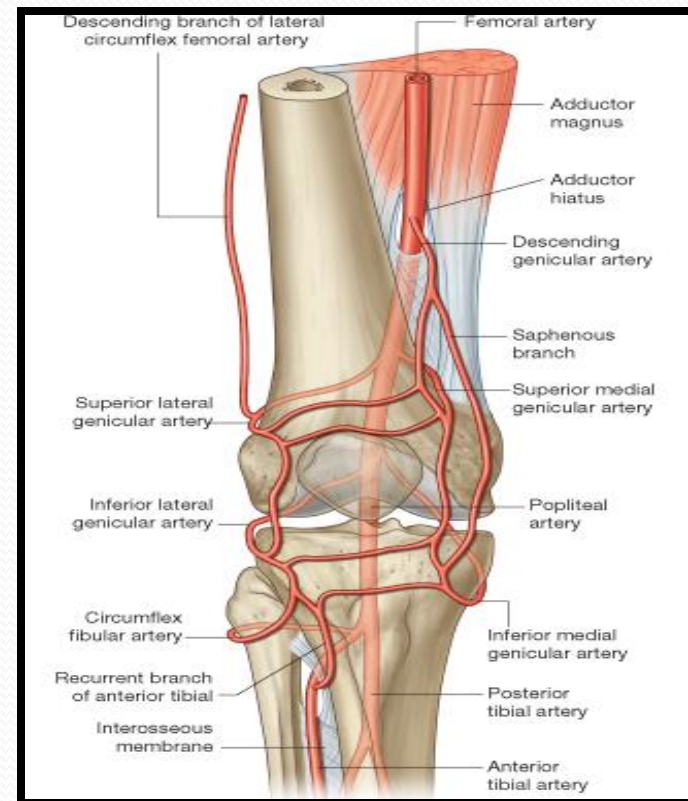
- *The larger terminal branch.*
- *At the base of the 5th metatarsal bone, it curves medially to form*
- *the Plantar Arch.*
- *Joins the Dorsalis pedis artery at the proximal end of the 1st intermetatarsal space.*
- *Branches:*
- *Muscular, Articular & Cutaneous branches.*
- *The Plantar Arch gives *Plantar Digital Arteries*.*

Arterial Anastomosis

1. Superior gluteal.
2. Inferior gluteal.
3. Medial circumflex femoral.
4. Lateral circumflex femoral



TROCHANTERIC (supplies the head of femur)

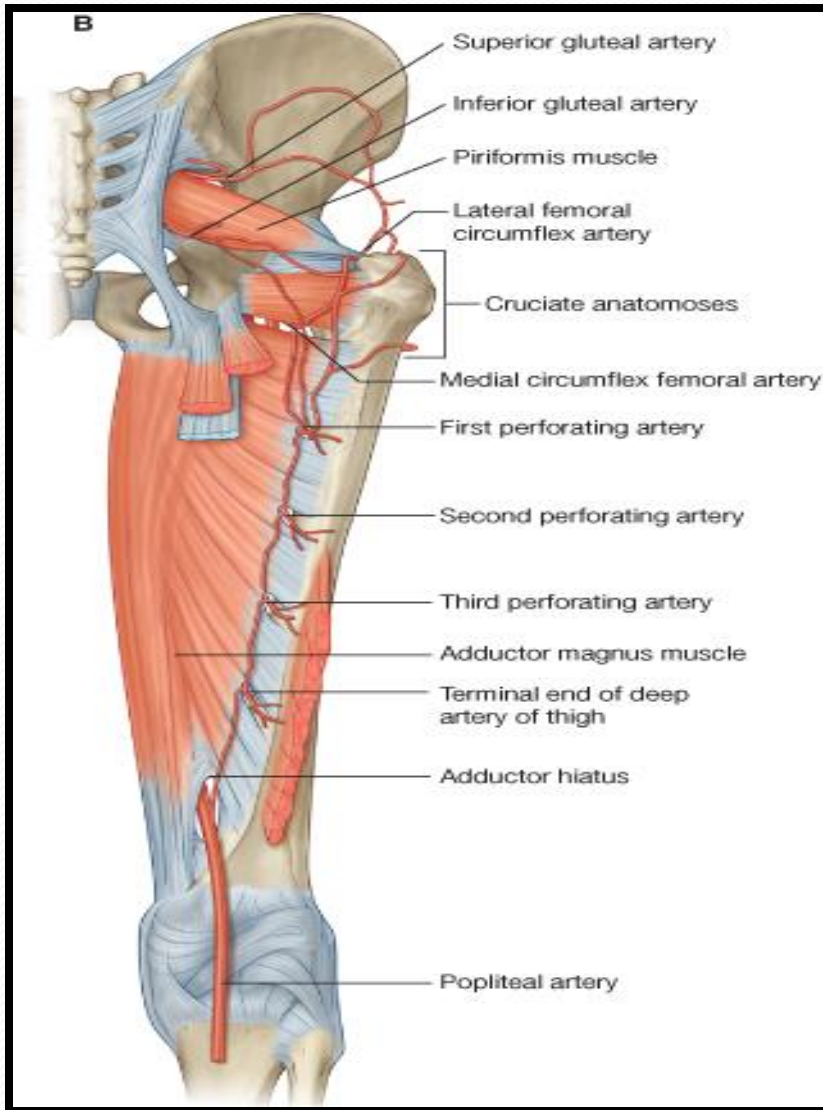


AROUND THE KNEE

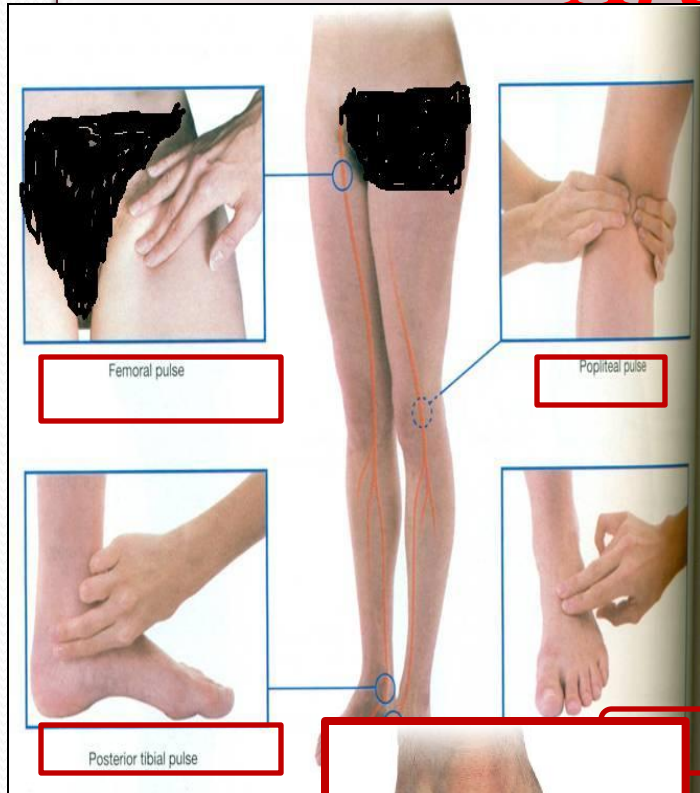
Cruciate

1. *Inferior gluteal.*
2. *Medial circumflex femoral.*
3. *Lateral circumflex femoral.*
4. *First perforating*

*Provides connection
between Internal iliac and
Femoral arteries*



Where to Feel the Peripheral Arterial Pulse ?



Femoral :

- *Inferior to the inguinal ligament and midway between the anterior superior iliac spine and symphysis pubis.*

Popliteal :

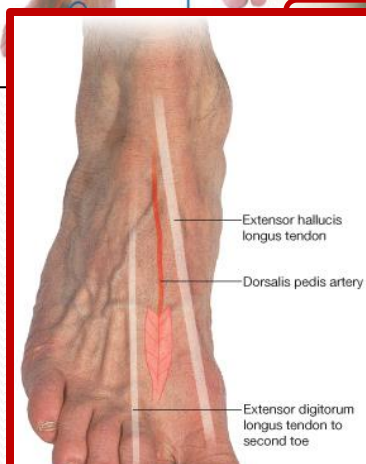
- *Deep in the popliteal fossa medial to the midline.*

● Posterior tibial :

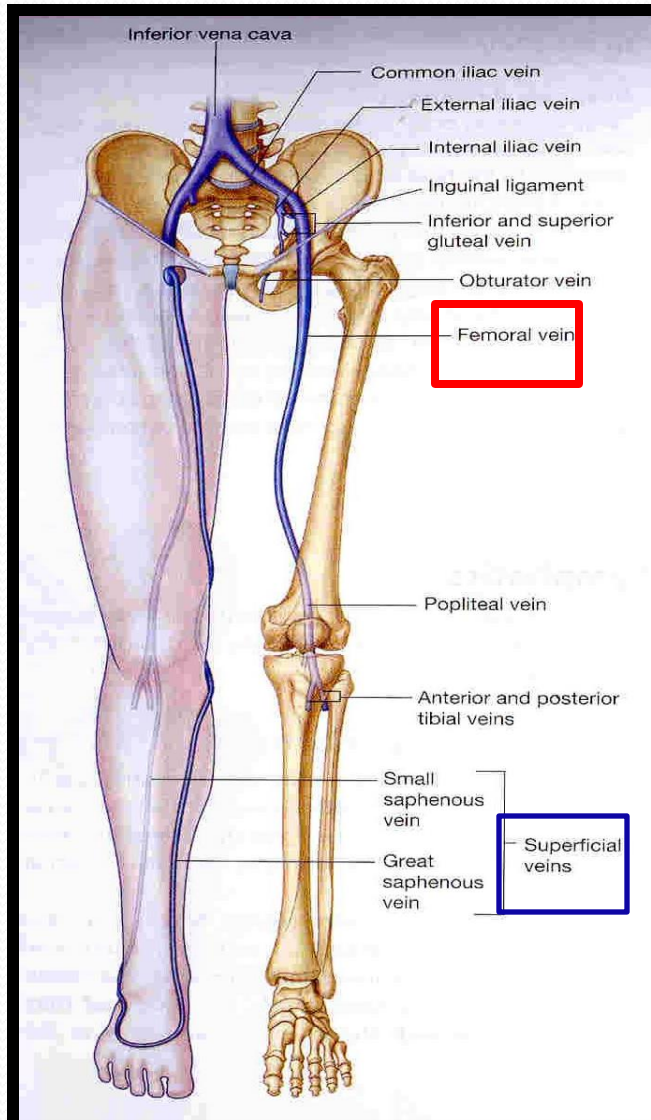
- *Posteroinferior to the medial malleolus in the groove between the malleolus and the heel.*

Dorsalis pedis:

- *Over the tarsal bones between the tendons of extensor hallucis longus and extensor digitorum*



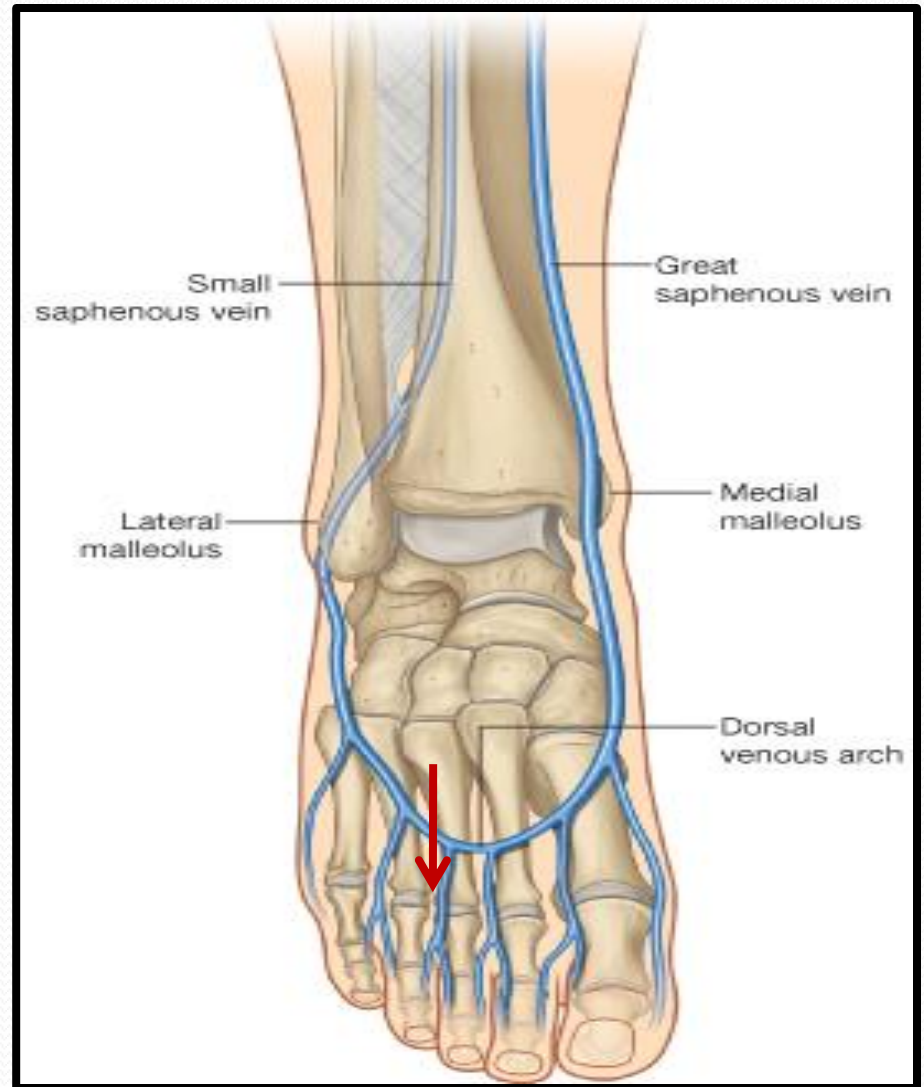
Veins of LL



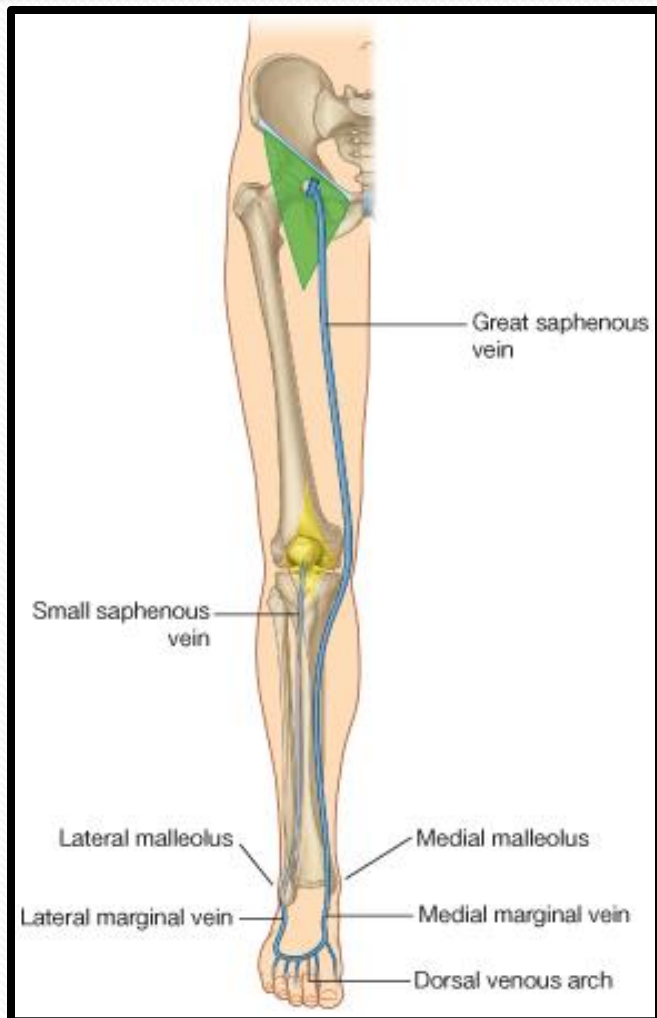
- ▣ *The veins of the lower limb are classified into:*
- ▣ *Superficial system &*
- ▣ *Deep system.*

Superficial veins

- ▣ Dorsal Venous arch (network):
- ▣ *Receives most of the blood of the foot through Digital and*
- ▣ *Communicating veins.*
- ▣ Drained on:
Medial side by the Great Saphenous vein.
Lateral side by the Small saphenous vein

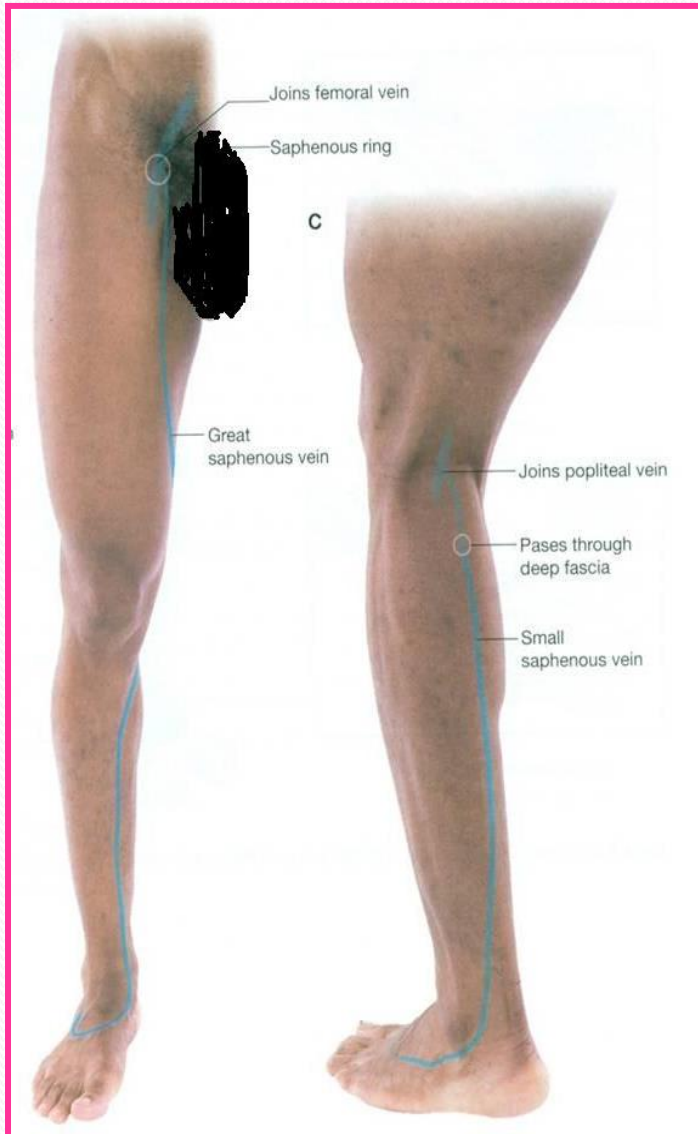


Great Saphenous Vein



- ▣ *The Longest Superficial vein of the body.*
- ▣ *Begins from the medial end of the dorsal venous arch (as the medial marginal vein).*
- ▣ *Ascends:*
- ▣ *In front of the Medial Malleolus accompanied by the (Saphenous nerve).*
- ▣ *Posterior the Medial Condyle of the femur.*
- ▣ *Passes through the Saphenous Opening (2.5-3.25) cm below and lateral to the pubic tubercle.*
- ▣ *Terminates in: Femoral Vein.*

Small Saphenous Vein



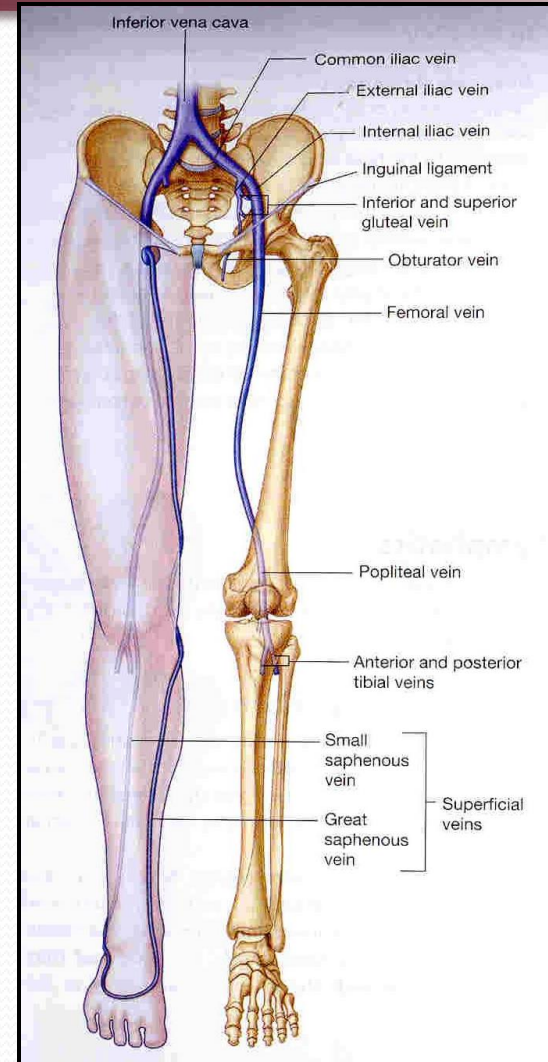
- ▣ *Originates from the lateral end of the dorsal venous arch.*
- ▣ *Ascends:*
- ▣ *Behind the lateral Malleolus in company with the Sural nerve.*

Along the middle of the back leg.

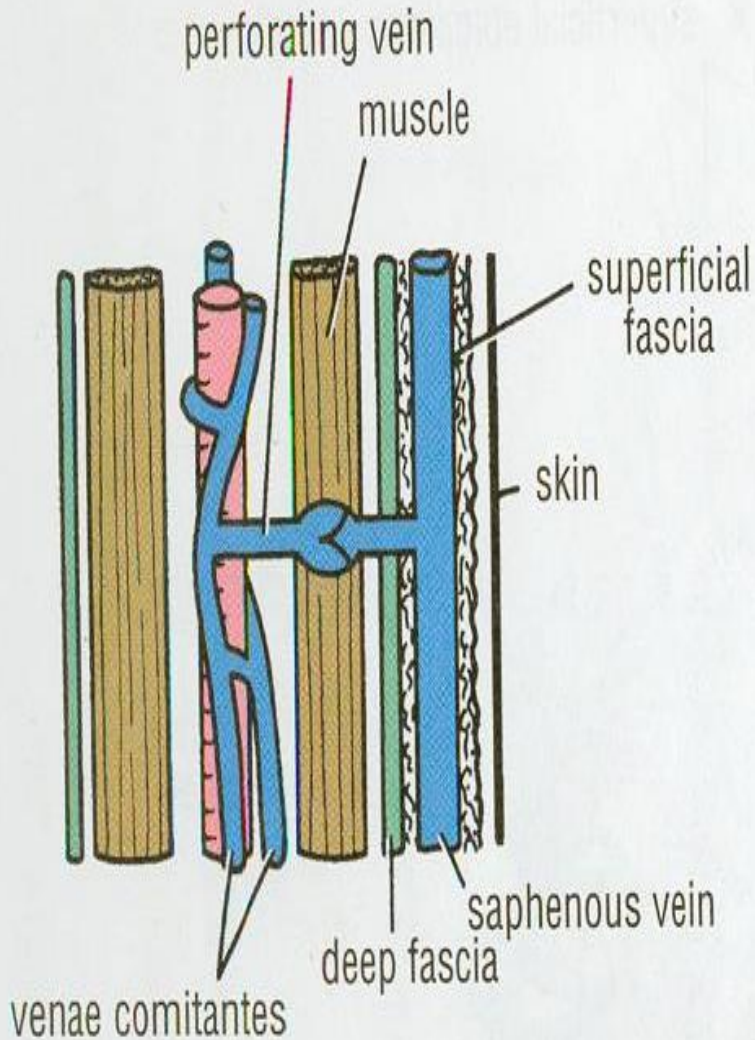
- ▣ *Termination :*
- ▣ *1. It may join the Great Saphenous vein.*
- ▣ *2. Or Bifurcates:*
- ▣ *One branch joins the Great saphenous and the other joins the Popliteal vein.*

Deep Veins

- **Popliteal vein**
- Formed by the union of *venae comitantes* around the anterior & posterior tibial arteries.
- lies posterior to
- popliteal artery.
- **Femoral vein**
- It enters the thigh by passing through the opening in the adductor magnus .
- It leaves the thigh in the intermediate compartment of the femoral sheath.
- Passes behind the inguinal ligament to become the **External iliac vein**

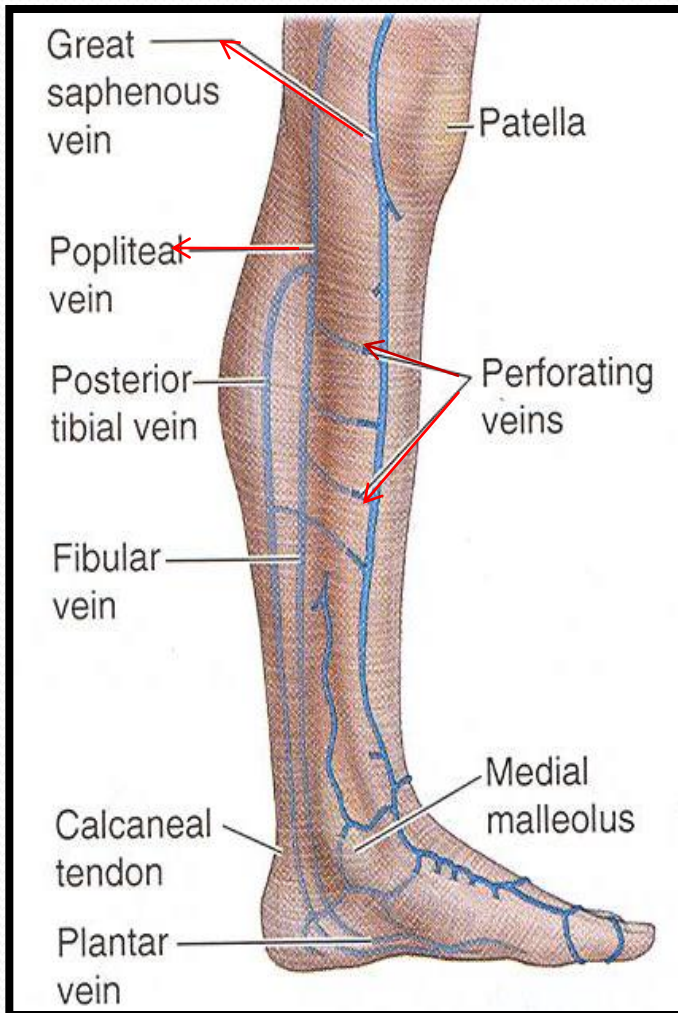


Venae Comitantes



- *Deep veins, accompany all the major arteries and their branches.*
- *Usually paired.*
- *They are contained within the vascular sheath of the artery, whose pulsations help to compress and move blood in the veins.*

Perforating Veins



- ▣ *Connect the superficial veins (**Great Saphenous vein**) with the deep veins along the medial side of the calf.*
- ▣ *Their valves only allow blood to flow from the superficial to the deep veins.*



THANK YOU