VASCULATURE OF LL

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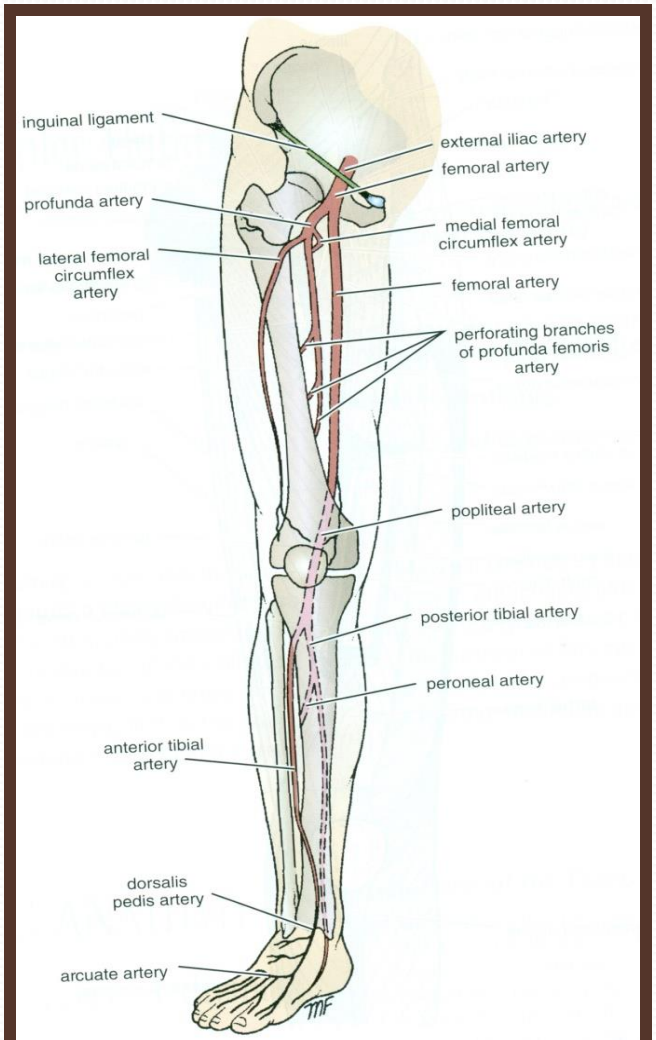
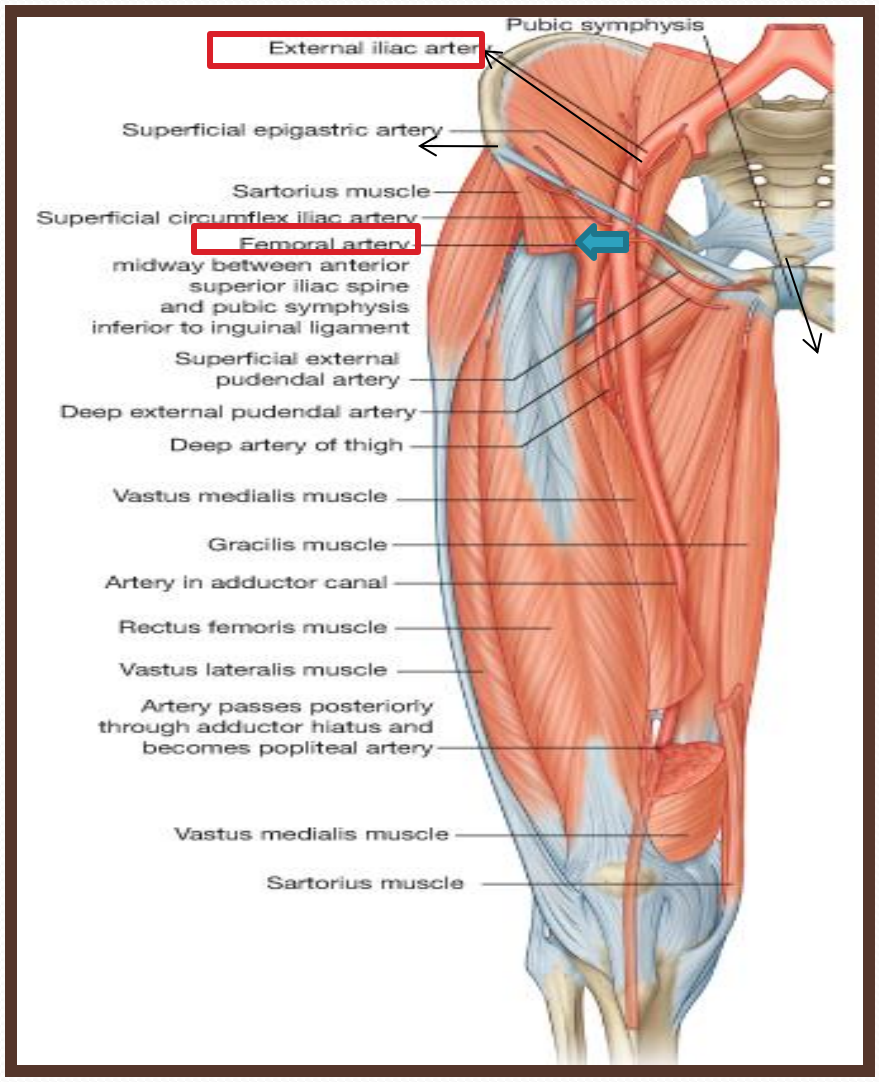


OBJECTIVES

- **At the end of the lecture, students should:**
- List the main arteries of the lower limb.
- Describe their anatomy regarding: origin, course distribution & branches.
- List the main arterial anastomosis.
- List the sites to feel the peripheral arterial pulse.
- Describe the anatomy of the veins of the lower limb regarding: differentiation into superficial& deep, origin, course & termination

FEMORAL ARTERY



- ***It is the main arterial supply to the lower limb.***

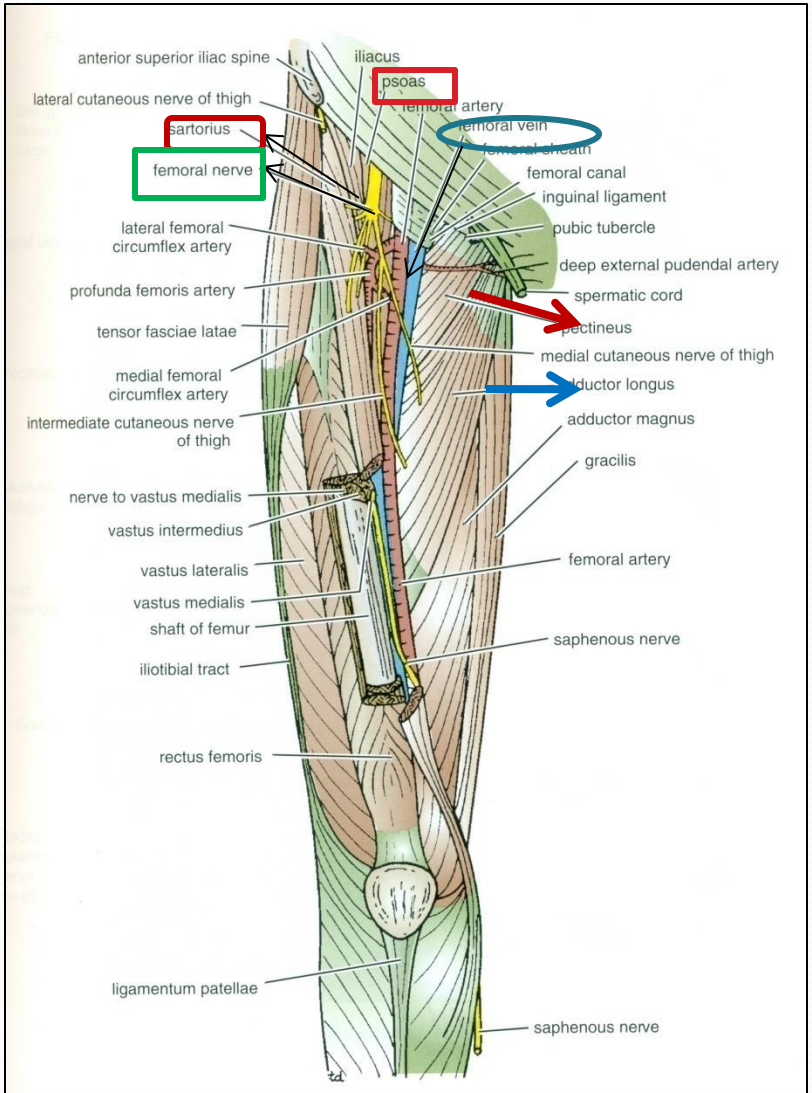
❑ ***Origin:***

- ***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: passes behind the Sartorius.*
- ***Posterior:***
  - *Psoas (separates it from the hip J),Pectineus & Adductor longus.*
- ***Medial:***
  - *Femoral vein.*
- ***Lateral :***
  - *Femoral nerve and its branches*

Femoral A. & Femoral V.

- **At the inguinal ligament:**

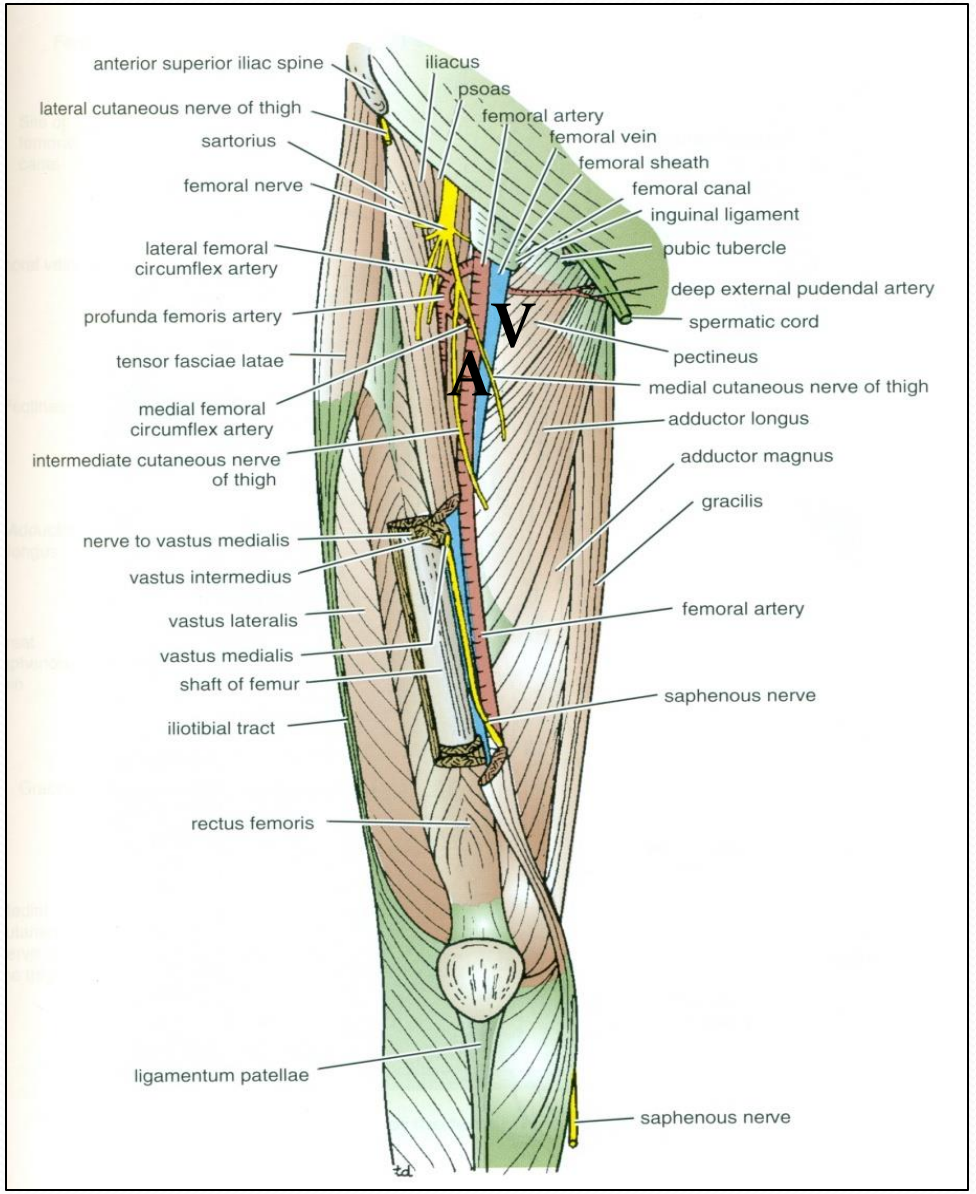
  The vein lies **medial** to the artery.

- **At the apex of the femoral triangle:**

  The vein lies **posterior** to the artery.

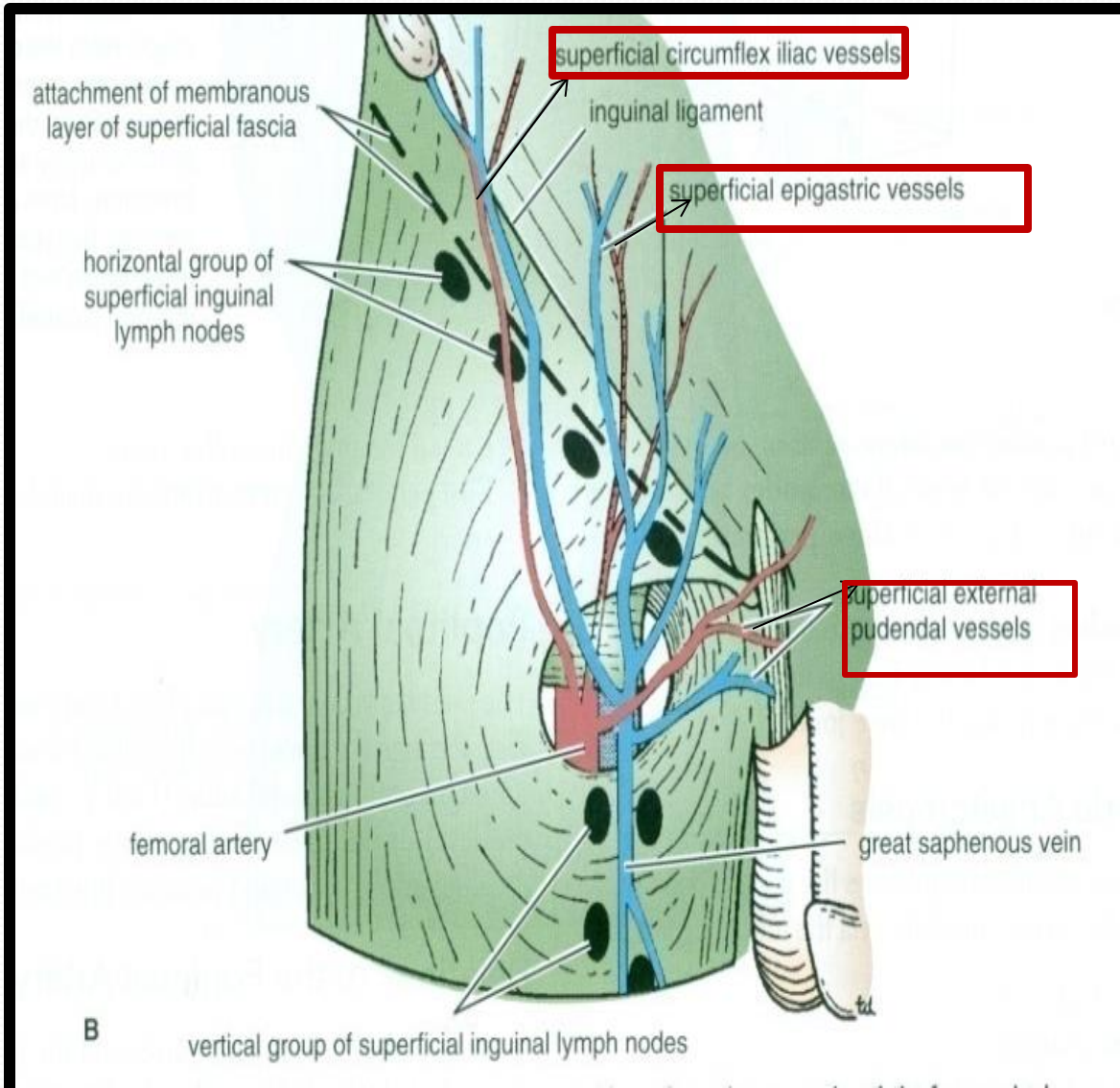
- **At the opening in the adductor magnus:**

  The vein lies **lateral** to the artery.



BRANCHES OF FEMORAL A.

1. *Superficial Epigastric.*
2. *Superficial Circumflex iliac.*
3. *Superficial External Pudendal.*
4. *Deep External Pudendal.*
5. *Profunda femoris.*



PROFUNDA FEMORIS A.

- *It is an important, large artery.*
- *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.*

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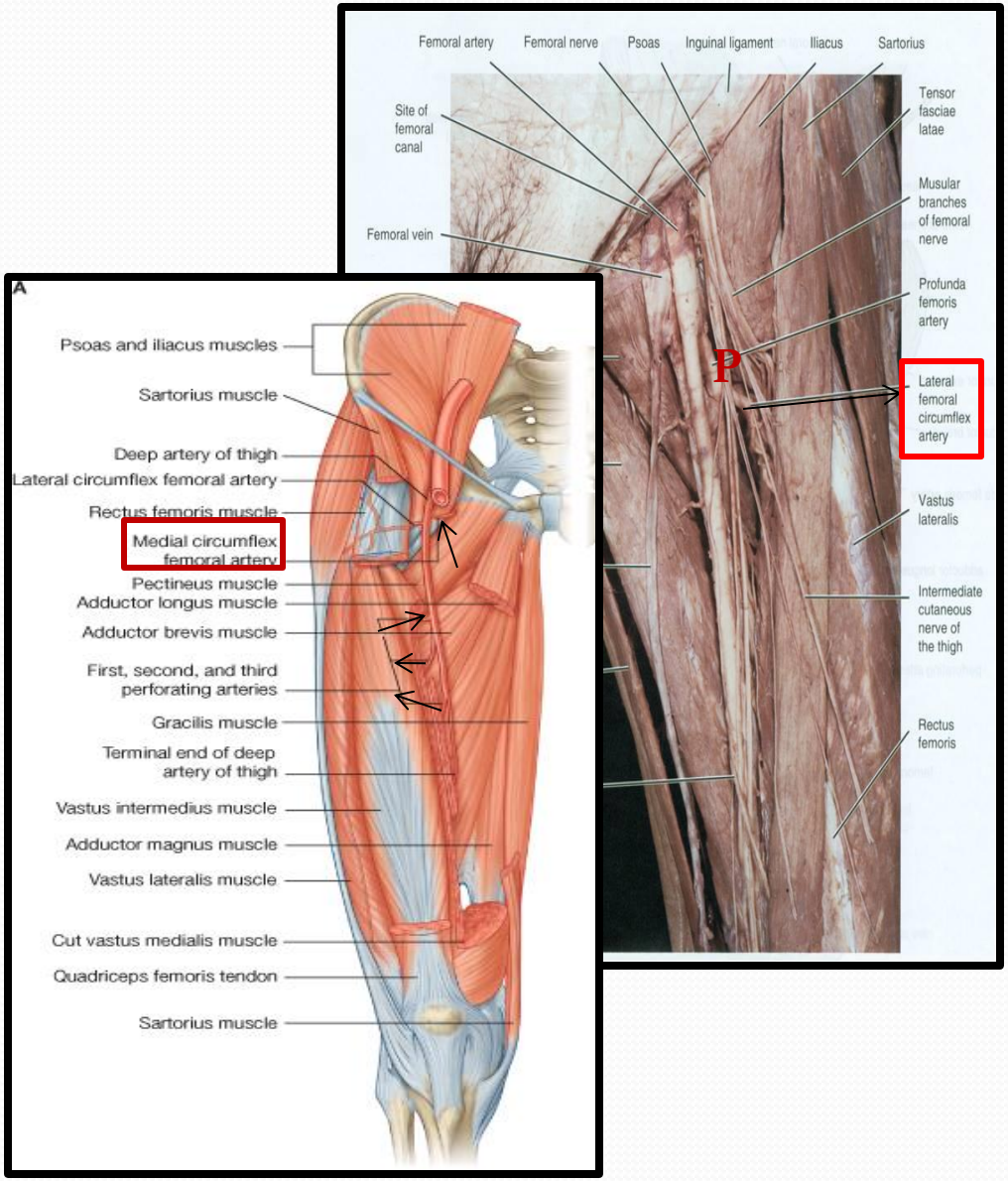
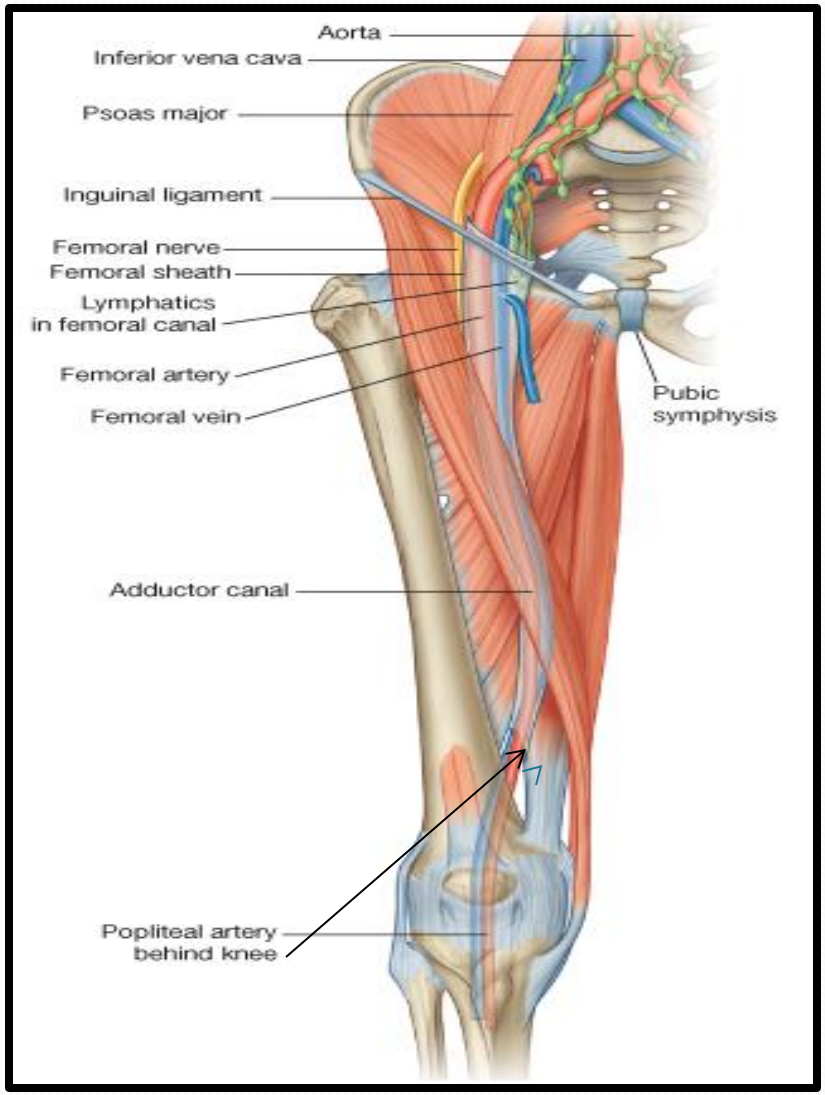
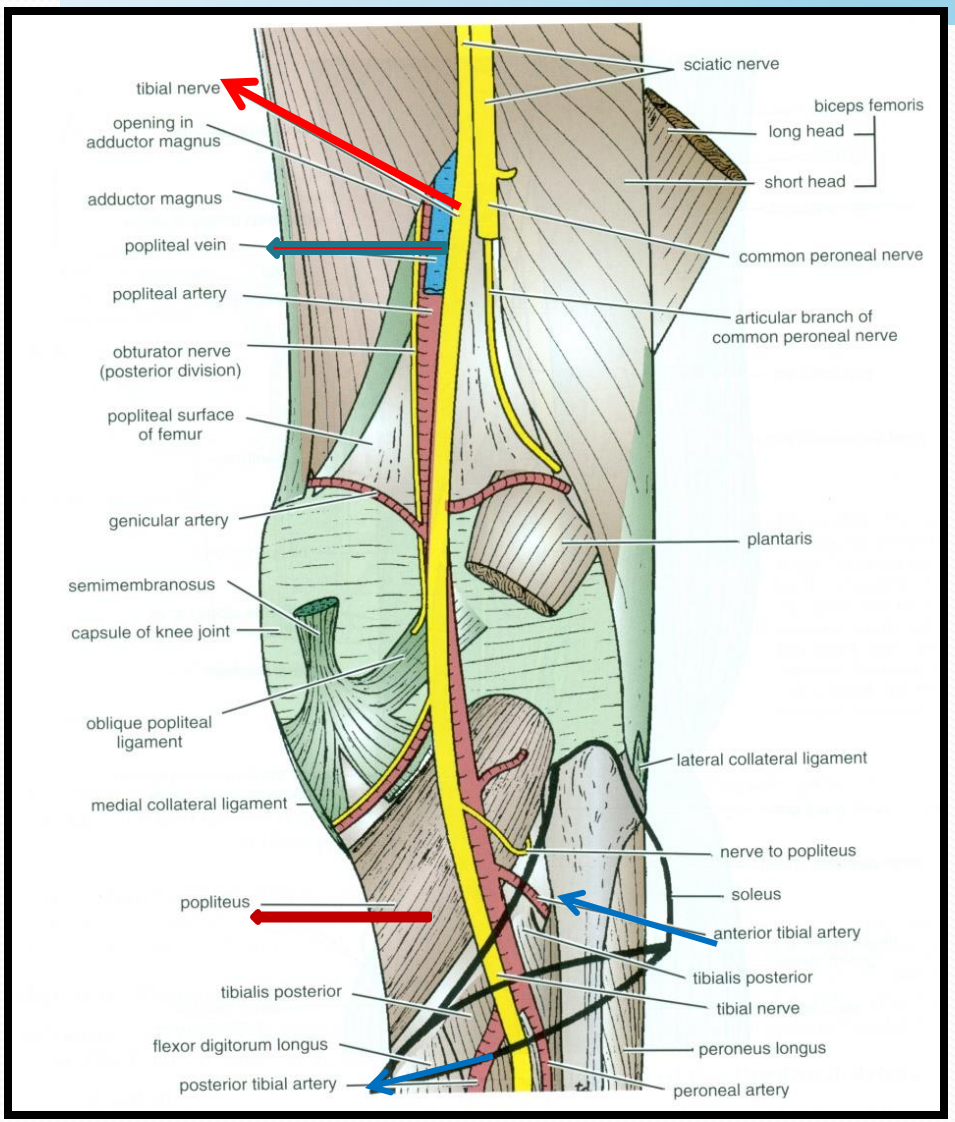


POPLITEAL ARTERY



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

RELATIONS & BRANCHES



❑ Anterior:

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

❑ Posterior:

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

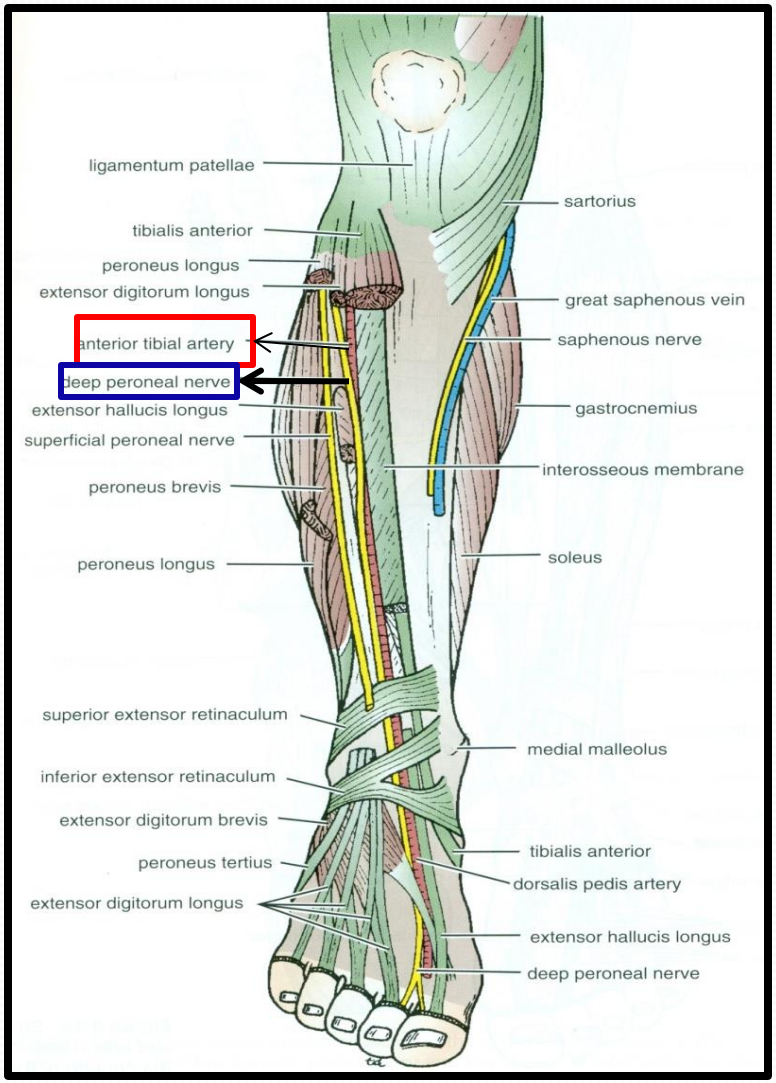
❑ Branches:

- *Muscular & Articular to the knee.*

❑ Termination:

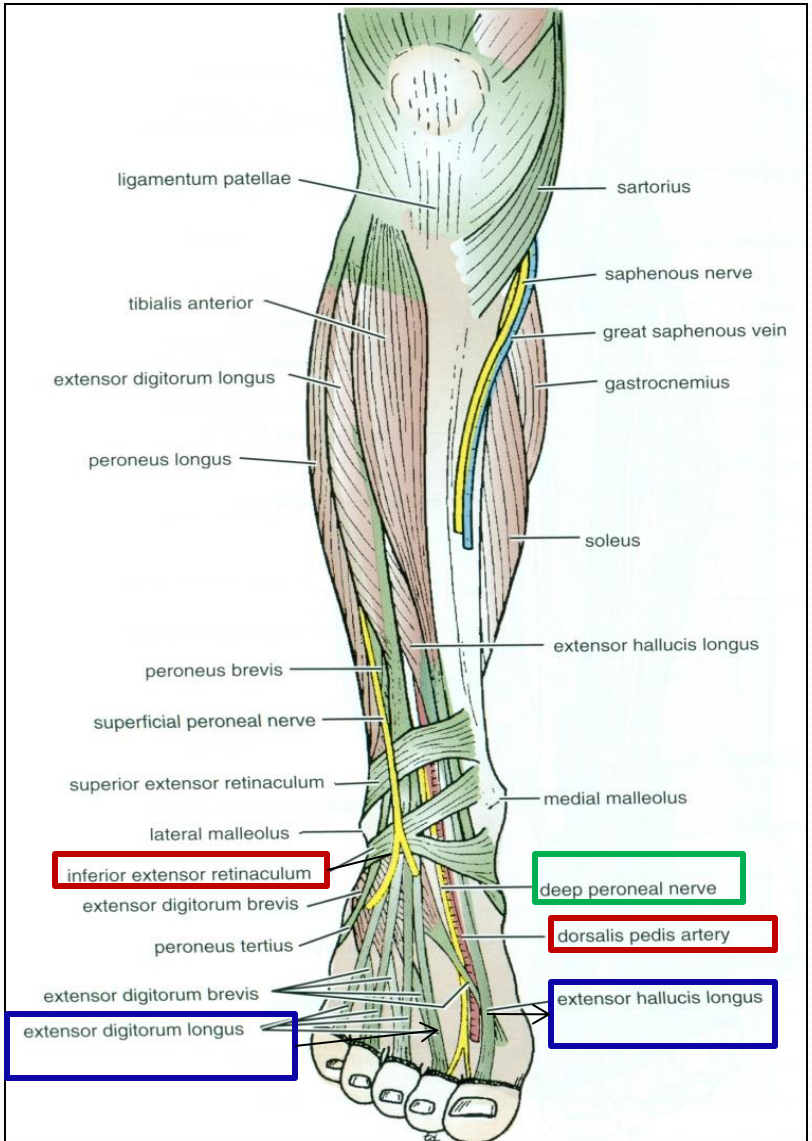
- *At the lower border of Popliteus muscle by dividing into*
- ***Anterior and Posterior Tibial Arteries.***

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 the upper part of its course, it lies Deep.*
- *In the lower part, it lies 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.***

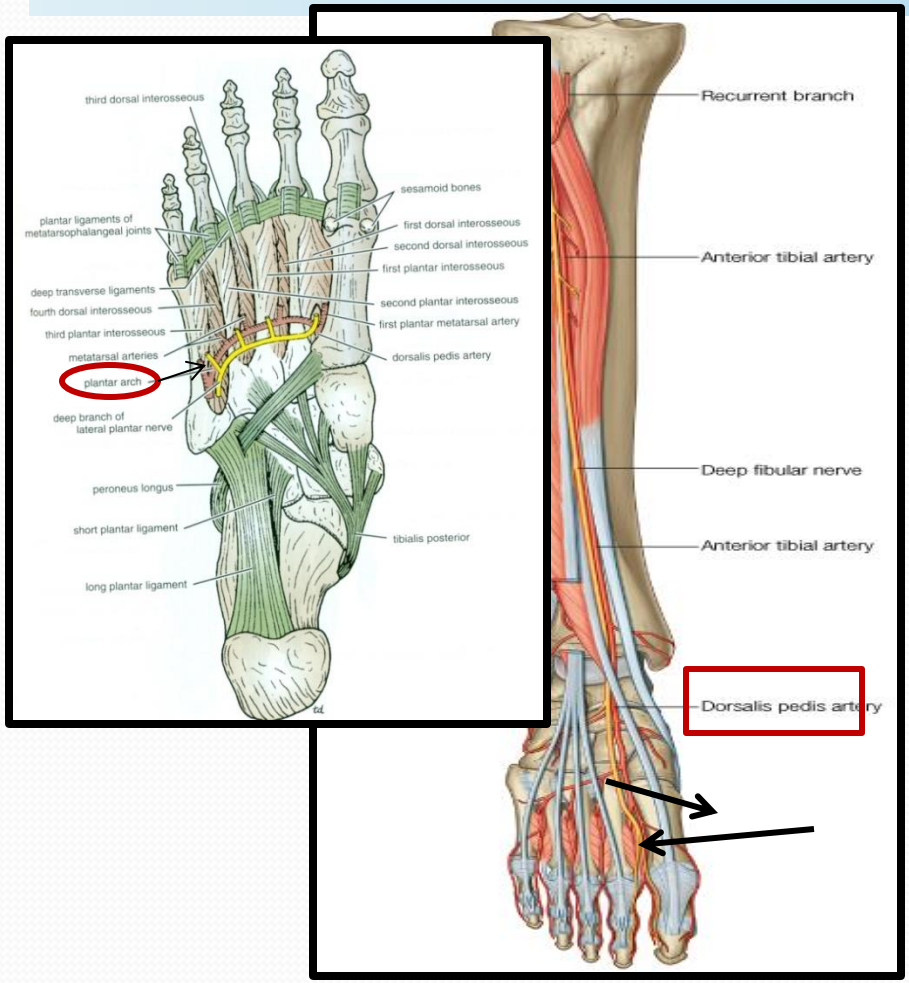
❑ ***Medially:***

- ***Tendon of extensor hallucis longus.***

❑ ***Laterally:***

- ***Deep peroneal nerve& extensor digitorum longus.***

DORSALIS PEDIS ARTERY



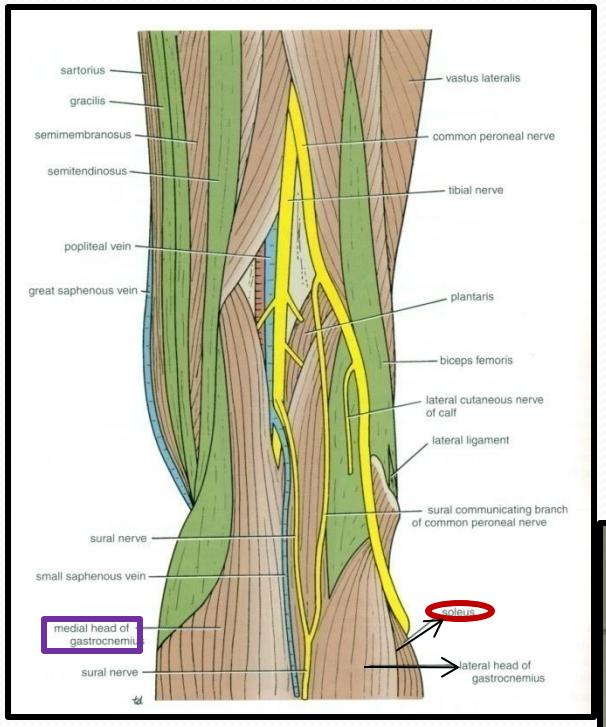
- *It Terminates by passing between the two heads of the 1st dorsal interosseous muscle.*
- *It joins the Lateral plantar artery to complete the Plantar Arch.*

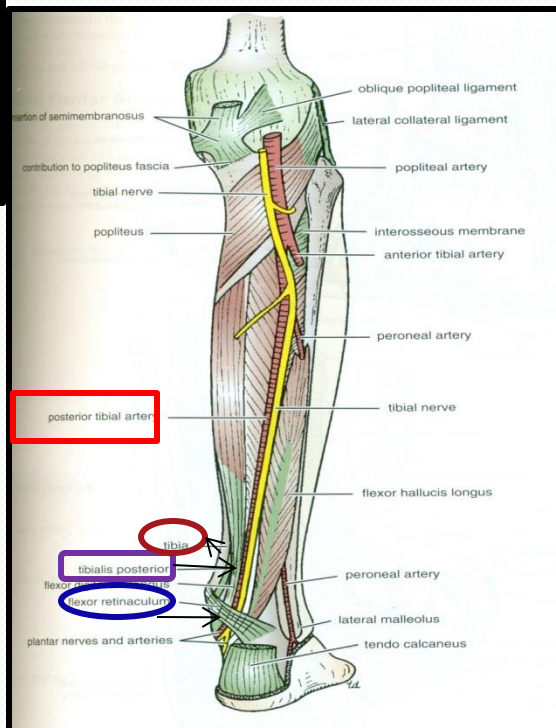
❑ ***Branches:***

- *Lateral tarsal artery.*
- *Arcuate artery.*
- *1st dorsal metatarsal artery.*

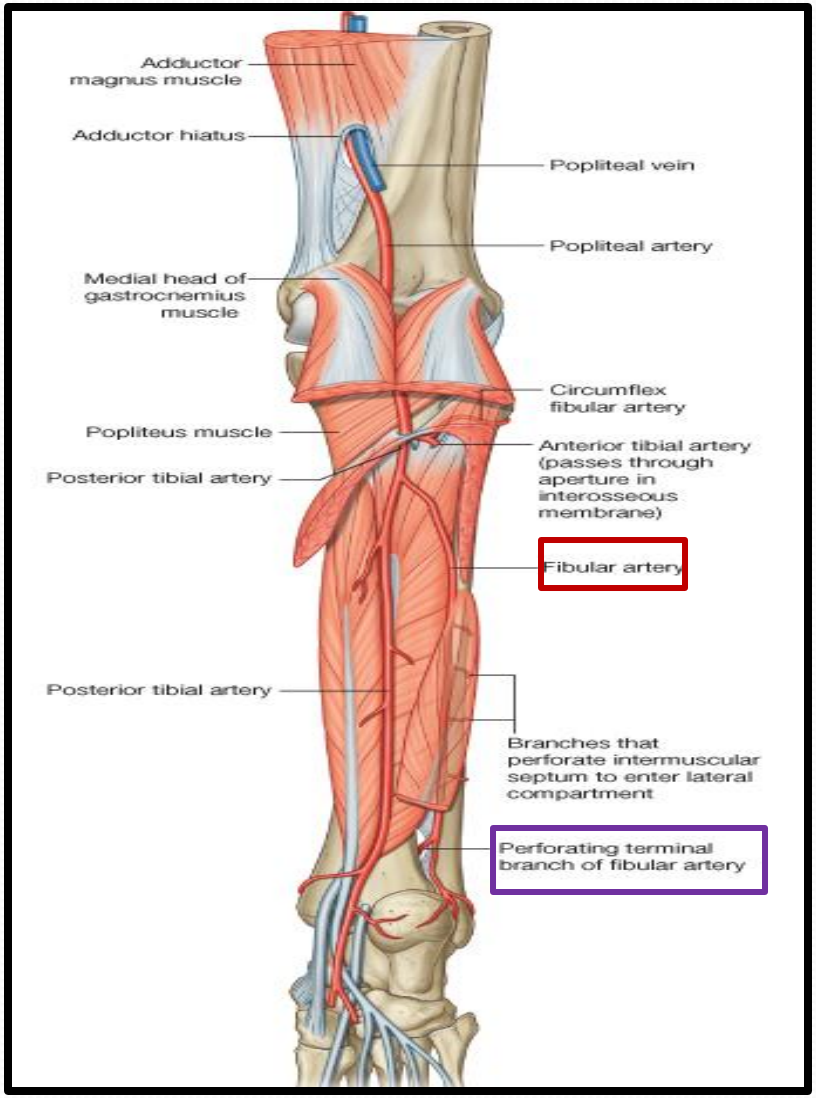
POSTERIOR TIBIAL ARTERY

- ***Descends Deep to Soleus & Gastrocnemius.***
- ***Lies on the posterior surface of Tibialis Posterior muscle above***
- ***and on the posterior surface of Tibia below.***
- ***Its lower part is covered by Skin & Fascia only.***
- ***Passes Behind Medial Malleolus , Deep to Flexor Retinaculm***





POSTERIOR TIBIAL ARTERY -PTA



- ***Terminates by dividing into: Medial & Lateral plantar arteries.***

❑ ***Branches:***

1. Peroneal artery:

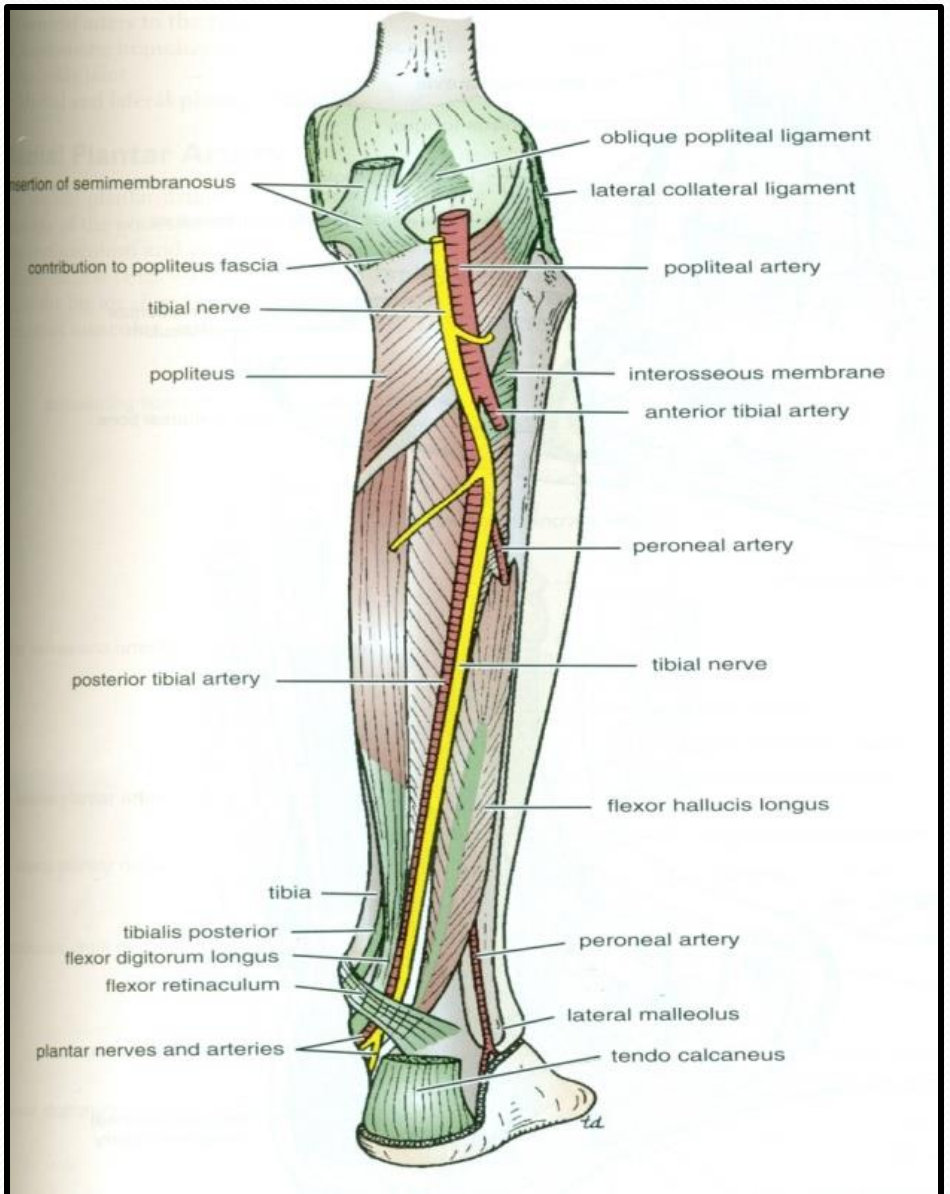
- ***A large artery, descends behind the fibula (the artery of the lateral compartment of the leg).***
- ***Gives :***
- ***A. Nutrient artery to the fibula.***
- ***B. Muscular branches.***
- ***C. Perforating branch to lower part of front of leg.***
- ***D. Shares in the Anastomosis around the ankle joint.***

BRANCHES OF PTA

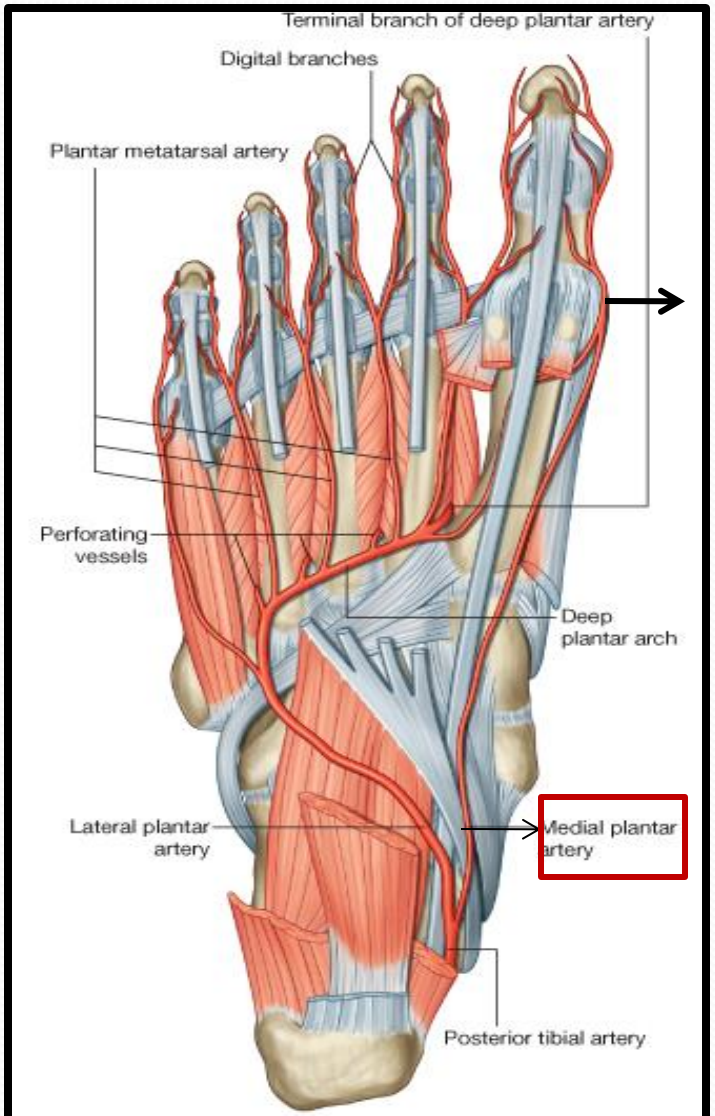
2.Nutrient artery to the tibia.

3. Anastomotic branches to anastomosis around ankle joint.

4. Medial & Lateral plantar arteries.

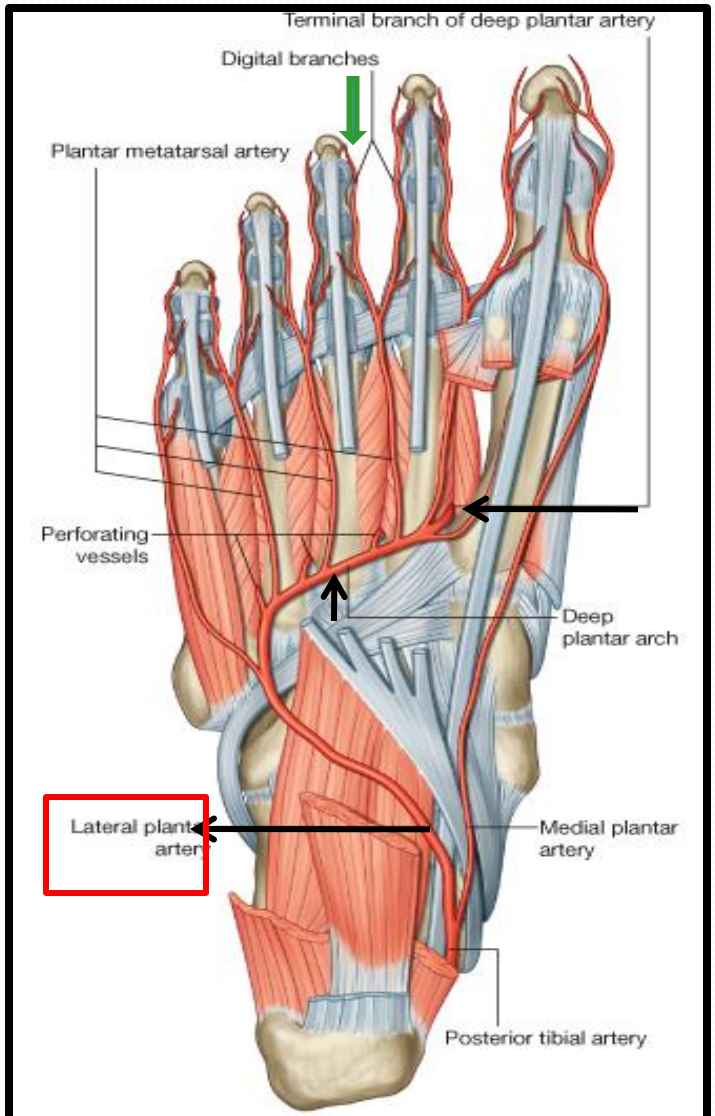


MEDIAL PLANTAR ARTERY



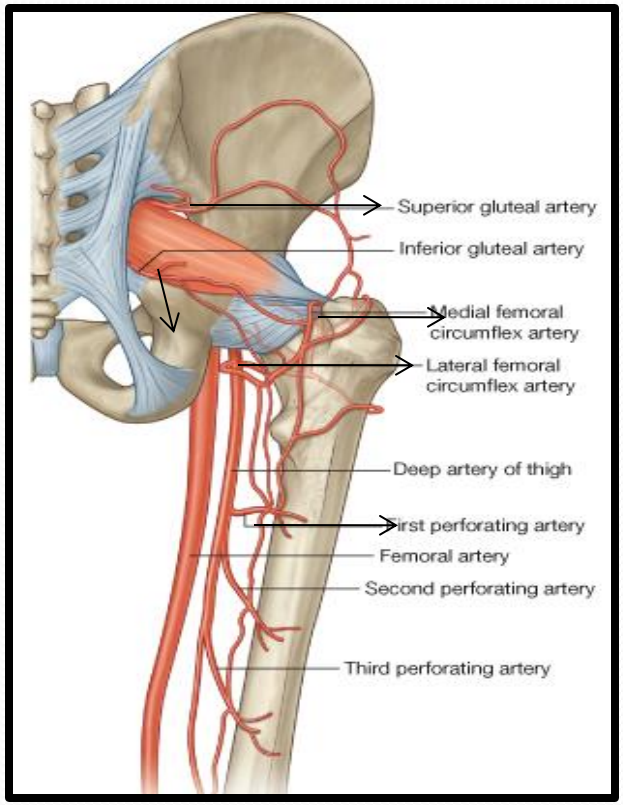
- *The smaller of the two terminal branches of the posterior tibial artery.*
- *Arises beneath the Flexor Retinaculum.*
- ***Gives:*** *Muscular, Articular and Cutaneous branches.*
- *Ends by supplying the medial side of the big toe.*

LATERAL PLANTAR ARTERY



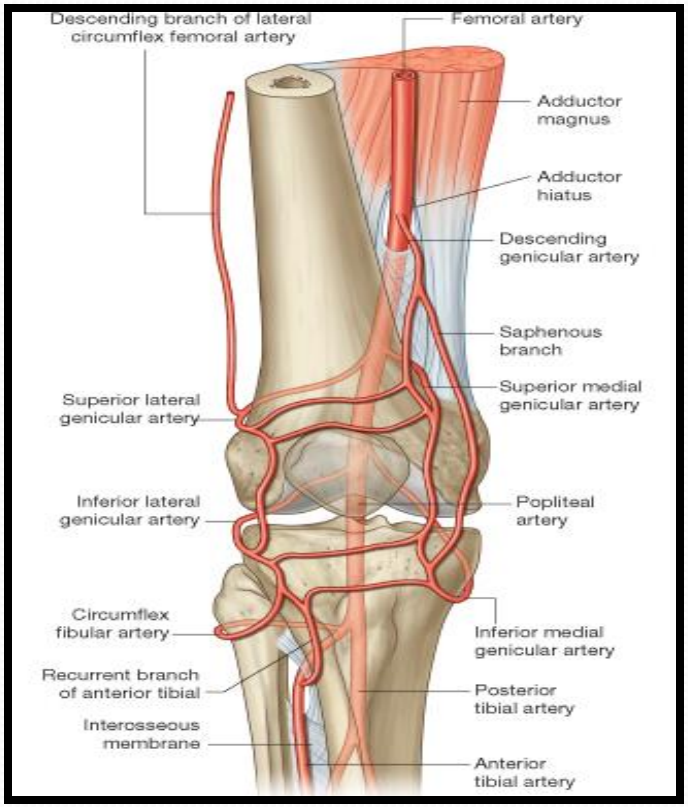
- *The larger of the two terminal branches of the posterior tibial artery.*
- *At the base of the 5th metatarsal bone, it curves medially to form the Deep Plantar Arch.*
- *Joins the Dorsalis pedis artery at the proximal end of the 1st intermetatarsal space.*
- ***Gives:***
- *Muscular, Articular & Cutaneous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

ARTERIAL ANASTOMOSISES



***TROCHANTERIC* (supplies the head of femur)**

CRUCIATE

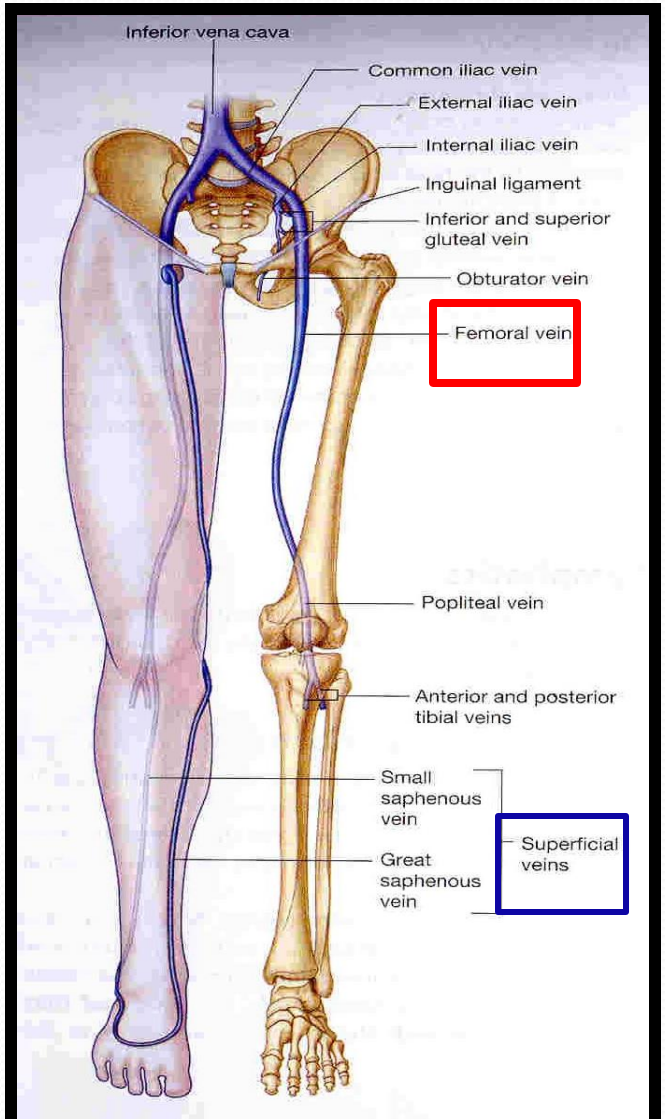


AROUND THE KNEE

WHERE TO FEEL PERIPHERAL ARTERIAL PULSE ?

- ***Femoral pulse:***
  - *Inferior to the lingual ligament and midway between the anterior superior iliac spine and symphysis pubis.*
- ***Popliteal pulse:***
  - *Deep in the popliteal fossa medial to the midline.*
- ***Posterior tibial pulse*:**
  - *Posteroinferior to the medial malleolus in the groove between the malleolus and the heel.*
- ***Dorsalis pedispulse:***
  - *Over the tarsal bones between the tendons of extensor hallucis longus and extensor digitorum.*

VEINS OF THE L.L



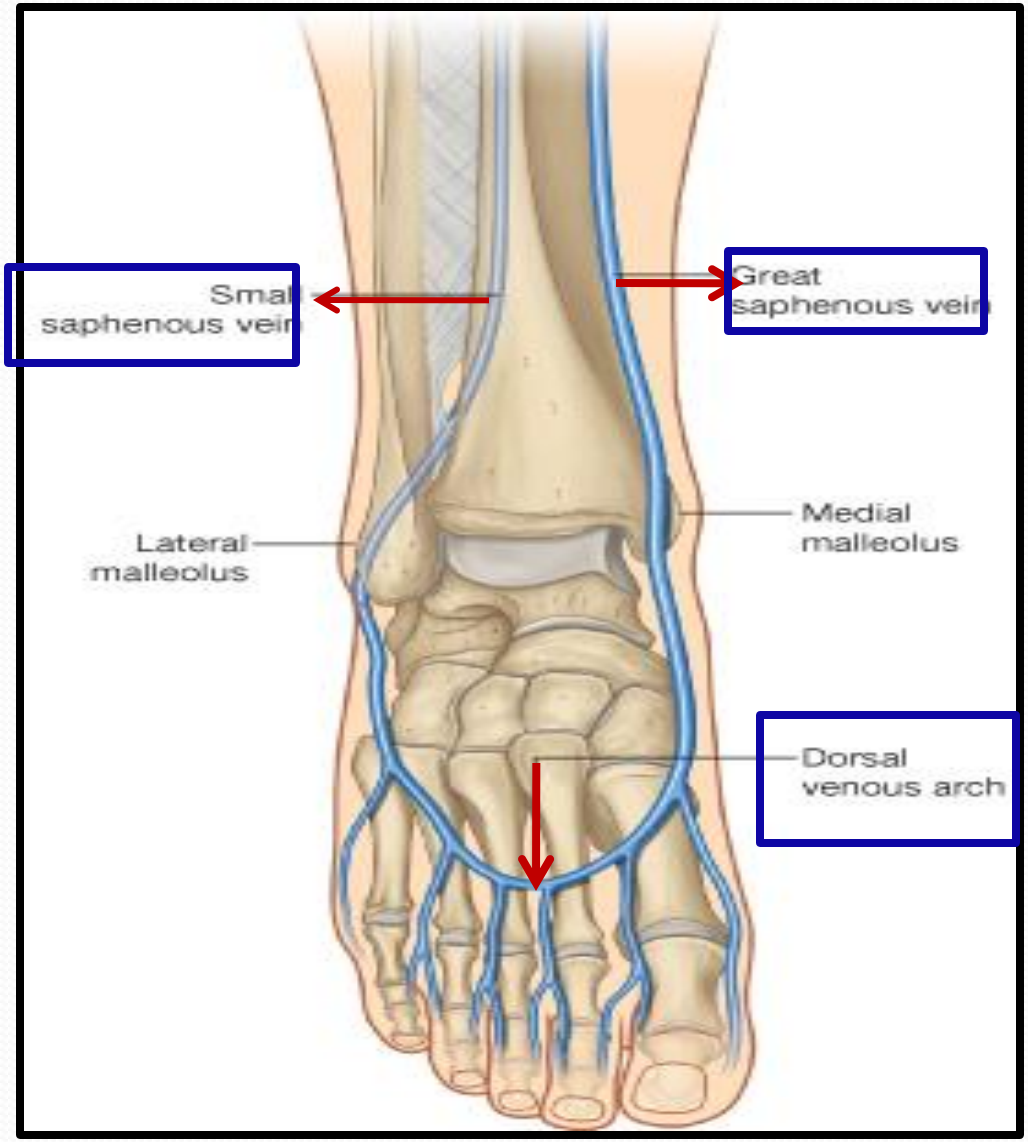
- ***The veins of the lower limb are:***

  (1) Superficial.

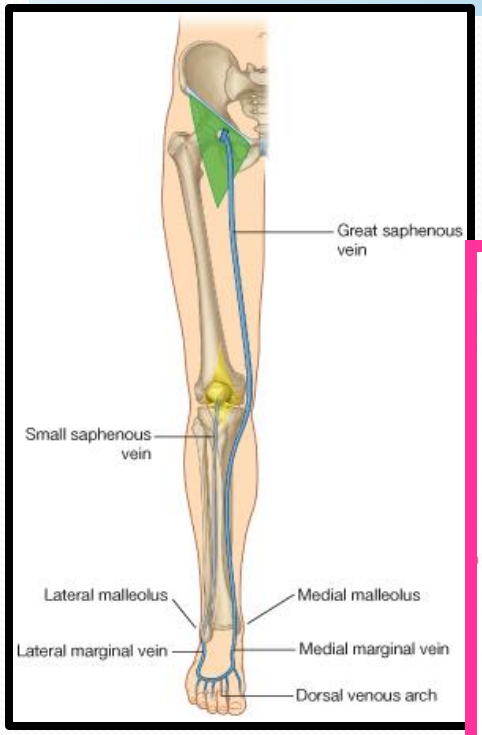
  (2) Deep.

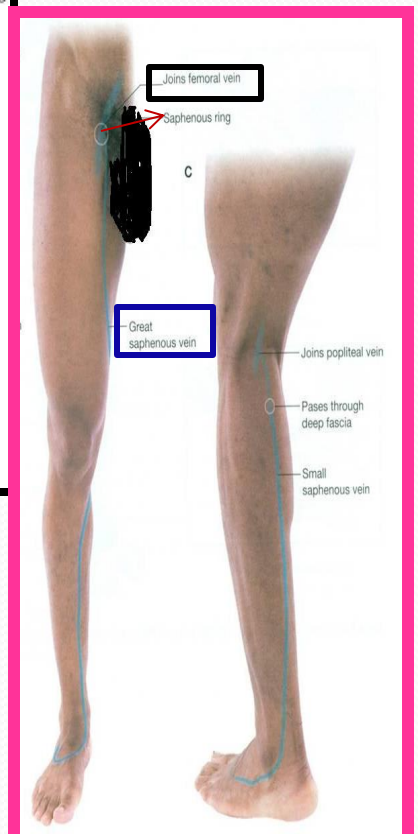
SUPERFICIAL VEINS

- ***They are immediately under the skin in the subcutaneous tissue.***
- ***Dorsal Venous arch (network):***
- ***Drains most of the blood of the foot through Digital and Communicating veins.***
- ***It is Drained on:***
  - ***Medial side by the Great Saphenous vein.***
  - ***Lateral side by the Small saphenous vein***



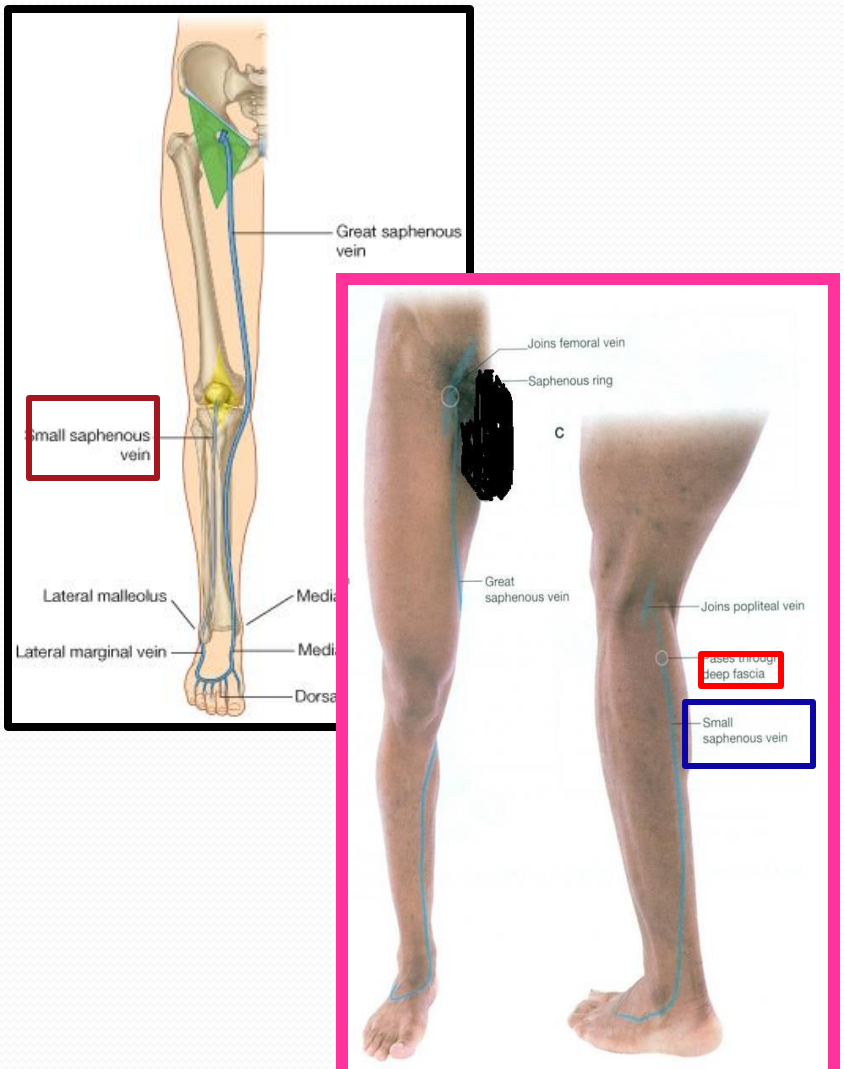
GREAT SAPHENOUS VEIN





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

SMALL SAPHENOUS VEIN



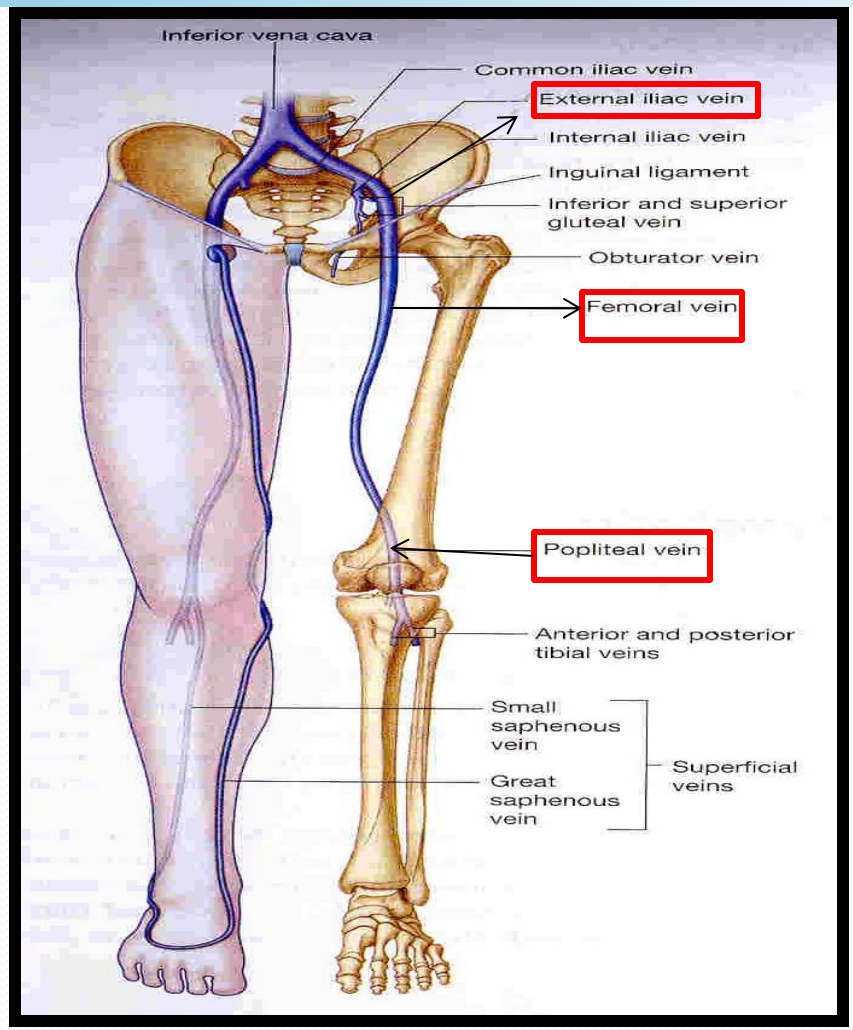
- *Originates from the lateral end of the dorsal venous arch.*
- ***Ascends:*** *Behind the lateral Malleolus in company with the Sural nerve.*

Along the middle of the back leg.

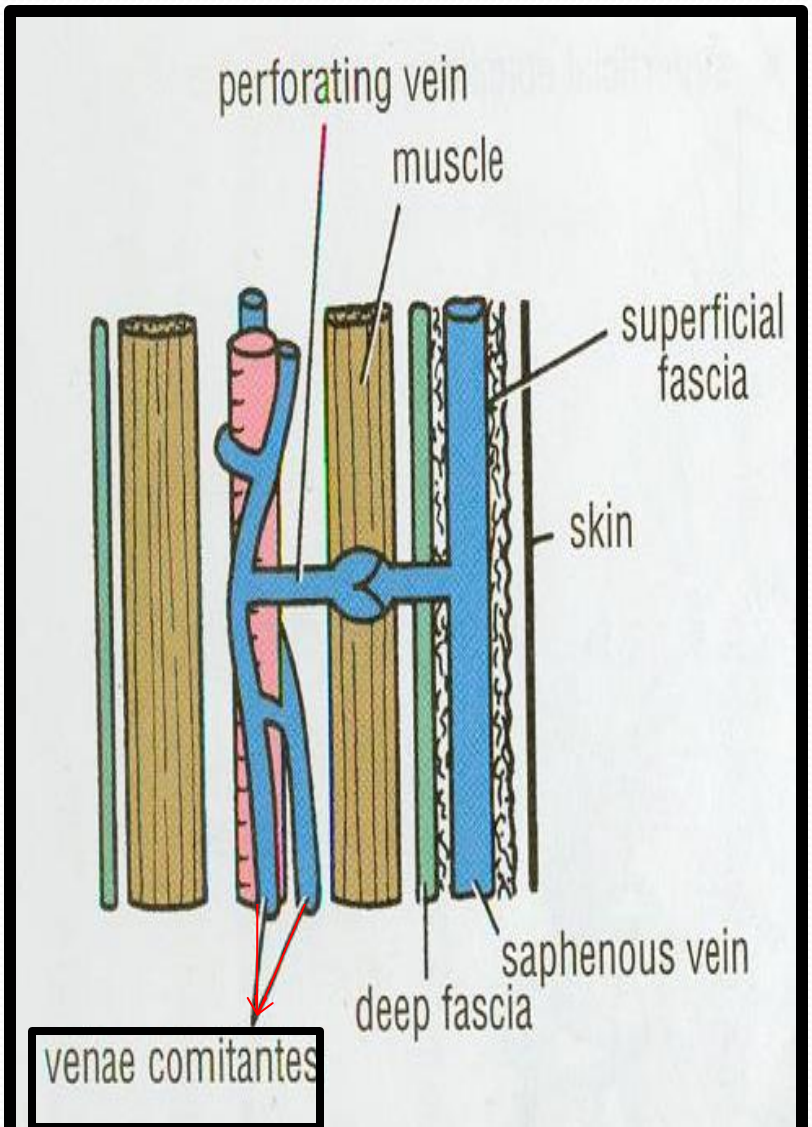
- ***Termination*** *:*
- *1. It may join the Great Saphenous vein.*
- *2. Or Bifurcates:*
- *One branch joins the Great saphenous and the other joins the Popliteal vein.*

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*

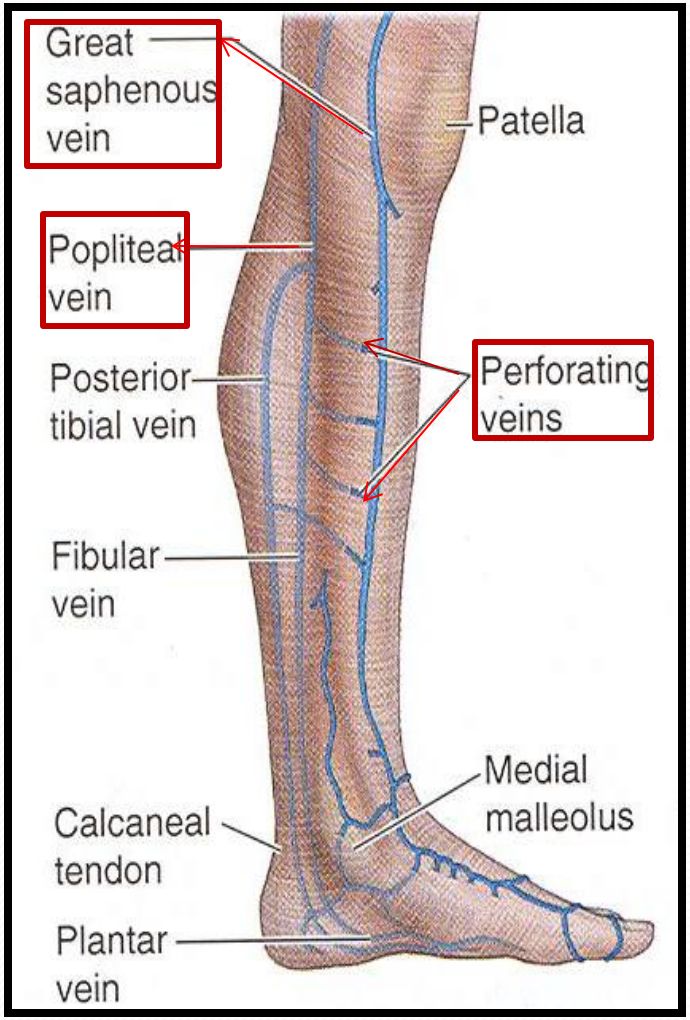


DEEP VEINS (VENAE COMITANTES)



- ***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 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.***

VARICOSE VEINS

- *Dilatation and Degeneration of the superficial veins that may be complicated by ulcers.*
- *More common in the postero medial part of the lower limb.*
- *Results from incompetence of the valves in the perforating veins, or within the great saphenous itself.*
- *This allows the passage of high pressure blood from the deep to the superficial veins*