

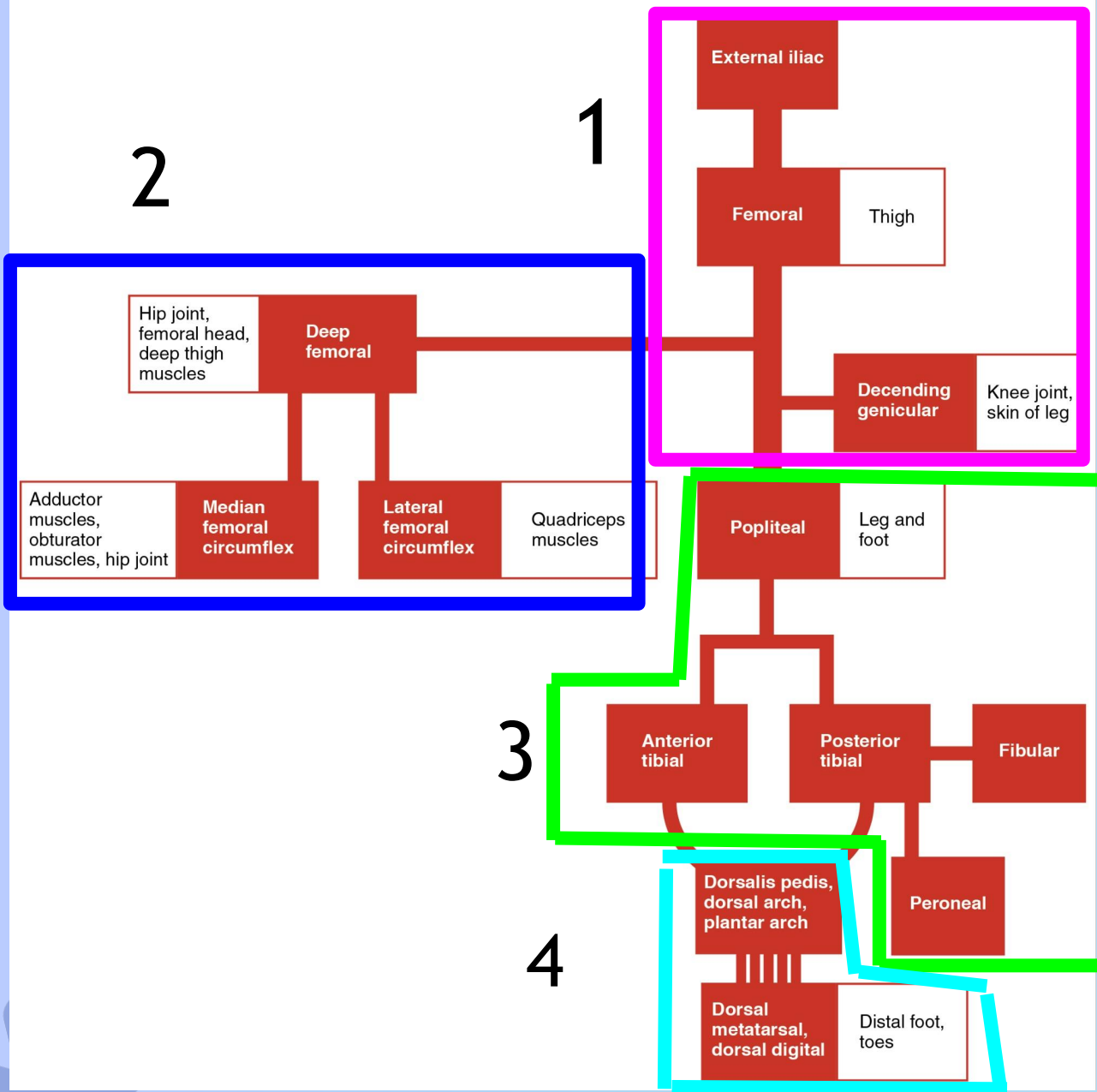
Arterial Supply + Venous and Lymphatic drainage of Lower Limb

By Michelle Kaminski

Arterial Supply

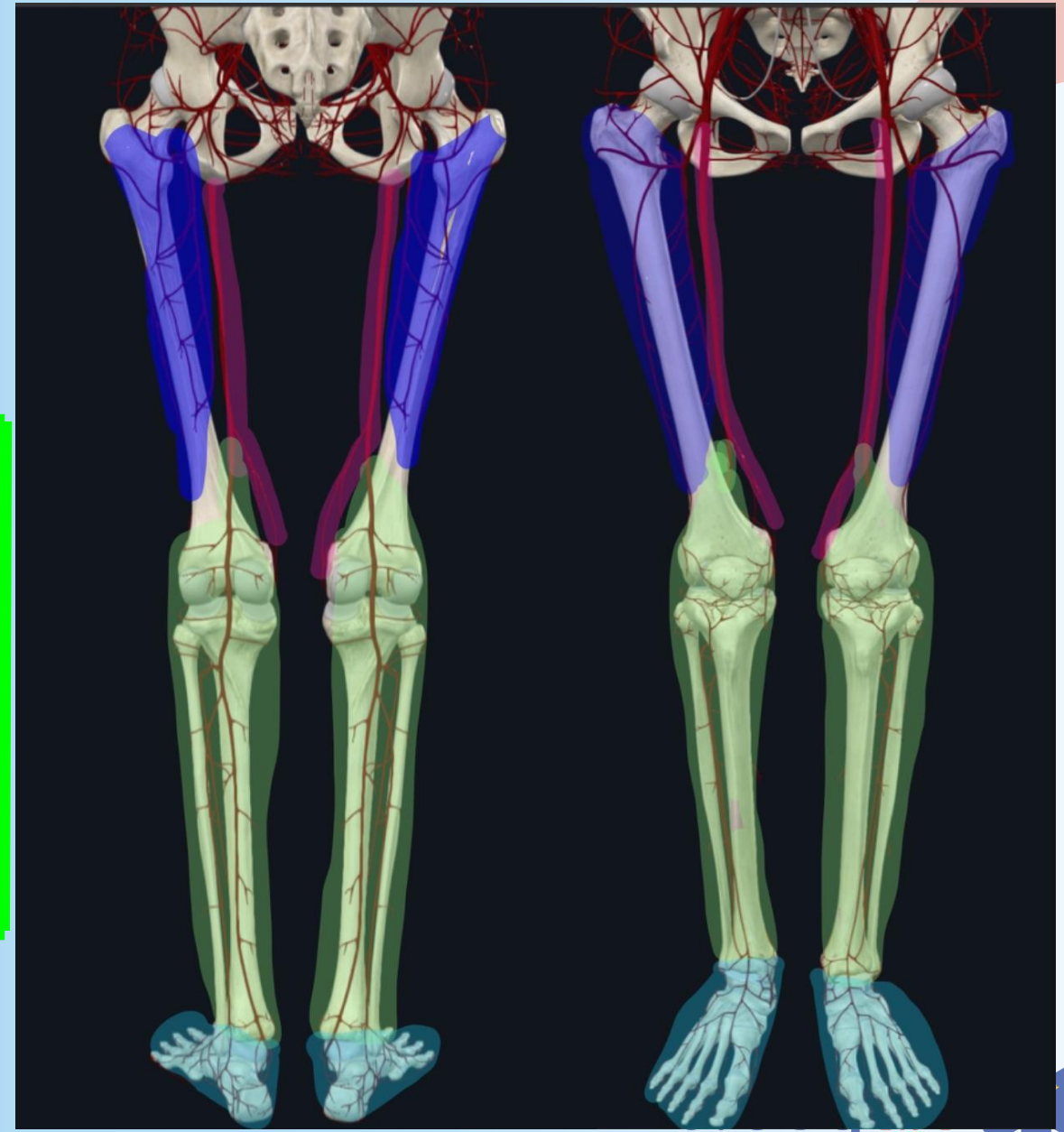
Contents

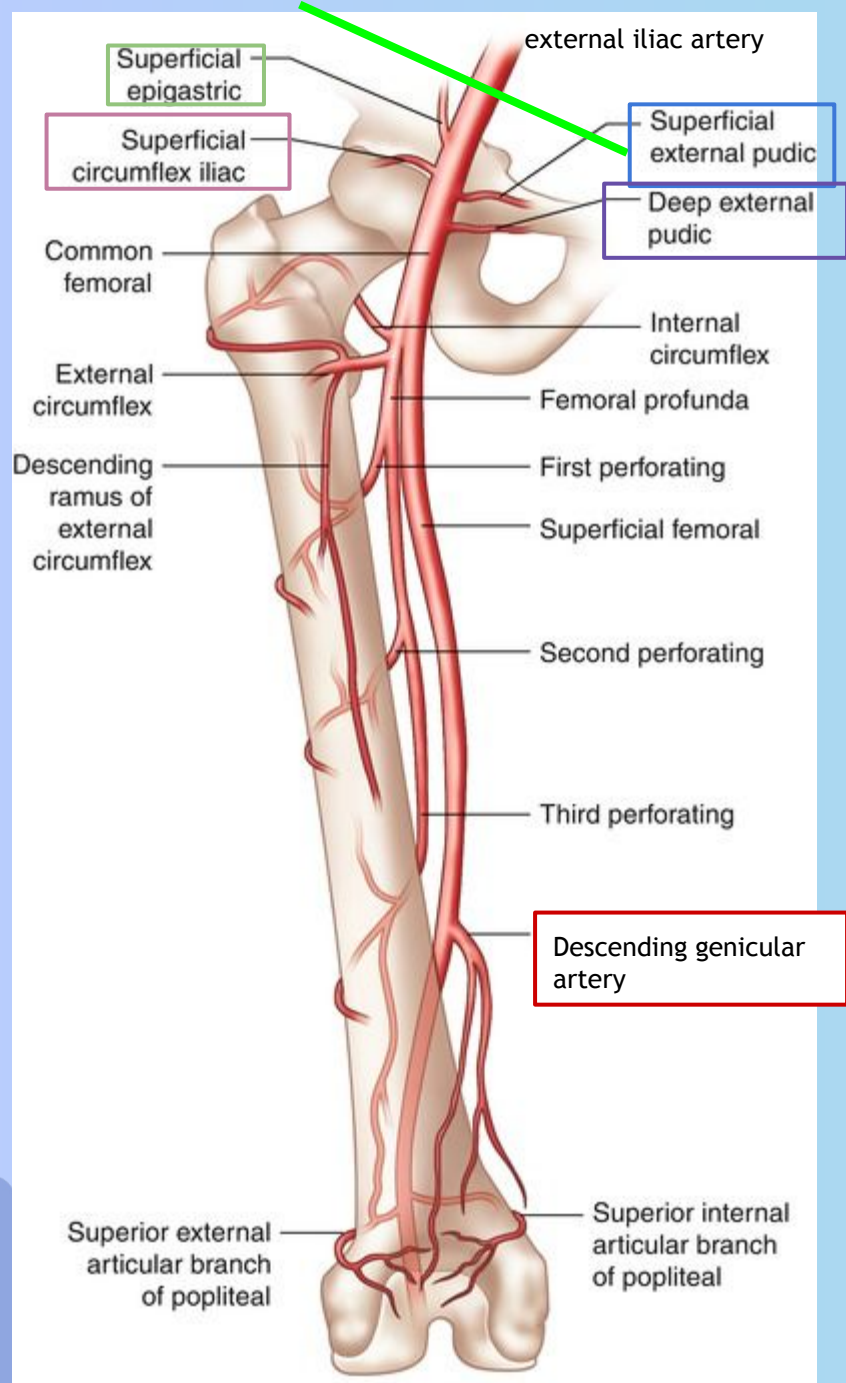
- Overview
- Thigh Arterial supply
- Femoral Triangle
- Knee and Lower Leg supply
- Foot and Phalange supply



Posterior

Anterior





External Iliac Artery

Name change after artery crosses inguinal ligament

Common Femoral artery

Superficial Epigastric

- a) Supplies: Skin and subcutaneous tissue of inguinal region and inferior abdominal wall

Superficial Circumflex Iliac Artery

- a) Supplies: Skin and subcutaneous tissue of inguinal region and abdominal wall

Superficial External Pudendal Artery

- a) Supplies: Skin of abdomen and external genitalia

Deep External Pudendal Artery

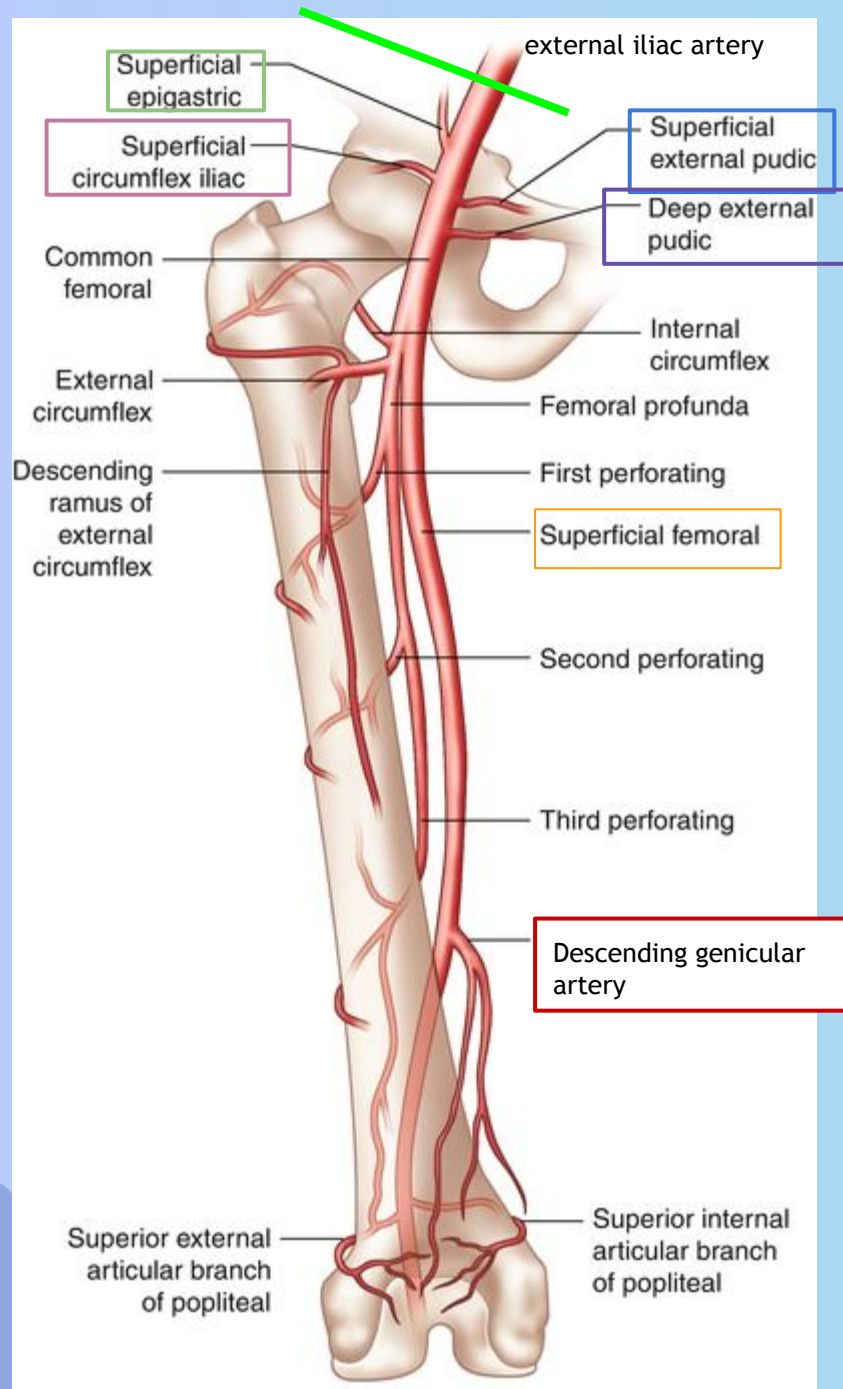
- a) Supplies: Skin of perineum and external genitalia

Common Femoral Artery

Bifurcates

Deep Femoral A.

Superficial Femoral A.



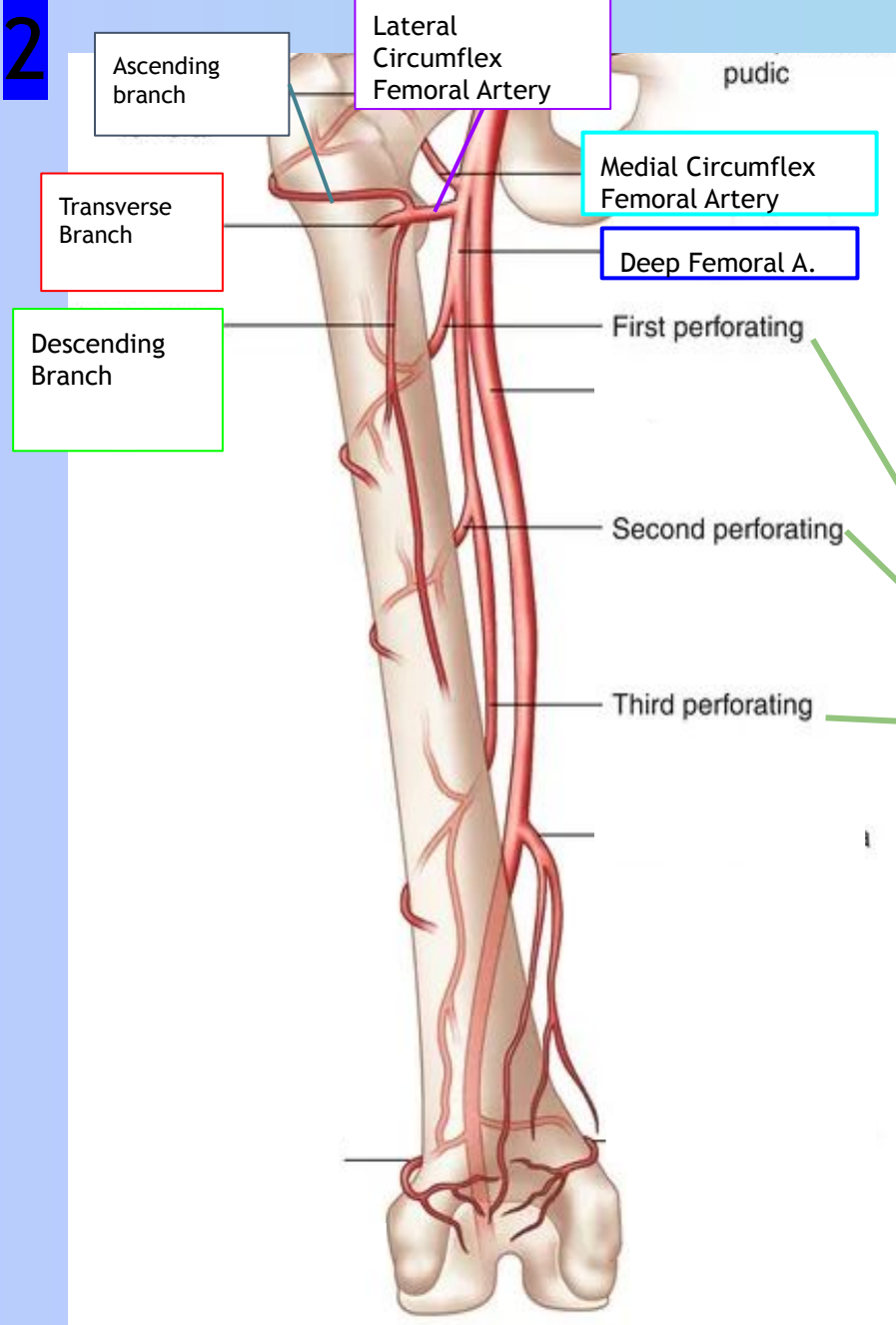
Superficial Femoral Artery

1) Descending Genicular Artery

- a) Supplies: Knee joint, cutaneous tissue of knee joint, superomedial region of leg

*Name change after the superficial artery leaves the adductor canal and gives off the descending genicular branch

Popliteal Artery



Deep Femoral Artery

Medial Circumflex Femoral A.

a) Supplies: The femoral head and neck, the hip joint, gluteal muscle, adductor muscle, and hamstring muscles

Lateral Circumflex Femoral A.

a) Supplies: Proximal femur, the hip joint, muscles of anterior thigh

- i) Ascending Branch.
- ii) Transverse Branch.
- iii) Descending Branch.

Perforating Femoral A.

a) Supplies: Femur, Muscles of adductor and hamstring compartment, overlying cutaneous tissue

Where to find Deep Femoral Artery vs Superficial Femoral Artery

Deep Femoral A

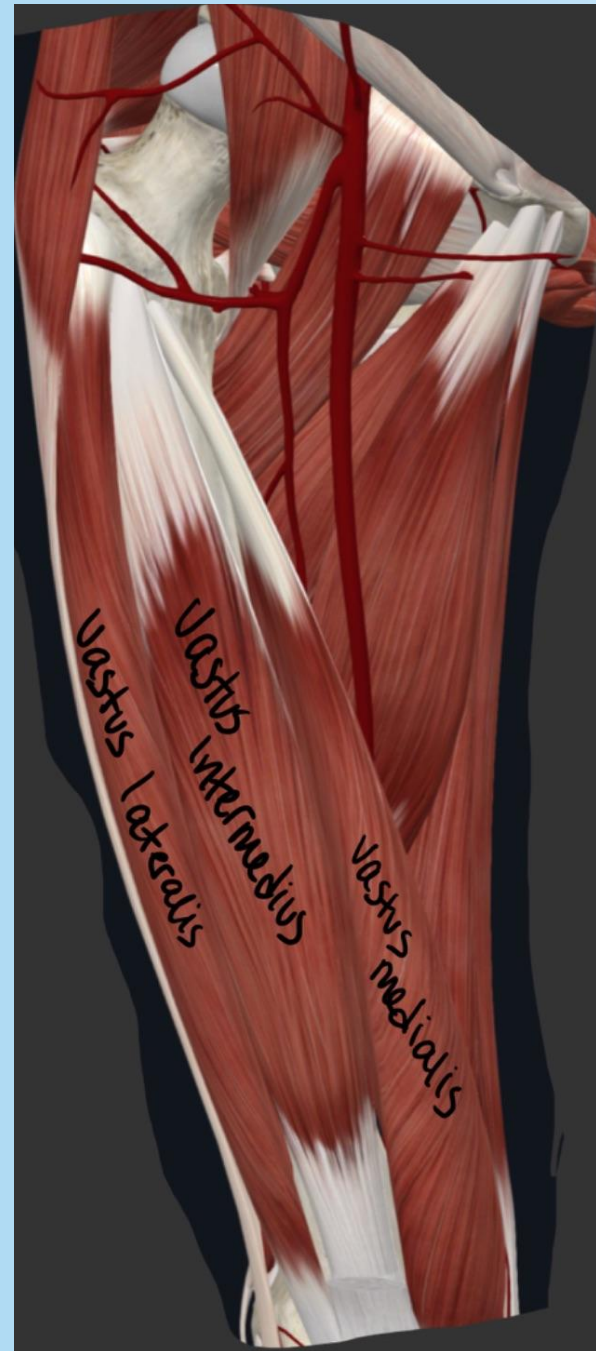
1. Descends laterally towards femur
2. Travels inferiorly along the medial aspect of the femoral shaft
3. Descends superior to pectineus muscle, adductor brevis, and adductor magnus muscle but inferior to adductor brevis
4. Anastomoses with popliteal artery

Superficial Femoral A.

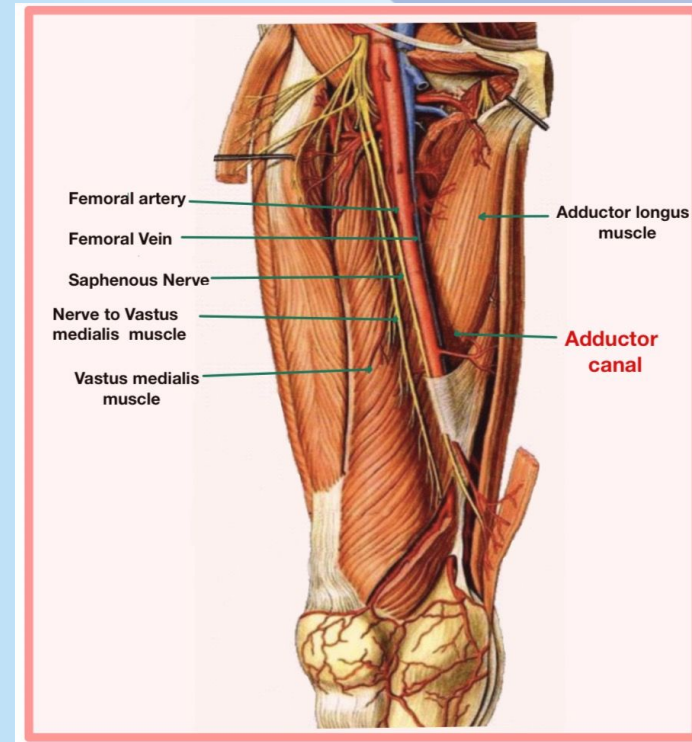
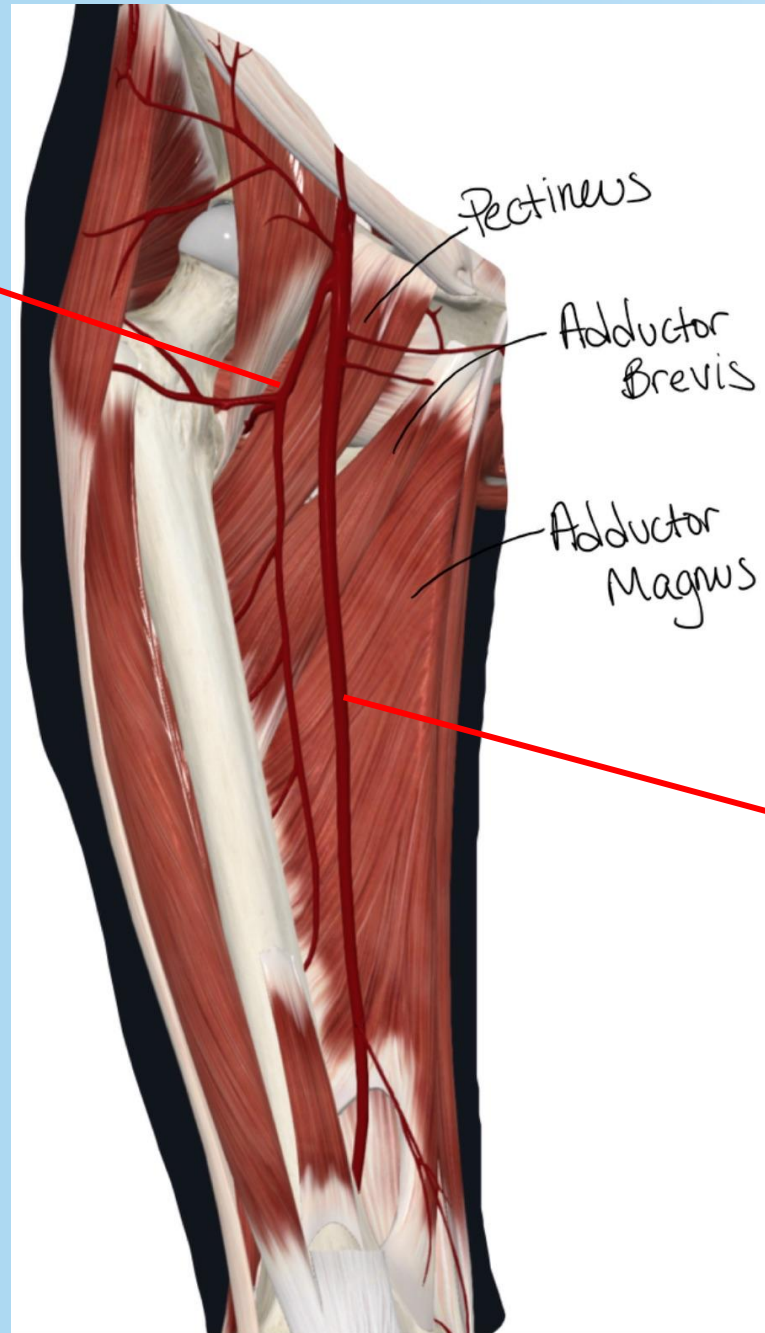
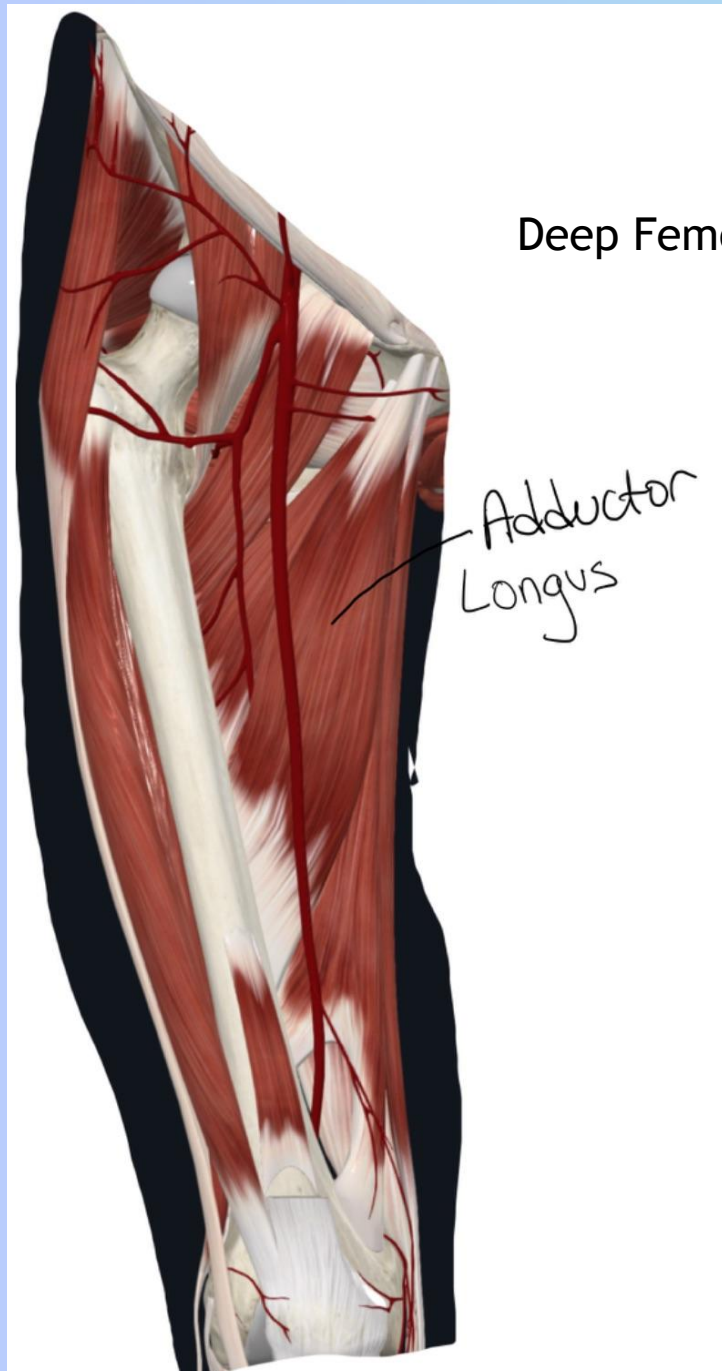
1. Courses down anteromedial aspect of the thigh in the femoral triangle
2. Passes through adductor canal
3. After passing continues as popliteal artery



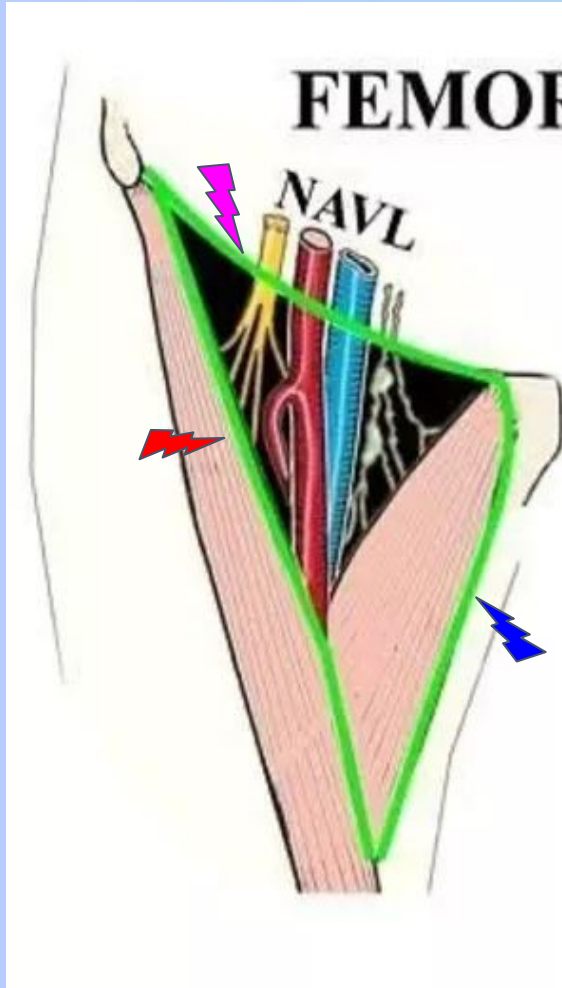
if cut those
out.....



and if cut
those out.....



Femoral triangle intermission! :)



FEMORAL TRIANGLE

NAVL

Boundaries

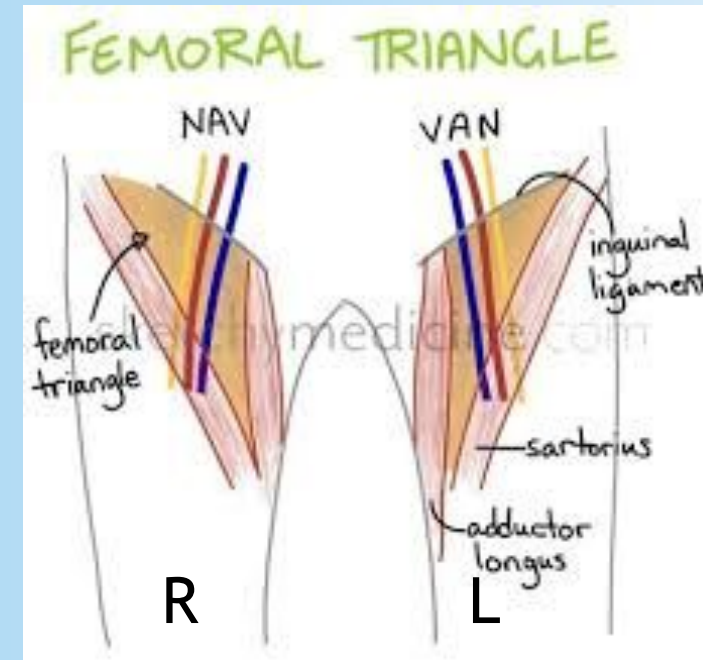
1. inguinal ligament
2. adductor longus
3. sartorius

Contents

1. femoral nerve (N)
2. femoral artery (A)
3. femoral vein (V)
4. lymphatics (L)

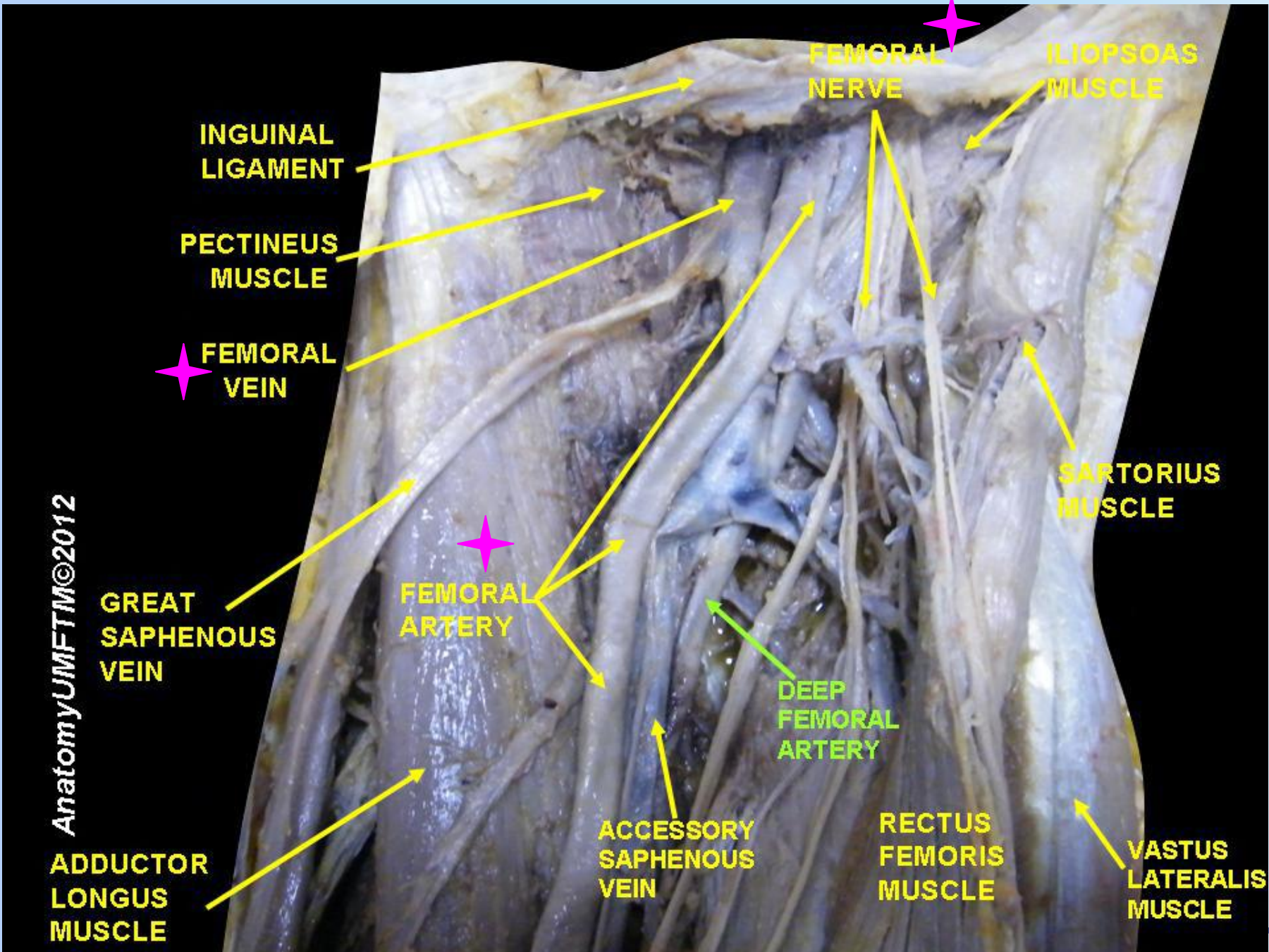


Playing some NAV is always the RIGHT choice

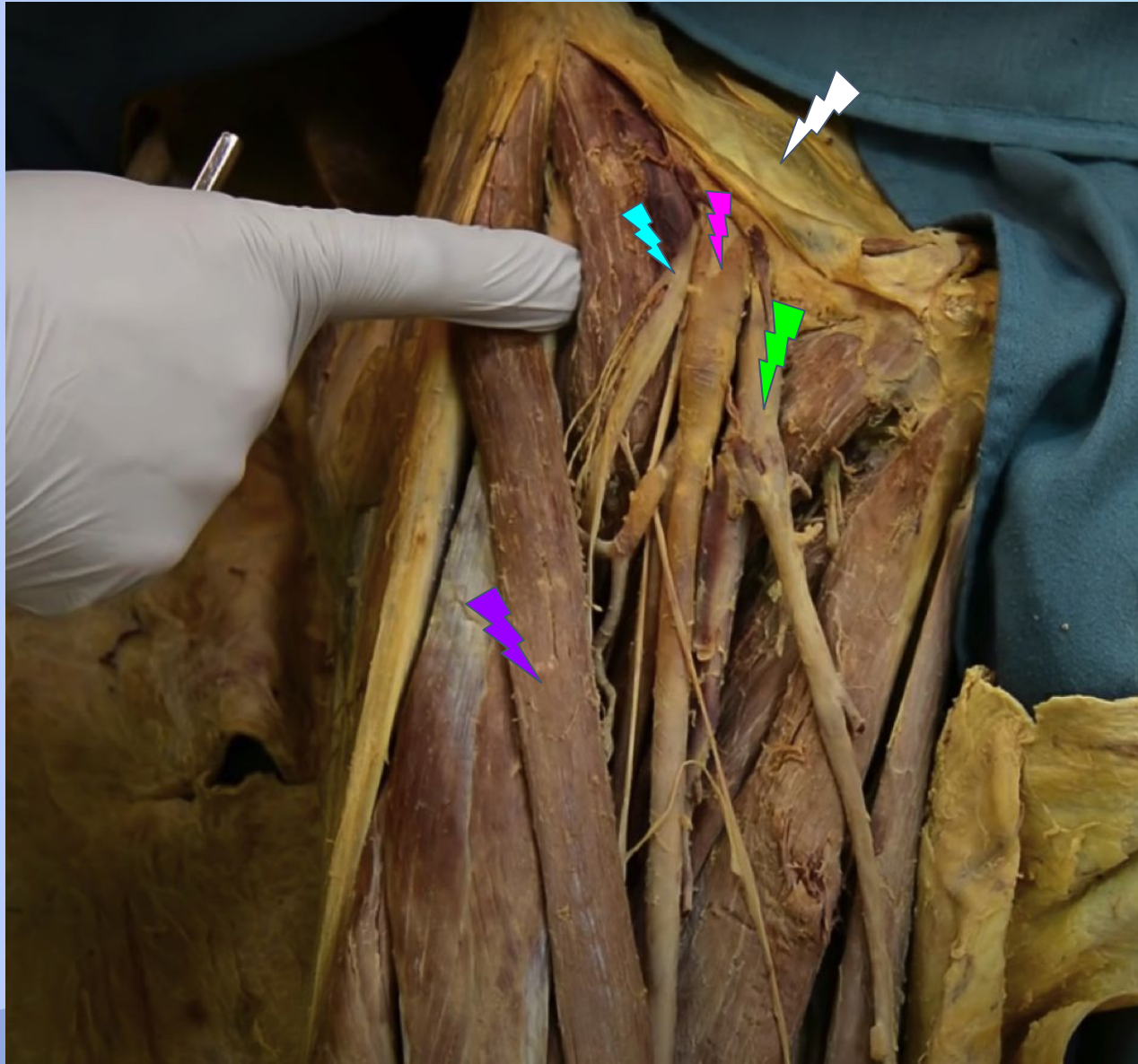


Boundaries
S- sartorius
A - Adductor
I- Inguinal
L Ligament

Left Leg



AnatomyUMFTM©2012



Left leg or **Right leg**



Femoral Nerve



Femoral Artery



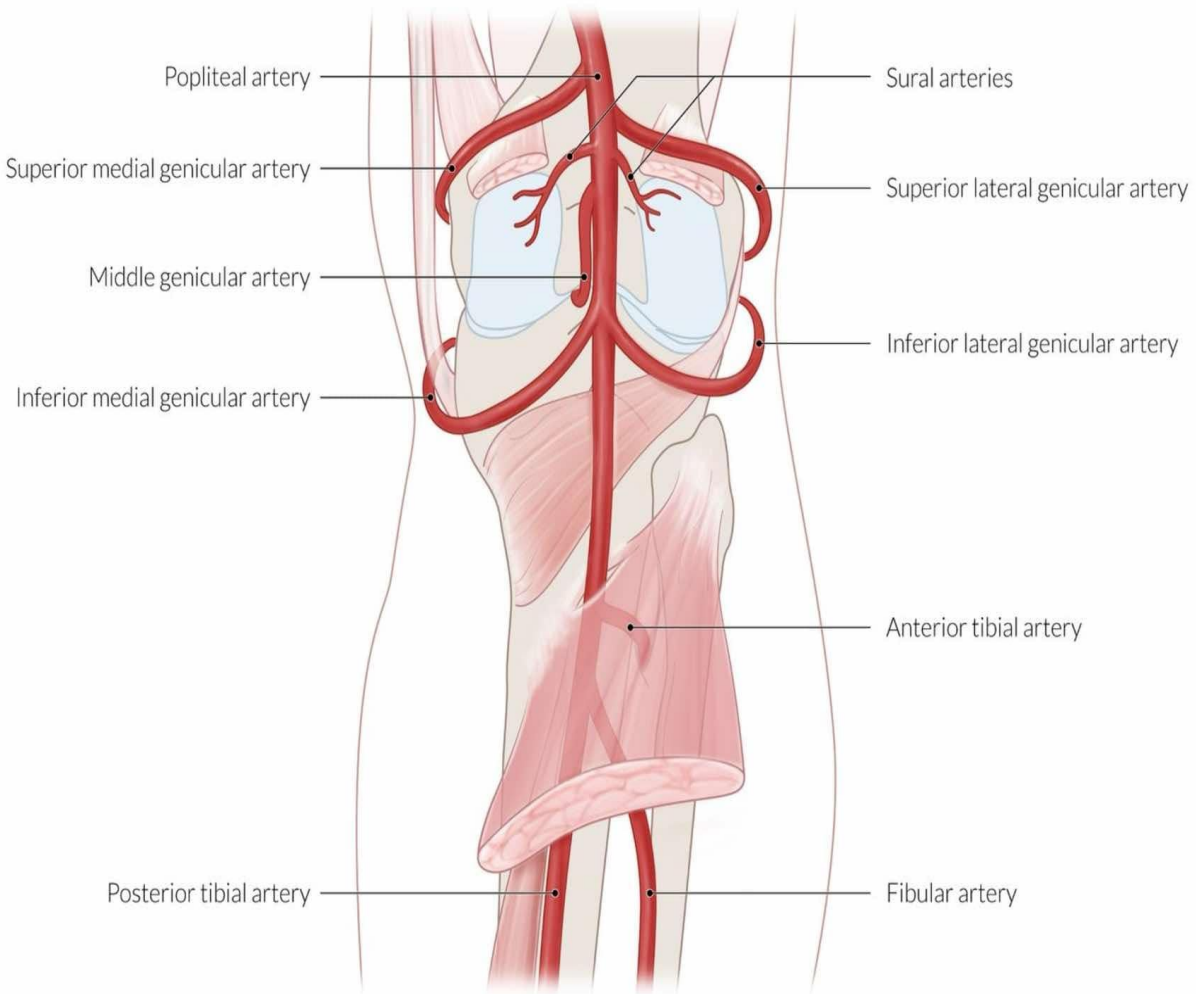
Femoral Vein



Sartorius



Inguinal Ligament



Popliteal Bifurcation time!!

Popliteal Artery Branches

Superior Genicular Arteries

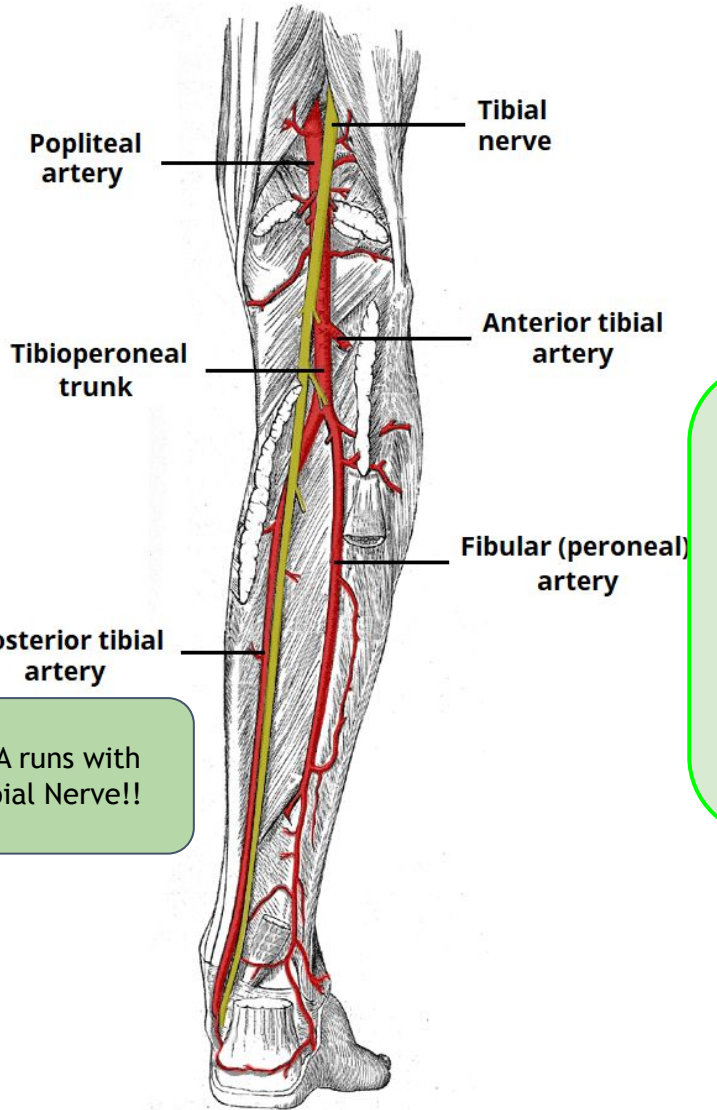
- a) Medial branch
 - i) Supplies: Vastus Medialis, Knee Joint, and Surrounding fascia
- b) Lateral Branch
 - i) Supplies: Vastus Lateralis, Knee Joint, Surrounding Fascia

Sural Arteries

- a) Supplies: Medial and Lateral Heads of the gastrocnemius muscle and plantaris muscle

Inferior Genicular Arteries

- a) Medial Branch
 - i) Supplies: Popliteus Muscle and Knee Joint
- b) Lateral Branch
 - i) Supplies: Popliteus Muscle and the knee joint



PTA runs with Tibial Nerve!!

(i) Posterior Leg

Popliteal artery

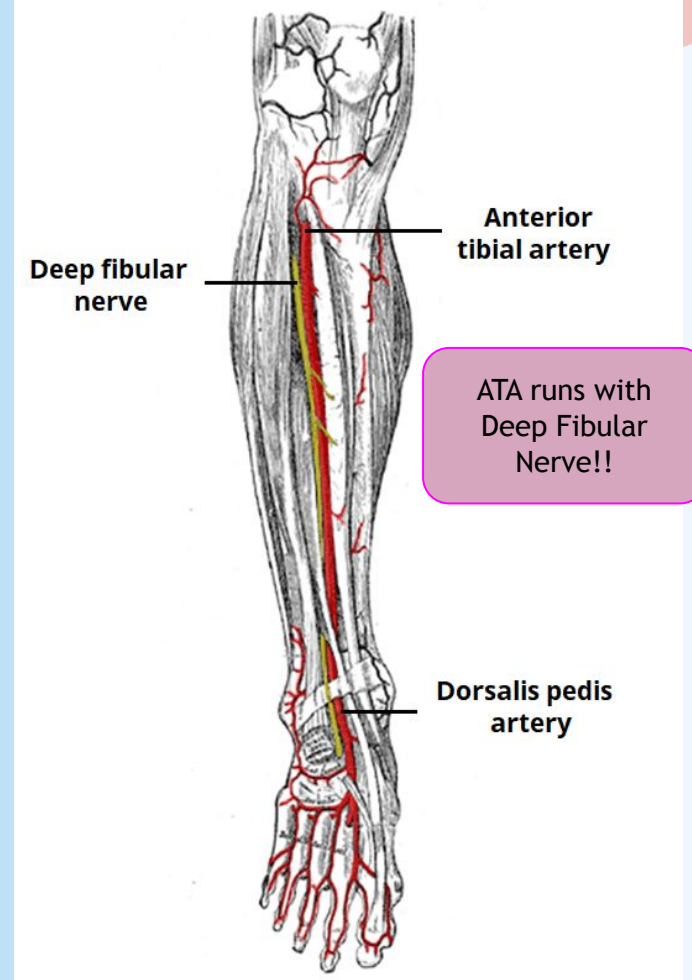


Posterior tibial Artery

Course: Descends in a **medial direction** and sandwiched with the **tibialis posterior muscle, flexor digitorum and flexor hallucis longus** directly **beneath** it and the **Soleus muscle** directly on top of it.

Anterior tibial Artery

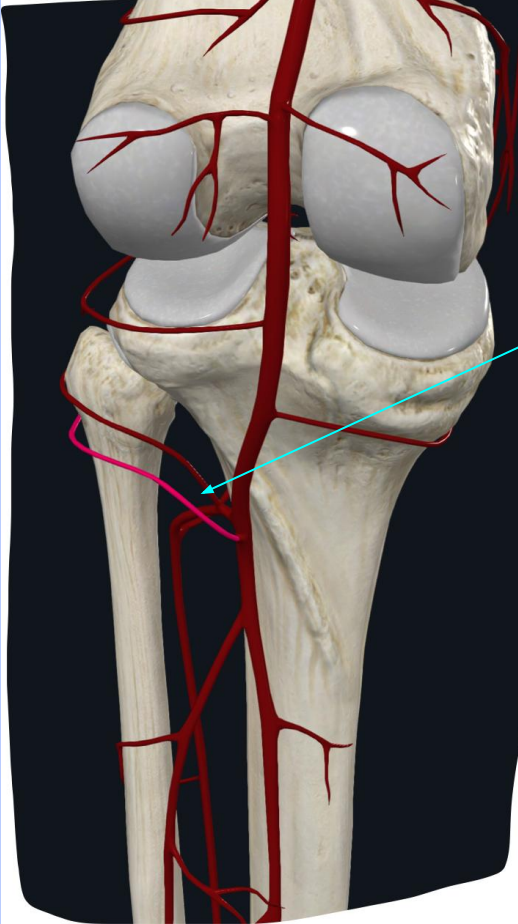
Course: Passes **anteriorly** through an aperture in the **proximal interosseous membrane**. Descends **along the interosseous membrane** and **crosses medially** to sit **anterior to the shaft of the Tibia**.



ATA runs with Deep Fibular Nerve!!

(ii) Anterior Leg

© TeachMeAnatomy



Posterior Tibial Artery

5 Branches:

1) Circumflex Fibular Branch of PTA

a) Supplies: Soleus muscle and knee joint

2) Fibular Artery **

3) Medial Malleolar Branch of PTA

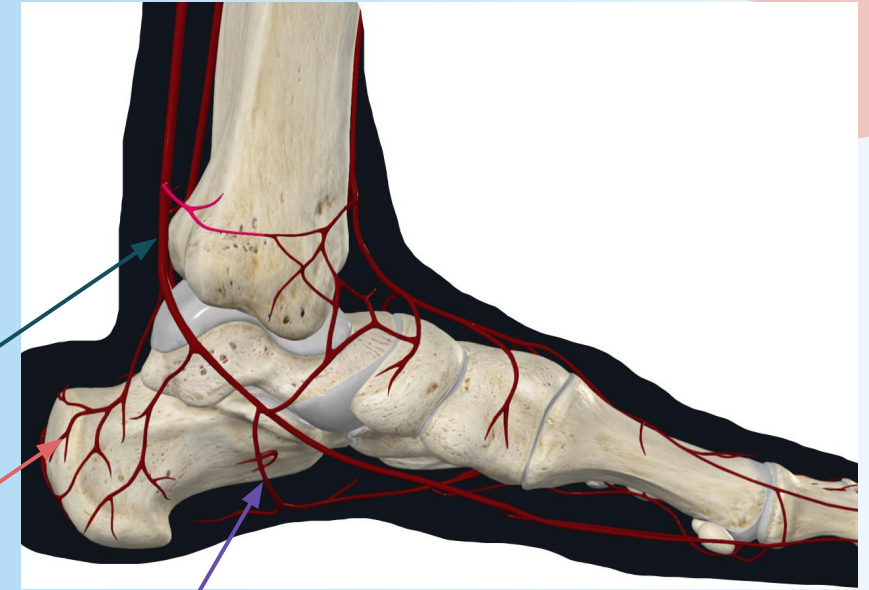
a) Supplies: Medial aspect of ankle

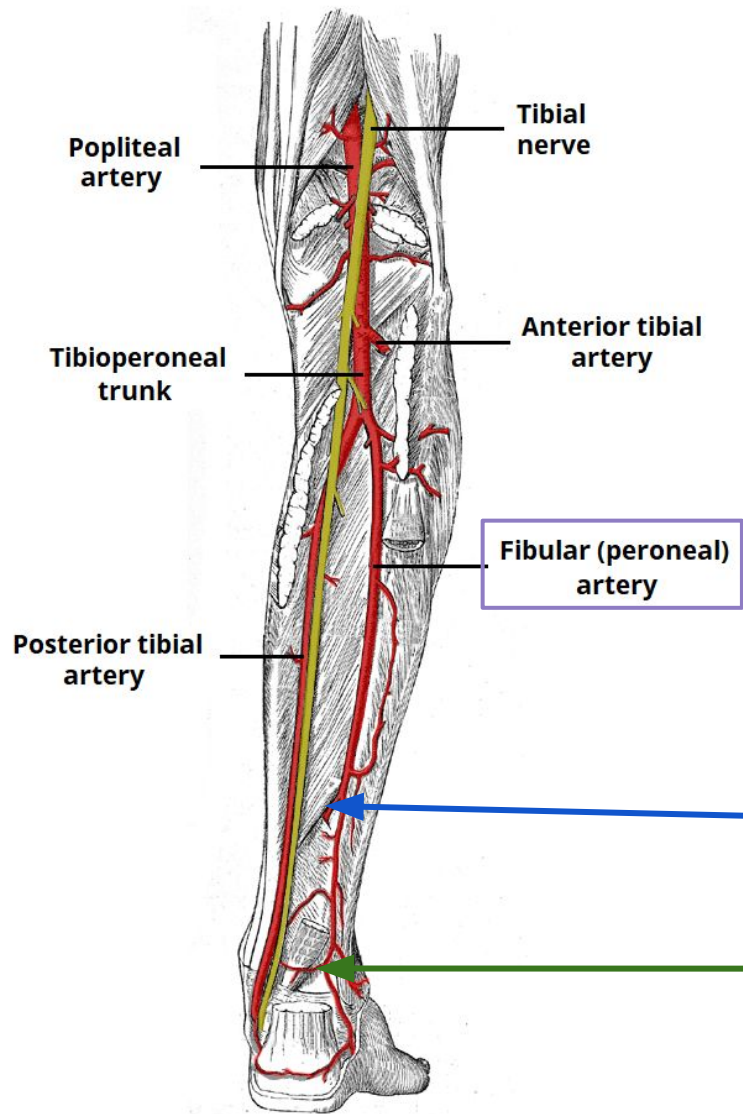
4) Calcaneal Branch of PTA

a) Supplies: Calcaneus Tendon, fascia and cutaneous tissue of heel

5) Lateral plantar Artery (Terminal branch of PTA)

a) Supplies: Lateral aspect of plantar surface of foot





(i) Posterior Leg

Fibular Artery

- Supplies:

- The deep muscles of the posterior compartment (Soleus, Tibialis posterior, and Flexor hallucis longus)
- The lateral compartment (Fibularis Brevis, Fibularis Longus)
- Fibula, Talus, and Calcaneus with the surrounding joints and connective tissues

- Further Branches of Fibular Artery

- Perforating branch

- Anastomoses with the anterior tibial artery

- Communicating branch

- Connects with the posterior tibial artery

- Lateral malleolar branch

- Calcaneal branches

Anterior Tibial Artery

3 Branches:

Anterior Recurrent Tibial A.

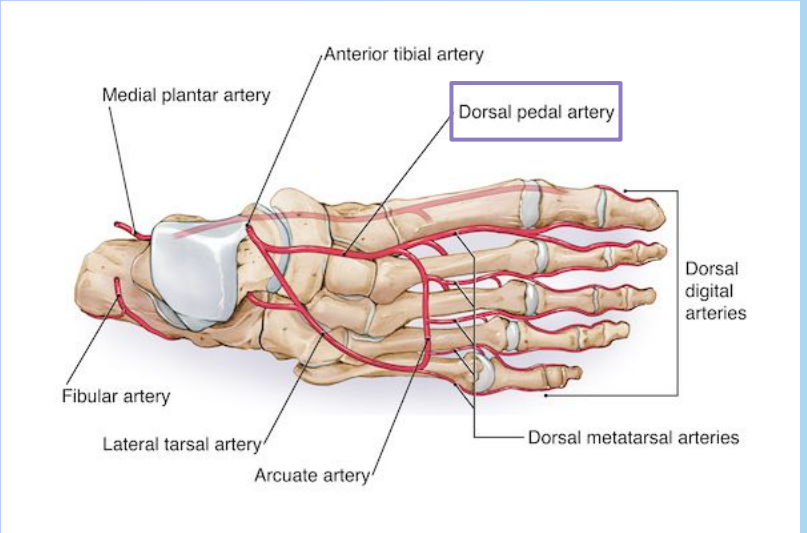
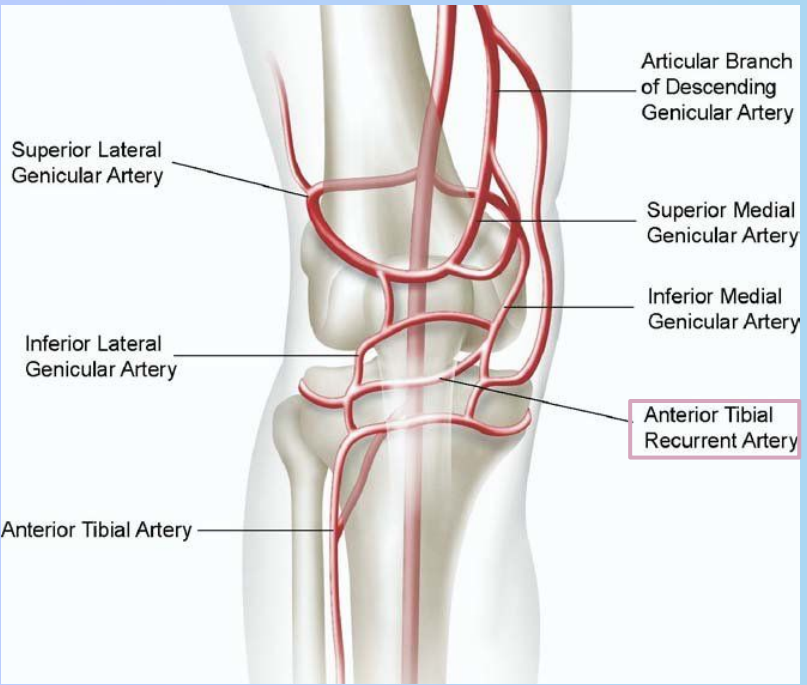
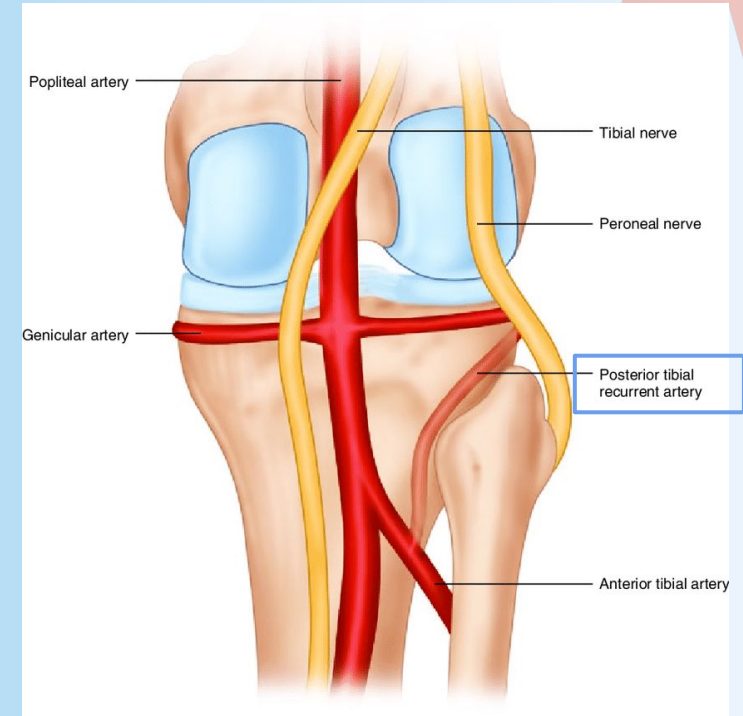
- Supplies: Tibialis anterior muscle and Knee joint

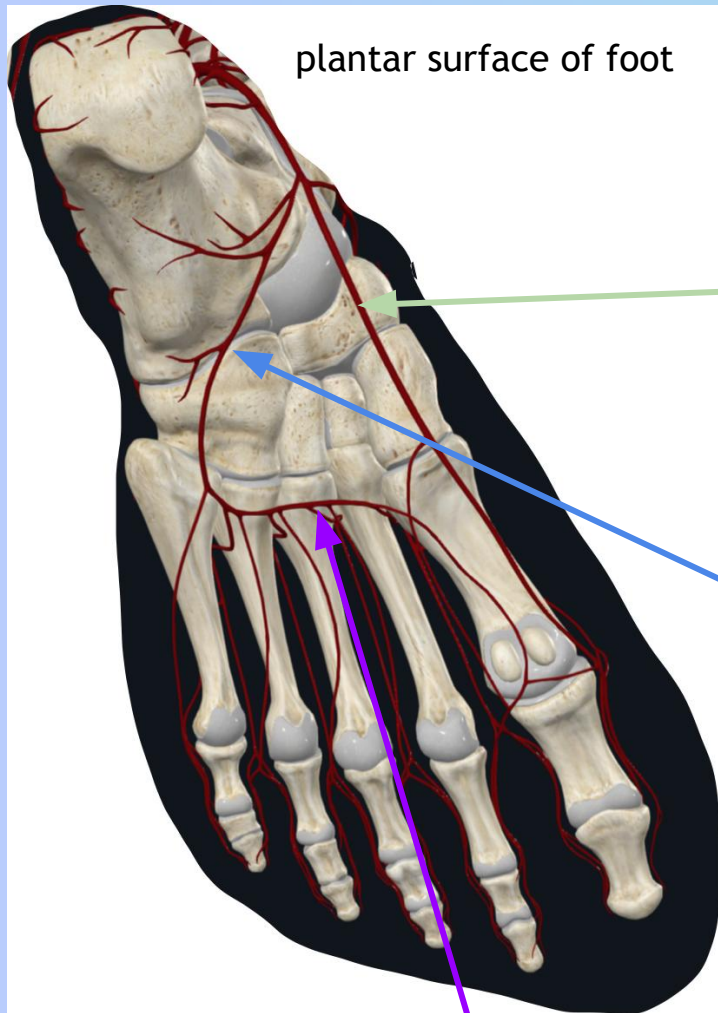
Posterior Recurrent Tibial A.

- Supplies: Tibialis anterior muscle and Knee joint

Dorsalis Pedis A.

- Supplies: Dorsum of foot





plantar surface of foot

Plantar Vessels

Medial Plantar Artery:

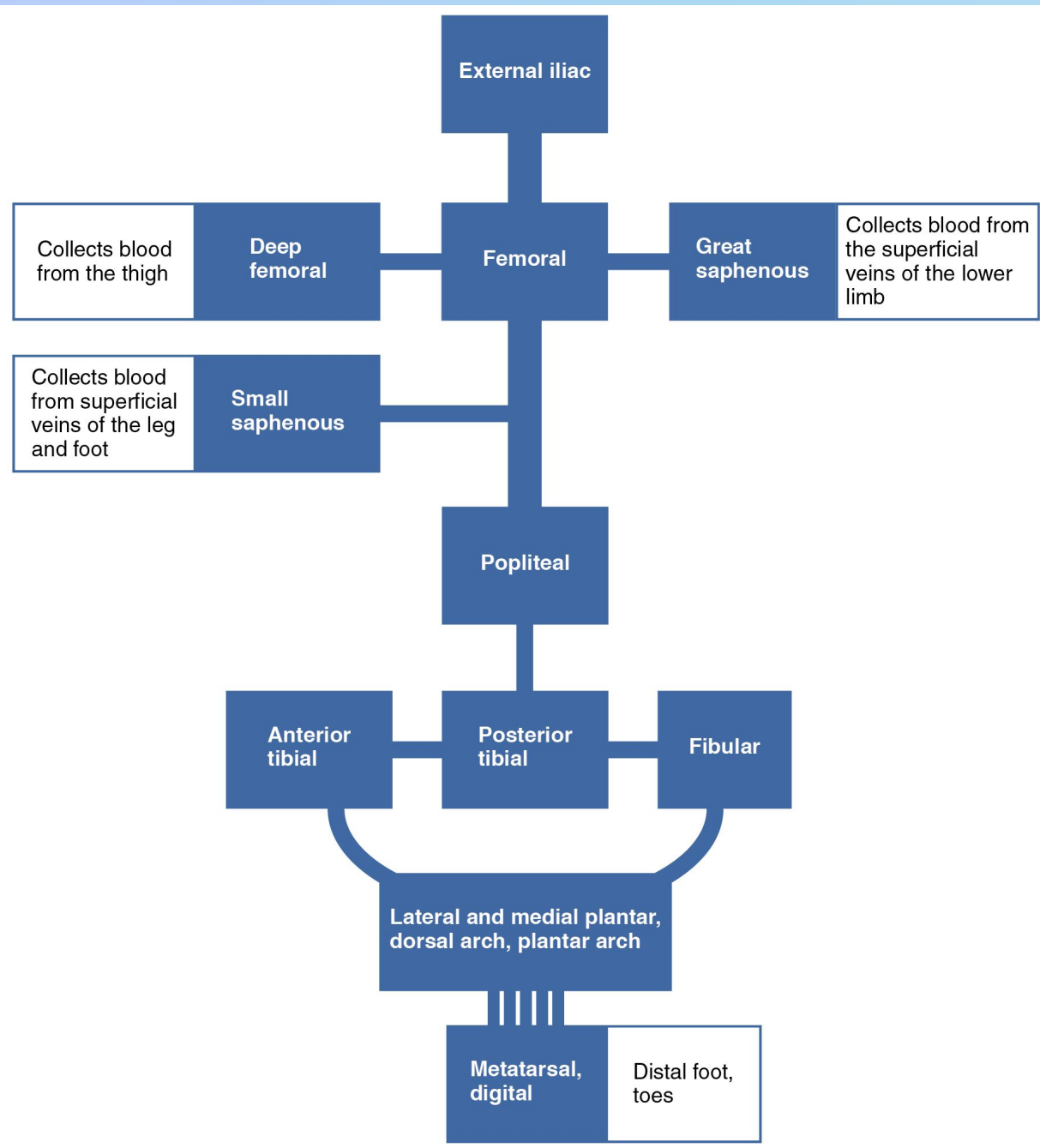
Supplies: medial aspect of the sole of the foot and ankle

Lateral Plantar Artery:

Supplies: Lateral Aspect of plantar surface of the foot

Plantar Arch

Venous Drainage Time!



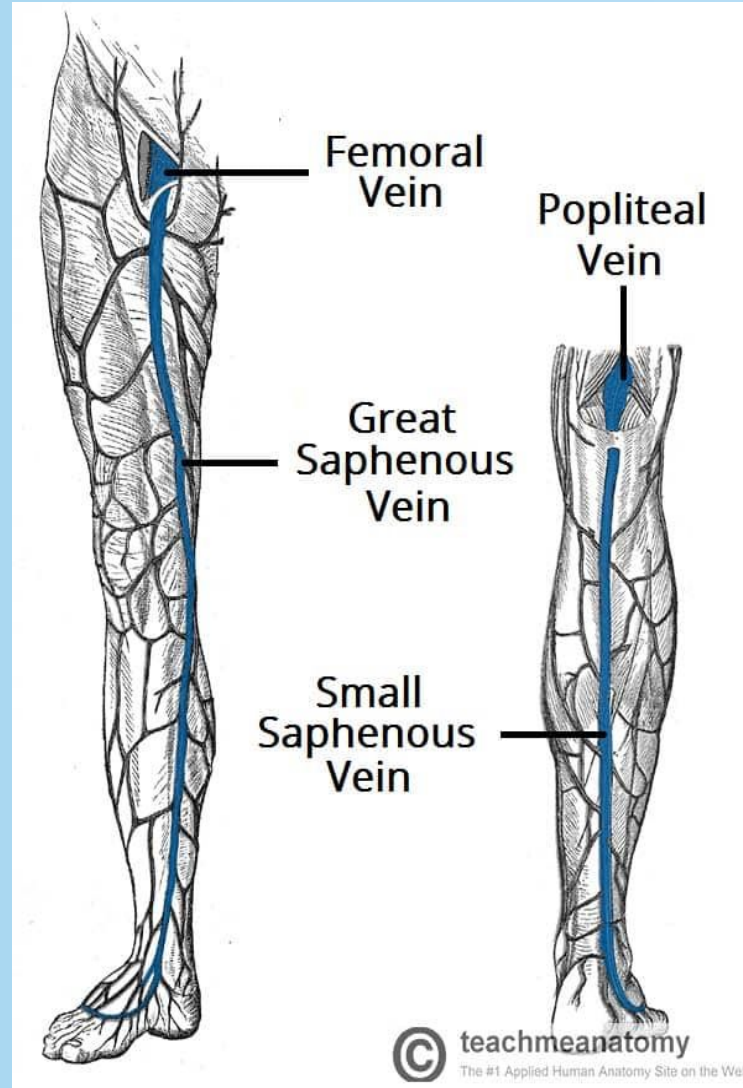
Superficial Drainage vs Deep Drainage?

Great Saphenous Vein

Drains structures that are **MEDIAL** because it originates from the **MEDIAL** aspect of dorsal arch.
Drains: the thigh, inguinal region and lower abdominal wall.

Course: Ascends from foot, anterior to malleolus, and travels in a **anteroposterior** direction along the medial surface of the tibia to knee joint. Then travels **posterior to the medial condyle** of the femur and runs along the medial aspect of the superficial thigh to drain into femoral vein

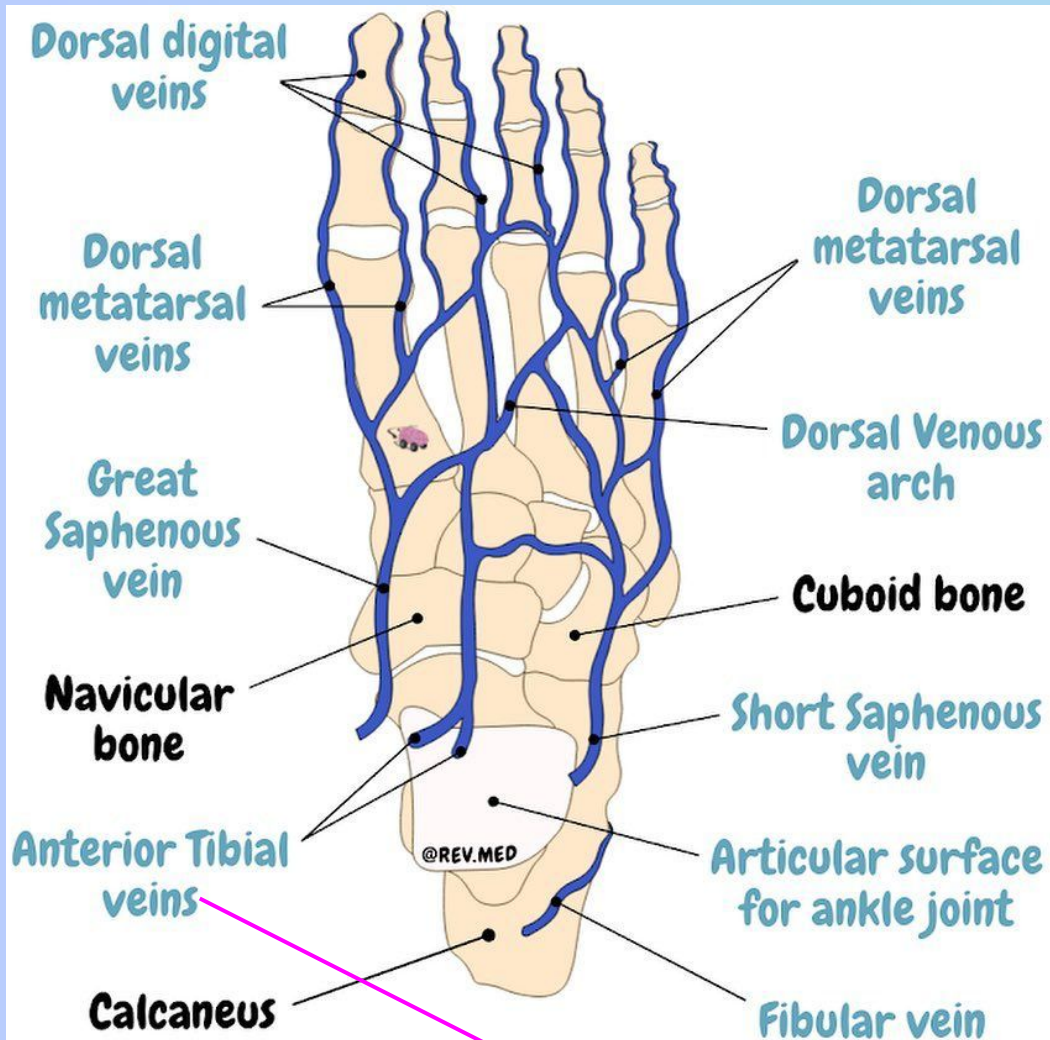
VS



Small Saphenous Vein

Drains structures that are **LATERAL** (Lateral foot, posterior leg) because it originates from the **LATERAL** aspect of Dorsal arch.
Drains: Foot, ankle, and posterior leg

Course: ascends superficially in the posterior leg, passes laterally to the calcaneal tendon. It passes between the two heads of gastrocnemius muscle to enter the popiteal fossa and drain into the politeal vein.



Dorsal Venous Arch

Collects blood from:

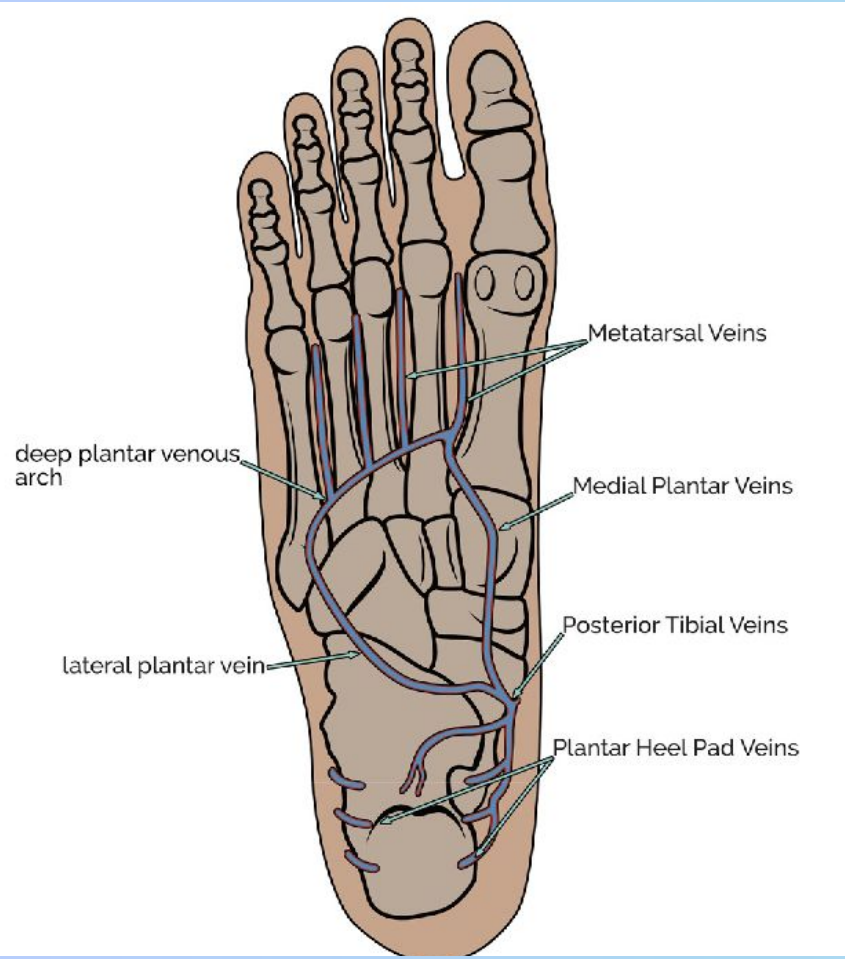
- toes and dorsal foot

Apart of superficial drainage of foot

Drains into: Anterior tibial Veins (deep drainage) or the Small saphenous vein and Great Saphenous Vein

For superficial drainage:
Blood can either go to **Small Saphenous Vein** or **Great Saphenous Vein**

Anterior Tibial Veins Collect blood from the Dorsalis Pedis Vein, which collects blood from deep structures of the foot



Lateral and Medial Plantar Veins

Collects blood from: Foot and Phalanges
Drains into: Posterior Tibial Vein



Plantar venous arch

Collects blood from: Foot and Phalanges
Drains into: Medial and Lateral Plantar Veins

FEMORAL VEIN

Continuation of the **popliteal vein** after passing through the adductor hiatus.
 Receives: **Deep Femoral Vein AND Great saphenous vein** (superficial vein)

Popliteal Vein

****Name change from popliteal vein → Femoral vein once the small saphenous vein joins the popliteal vein.****

Small Saphenous Vein

Drain blood from the **plantar veins**.
 Travel up the **posterior leg** along with the **posterior tibial artery**.
 Receives blood from the **fibular (peroneal) veins**.

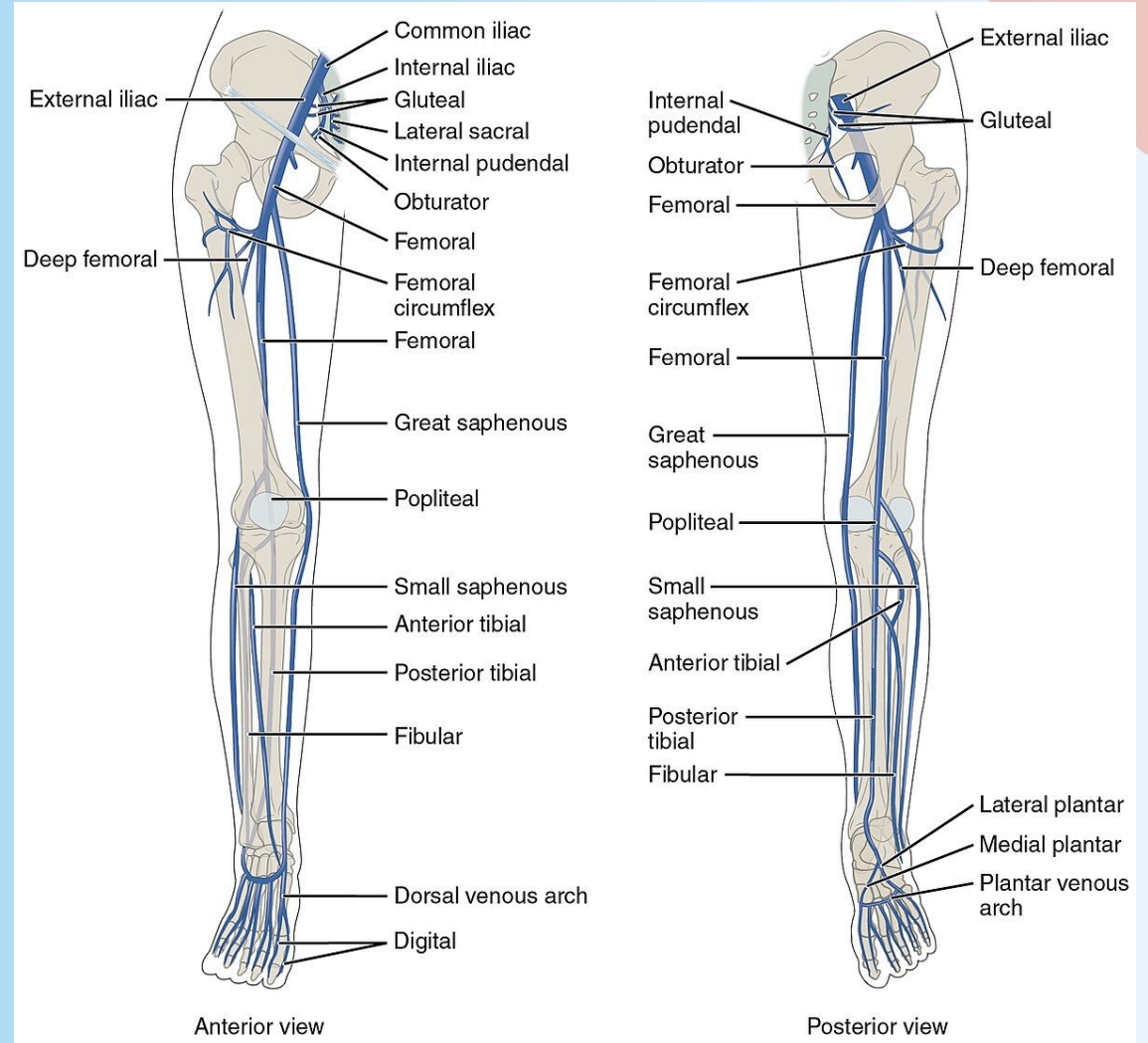
Posterior Tibial Veins

Drain blood: from the **dorsum of the foot**. Pass **through the interosseous membrane** to join the posterior tibial veins.

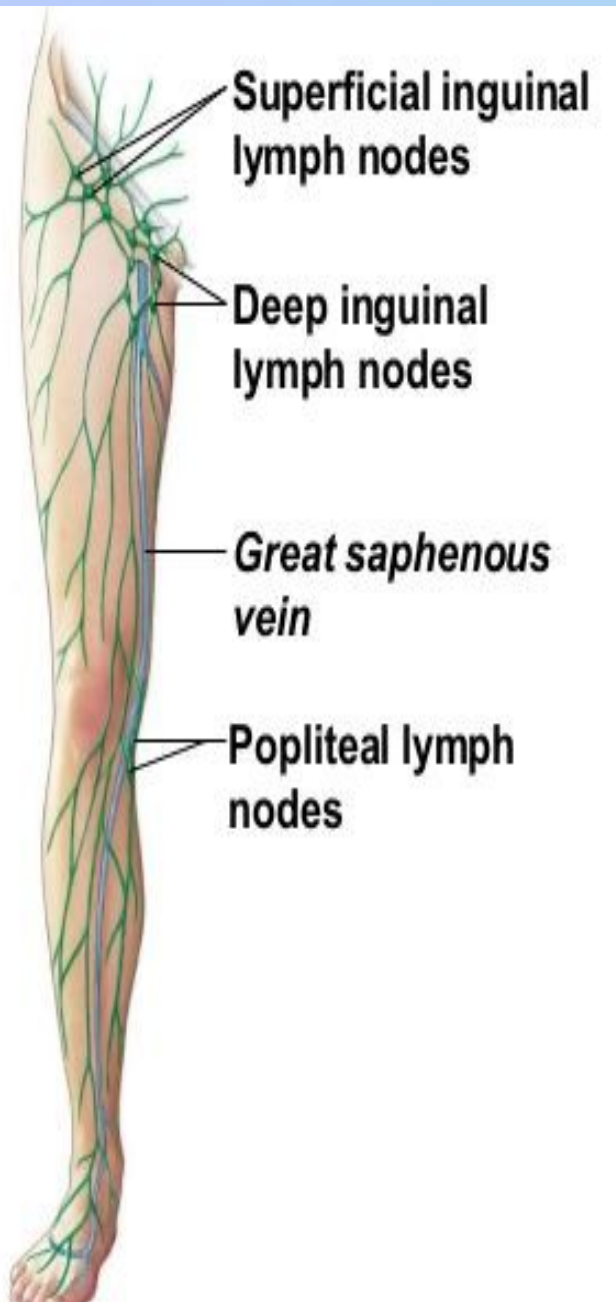
Anterior Tibial Veins

Drain blood: from the **lateral leg**.
 Merge with the posterior tibial veins before reaching the knee.

Fibular Veins



Lymphatic Drainage!



Deep Inguinal Lymph Nodes

Located: Deep to the fascia lata, near the femoral vein.
Collects from: popliteal lymph nodes, deep tissues of the thigh, and superficial inguinal lymph nodes.
Drains: into the **external iliac lymph nodes**

Located In the popliteal fossa
Collects from: Lateral superficial lymphatics (following the **small saphenous vein**) and Deep lymphatics from the **foot and leg**.
Drains: into the **deep inguinal lymph nodes**.

Popliteal lymph nodes

Located In the femoral triangle
Collects from: Medial superficial lymphatics (following the great saphenous vein), Superficial tissues of the thigh, anterior inferior abdomen, perineum, and external genitalia.
Drains: into deep inguinal lymph nodes.

Superficial Inguinal Lymph Nodes

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