بسم الله الرحمن الرحيم

ANATOMY

FINAL | Lecture #13

The Leg

﴿ وَإِن تَتَوَلَّوْا يَسْتَبْدِلْ قَوْمًا غَيْرَكُمْ ثُمَّ لَا يَكُونُوا أَمْثَالَكُم ﴾

اللهم استعملنا ولا تستبدلنا

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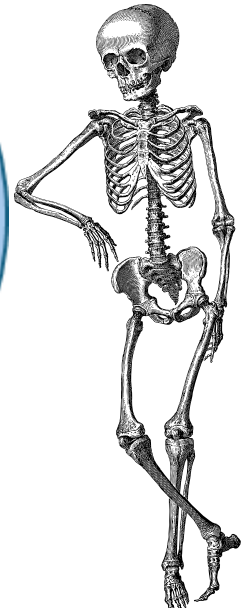

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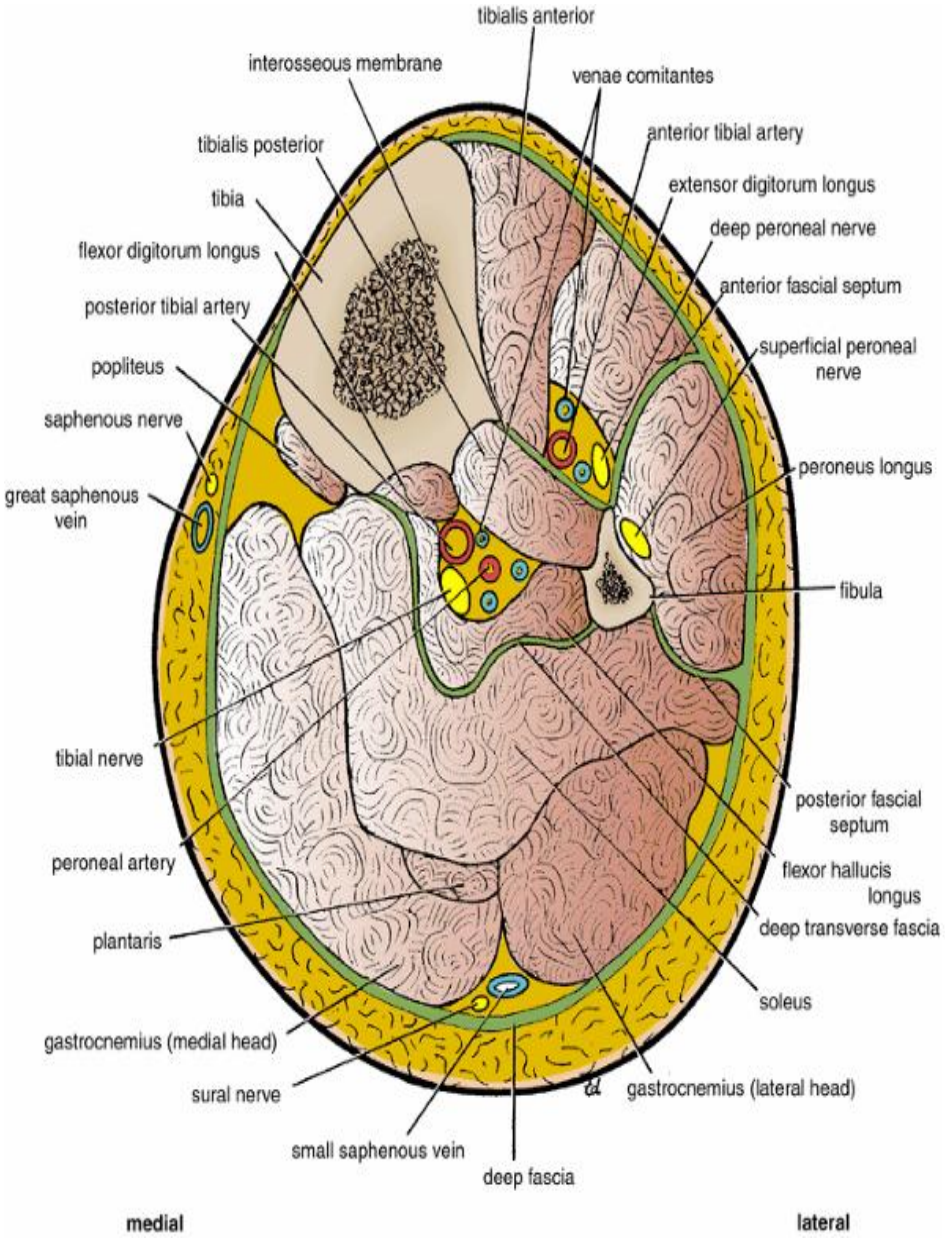
Facial Compartments of the Leg

- The deep fascia surrounds the leg and is continuous above with the deep fascia of the thigh.
- Below the tibial condyles it is attached to the periosteum on the anterior and medial borders of the tibia
- Two intermuscular septa pass from its deep aspect to be attached to the fibula.
- The two intermuscular septa together with the interosseous membrane, divide the leg into **three compartments ”anterior, lateral, and posterior” each having its own muscles, blood supply, and nerve supply.**



Difference Between Tibia and Fibula:

- Tibia: The tibia is the larger and more medial bone of the leg. Its medial surface is subcutaneous, meaning it lies directly under the skin, as there are no muscles covering this side. It is covered by muscles only on the anterior and anterolateral aspects.
- Fibula: The fibula is the smaller and more lateral bone. It is completely surrounded by muscles, making it not palpable through the skin.

Anterior & Lateral Compartments of the Leg

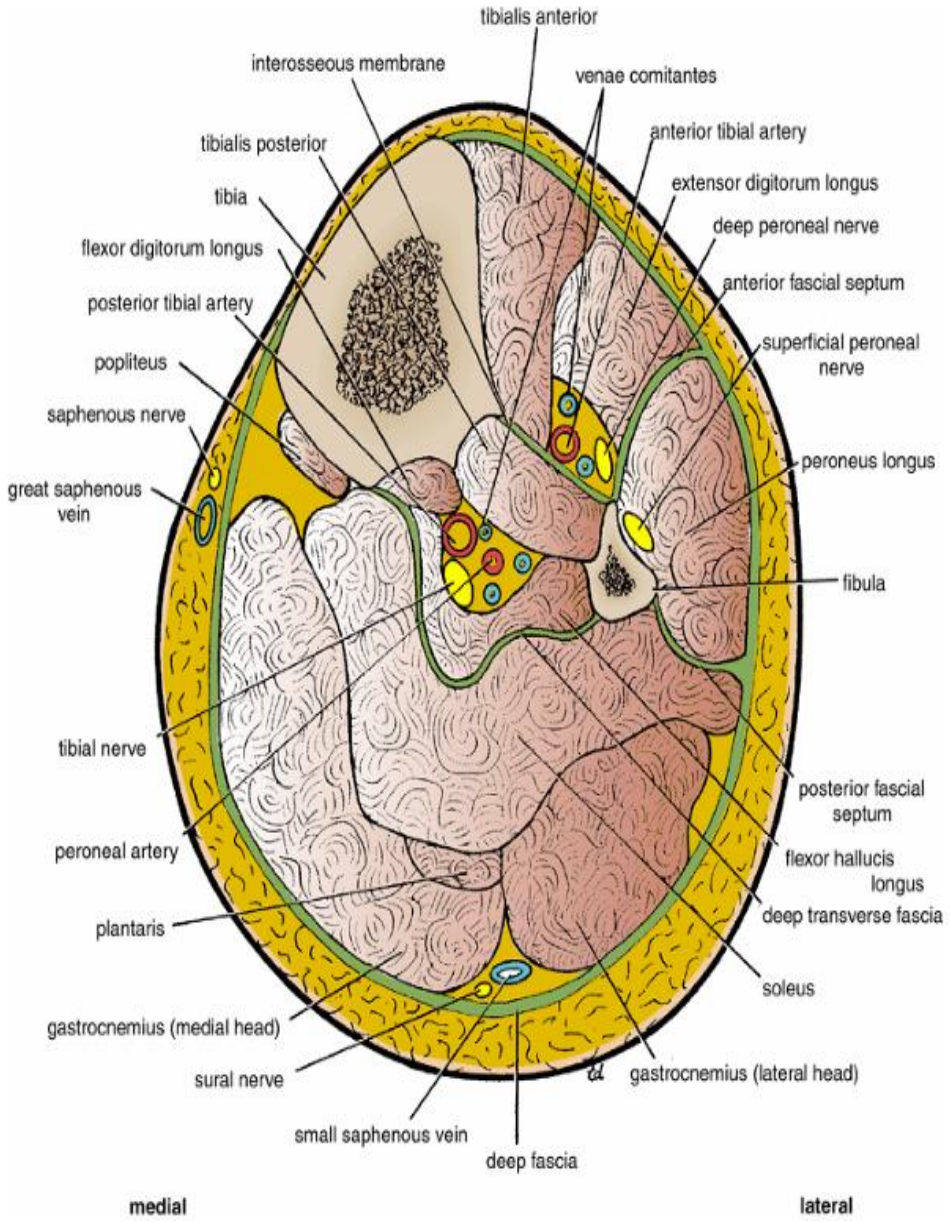
- Anterior Compartment of the Leg:
  - Mnemonic: “Tom Has Very Nice Dog and Pig”
    - Tom = Tibialis anterior
    - Has = Extensor hallucis longus
    - Very Nice = Anterior tibial artery and deep fibular (peroneal) nerve
    - Dog and Pig = Extensor digitorum longus and Peroneus tertius
- Lateral Compartment of the Leg:
  - Contains two muscles:
    - **Peroneus longus**
    - **Peroneus brevis**
  - Innervated by the **superficial fibular (peroneal) nerve**
  - Blood supply is primarily from **perforating branches of the fibular (peroneal) artery**, a **branch of the posterior tibial artery**

Posterior Compartment of the Leg *(Divided into Superficial and Deep Groups)*

- **Superficial Group** – forms the **calf** and includes:
  - **Gastrocnemius** – the most superficial muscle
  - **Soleus** – located deep to the gastrocnemius
  - **Plantaris** – a small muscle that may be **absent in some individuals**
- These muscles share a **common tendon**:
  - Known as the **Achilles tendon** (also called **tendo calcaneus**)
  - It **inserts into the calcaneus (heel bone)**
  - Arabic: وتر عرقوب
- **Deep Posterior Compartment**
  - Mnemonic: **"Tom Does Very Nice Hats"**
    - **Tom** = Tibialis posterior
    - **Does** = Flexor digitorum longus
    - **Very Nice** = Posterior tibial **vessels** and **tibial nerve**
    - **Hats** = Flexor hallucis longus

Interosseous Membrane:

- The interosseous membrane binds the tibia and fibula together and provides attachment for neighboring muscles

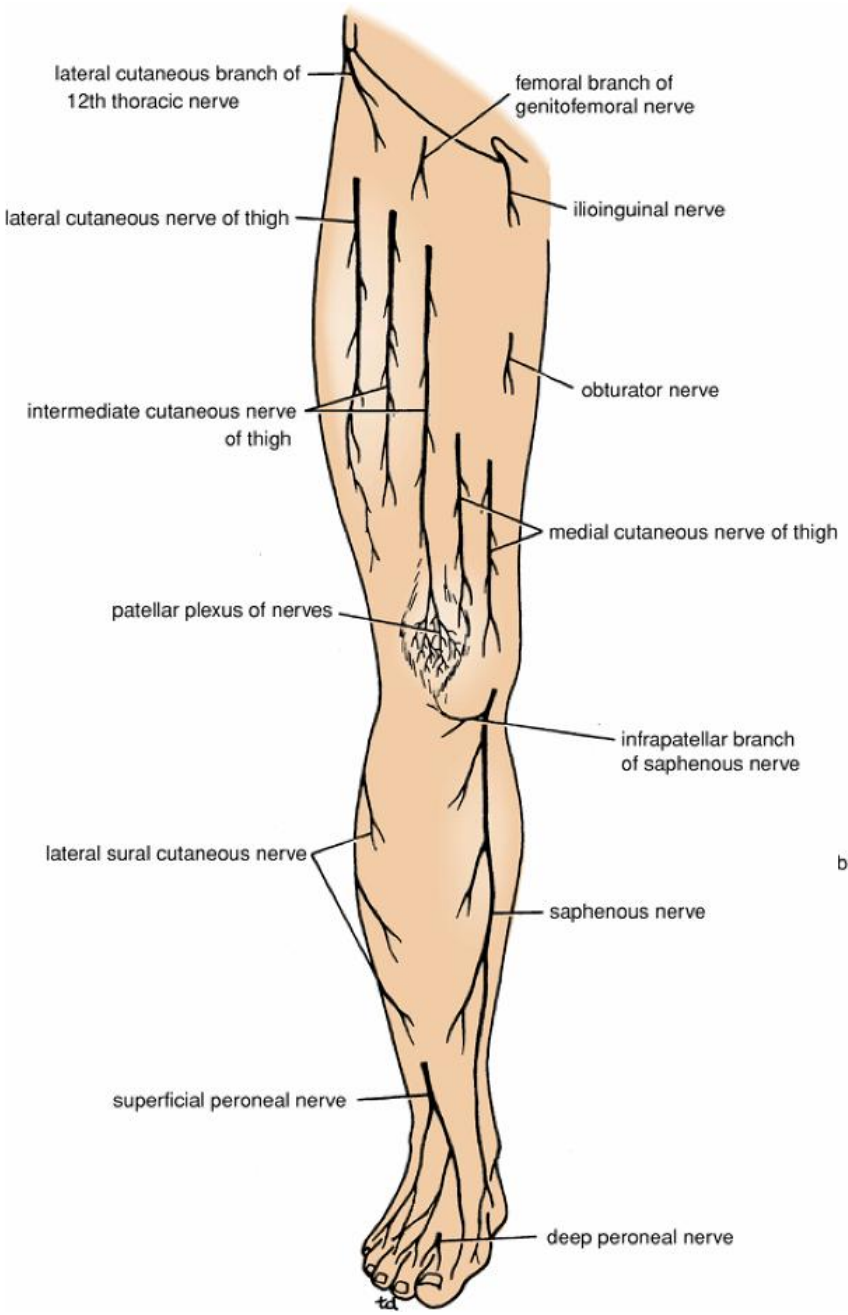


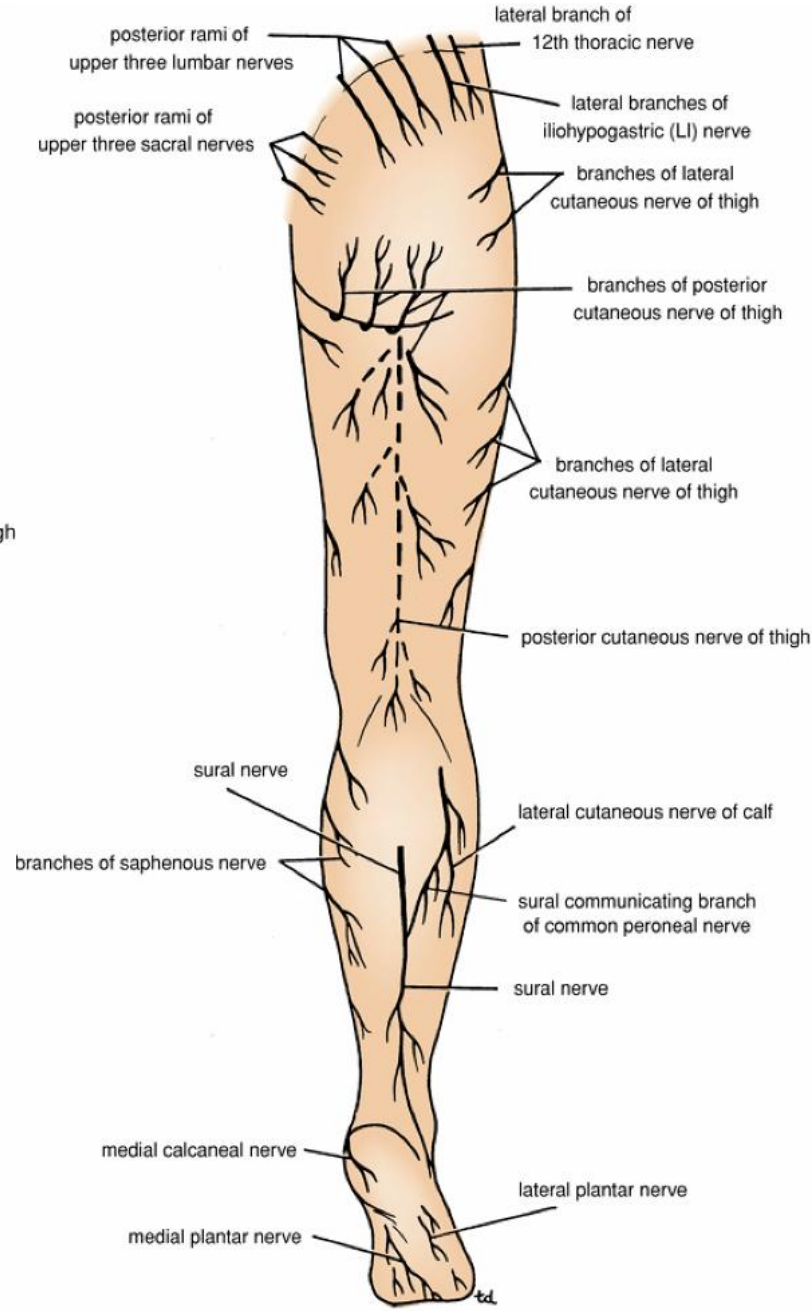
The Front of the Leg:

Skin

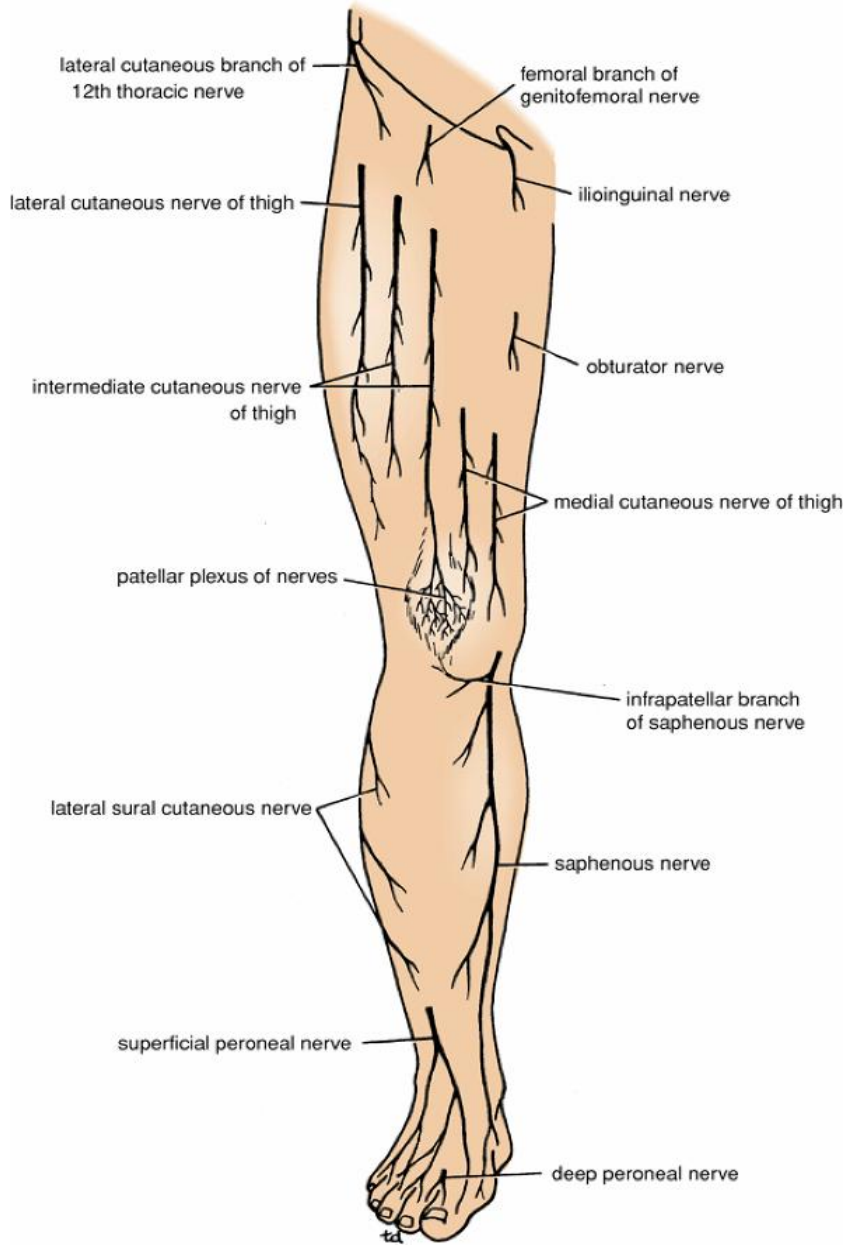
<u>Cutaneous Nerves:</u>

- **The lateral cutaneous nerve of the calf**, a branch of the common peroneal nerve supplies the skin on the upper part of the lateral surface of the leg



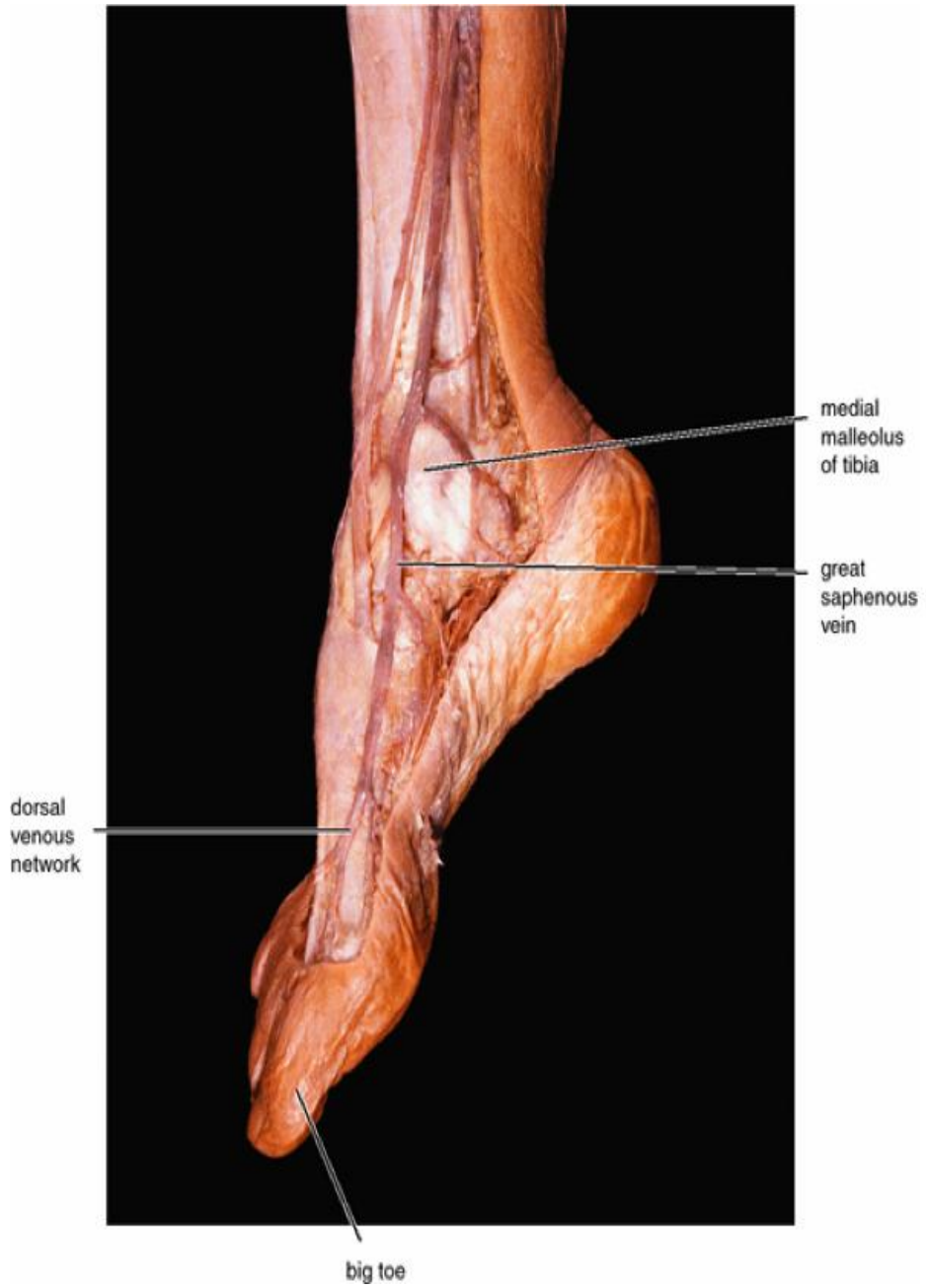


- **The superficial peroneal nerve**, a branch of the common peroneal nerve supplies the skin of the lower part of the anterolateral surface of the leg and the dorsum of the foot, except the first web space between the first and second toes (supplied by the deep peroneal nerve).
- **The saphenous nerve**, a branch of the femoral nerve. It passes through the **subsartorial (adductor) canal**, travels to the **medial side of the knee**, and continues along the **medial leg and foot**, supplying the **anteromedial surface of the leg** and **medial foot up to the ball of the big toe**. Beyond the ball of the big toe, the anterior tibial nerve takes over innervation.
- Sural nerve: it supplies the **posterior aspect of the leg**, the **lateral side of the foot**, and the **lateral side of the little toe**.



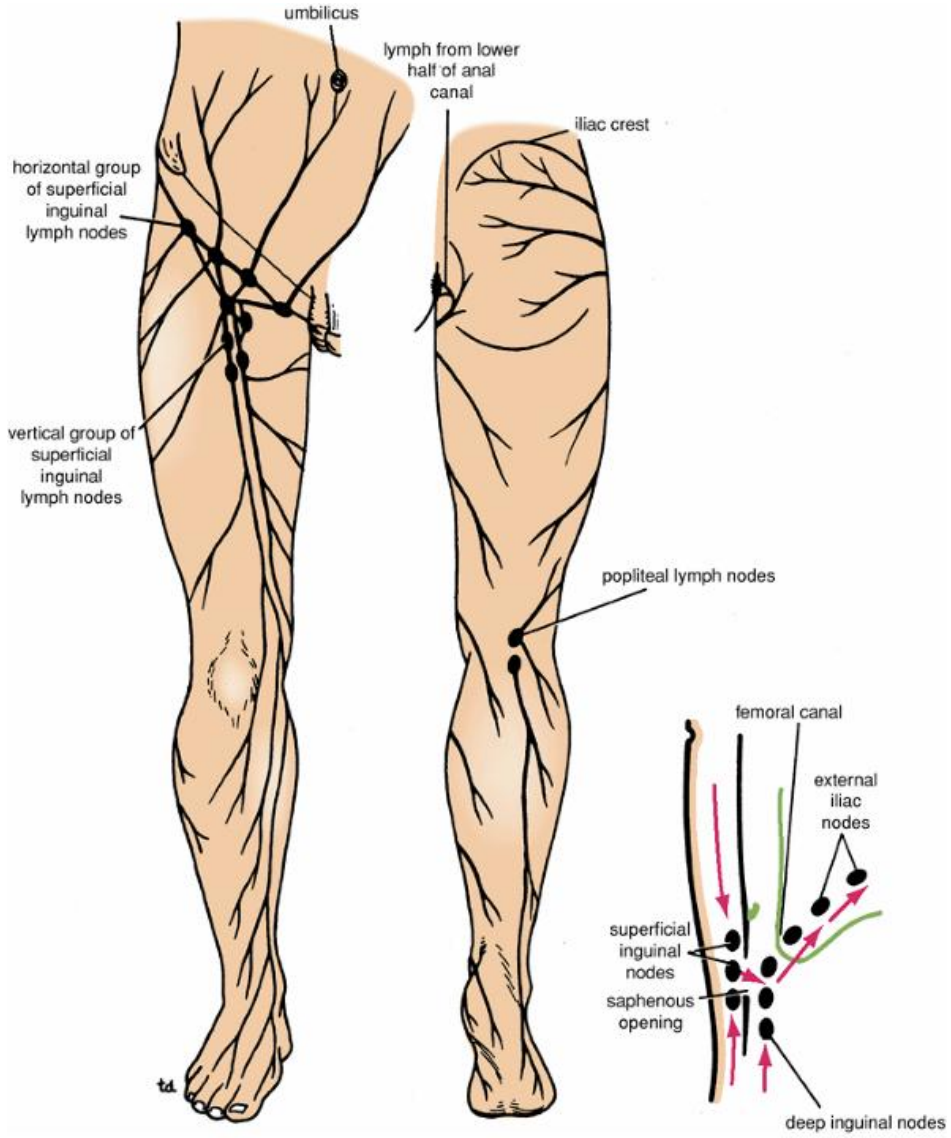
Superficial Veins

- Numerous small veins curve around the medial aspect of the leg and ultimately drain into the great saphenous vein.
- **Great saphenous vein**:
  - Arises from the **medial side** of the **dorsal venous arch of the foot**.
  - Ascends **anterior to the medial malleolus**, to drain into the **femoral vein**.
- **Short (small) saphenous vein**:
  - Originates from the **lateral side** of the **dorsal venous arch**.
  - Ascends **posterior to the lateral malleolus**, runs up the **posterior leg** alongside the **sural nerve**,
  - Empties into the **popliteal vein** in the **popliteal fossa**.
- A **communicating vein** often connects the **great and short saphenous veins.**



Lymph Vessels of the leg:

- The greater part of the lymph from the skin and superficial fascia on the front of the leg drains upward and medially in vessels that follow the great saphenous vein, to **end in the vertical group of superficial inguinal lymph nodes**
- A small amount of lymph from the upper lateral part of the front of the leg may pass via vessels that accompany **the small saphenous vein and drain into the popliteal nodes**



Contents of the Anterior Fascial Compartment of the Leg

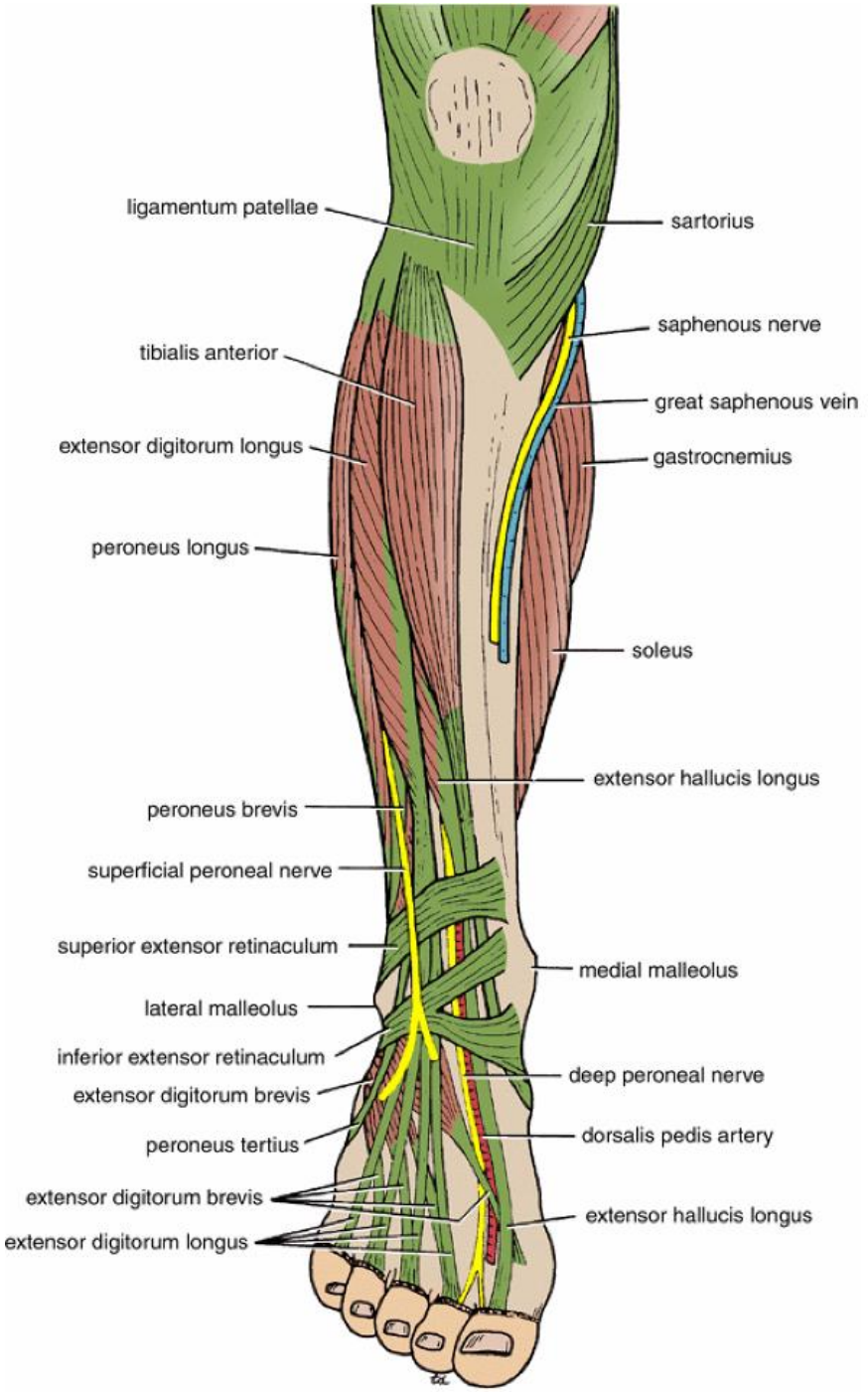
"Tom Has Very Nice Dogs and Pigs"

- **Muscles**: The tibialis anterior, extensor digitorum longus, peroneus tertius, and extensor hallucis longus
- **Blood supply:** Anterior tibial artery
- **Nerve supply:** Deep peroneal nerve

- **Muscles of the Anterior Fascial Compartment of the Leg**

Note the following:

- Extension, or dorsiflexion of the ankle, is the movement of the foot away from the ground.
- The peroneus tertius muscle extends the foot at the ankle joint along with the other muscles in this compartment and is supplied by the deep peroneal nerve.
- The muscle also everts the foot at the subtalar and transverse tarsal joints along with the peroneus longus and brevis muscles but receives no innervation from the superficial peroneal nerve.



Retinacula Around the Ankle Joint

- Just like the hand, the **ankle region** has specialized bands called **retinacula** that hold tendons in place. These include:
  - **Extensor retinaculum** (anterior) – has **superior** and **inferior** parts, attaching to the tibia and fibula.
  - **Flexor retinaculum** (posterior/medial)
  - **Peroneal (fibular) retinaculum** (lateral)
- **Structures under the extensor retinaculum (from medial to lateral):**
  1. **Tibialis anterior tendon**
  2. **Extensor hallucis longus tendon**
  3. **Anterior tibial artery** and **deep fibular nerve**
  4. **Extensor digitorum longus tendon**
  5. **Peroneus tertius tendon**
- **Superficial peroneal nerve**:
  - It **does not pass deep** to the extensor retinaculum. Instead, it **emerges through the deep fascia** in the lower leg and runs superficially.
  - It provides **sensory innervation** to most of the **anterolateral leg** and **dorsum of the foot**, **except**:
    - The **first web space** (between the first and second toes) – supplied by the **deep fibular nerve**
    - The **medial side of the big toe** – supplied by the **saphenous nerve**
    - The **lateral side of the foot and little toe** – supplied by the **sural nerve**

- The extensor digitorum longus tendons on the dorsal surface of each toe become incorporated into a fascial expansion called the extensor expansion.

- The central part of the expansion is inserted into the base of the middle phalanx, and the two lateral parts converge to be inserted into the base of the distal phalanx**. (Compare with the insertion of extensor digitorum in the hand.)**

Muscles of the Anterior Fascial Compartment of the Leg

Muscle	Origin	Insertion	Nerve Supply	Nerve Roots	Action
Tibialis anterior	Lateral surface of shaft of tibia and interosseous membrane	Medial cuneiform and base of first metatarsal bone	Deep peroneal nerve	**L4,** 5	Extends foot at ankle joint; inverts foot at subtalar and transverse tarsal joints; holds up medial longitudinal arch of foot
Extensor digitorum longus	Anterior surface of shaft of fibula	Extensor expansion of lateral four toes	Deep peroneal nerve	L5; S1	Extends toes; extends foot at ankle joint
Peroneus tertius	Anterior surface of shaft of fibula	Base of fifth metatarsal bone	Deep peroneal nerve	L5; S1	Extends foot at ankle joint; everts foot at subtalar and transverse tarsal joints
Extensor hallucis longus	Anterior surface of shaft of fibula	Base of distal phalanx of great toe	Deep peroneal nerve	L5; S1	Extends big toe; extends foot at ankle joint; inverts foot at subtalar and transverse tarsal joints
Extensor digitorum brevis	Calcaneum	By four tendons into the proximal phalanx of big toe and long extensor tendons to second, third, and fourth toes	Deep peroneal nerve	S1, 2	Extends toes

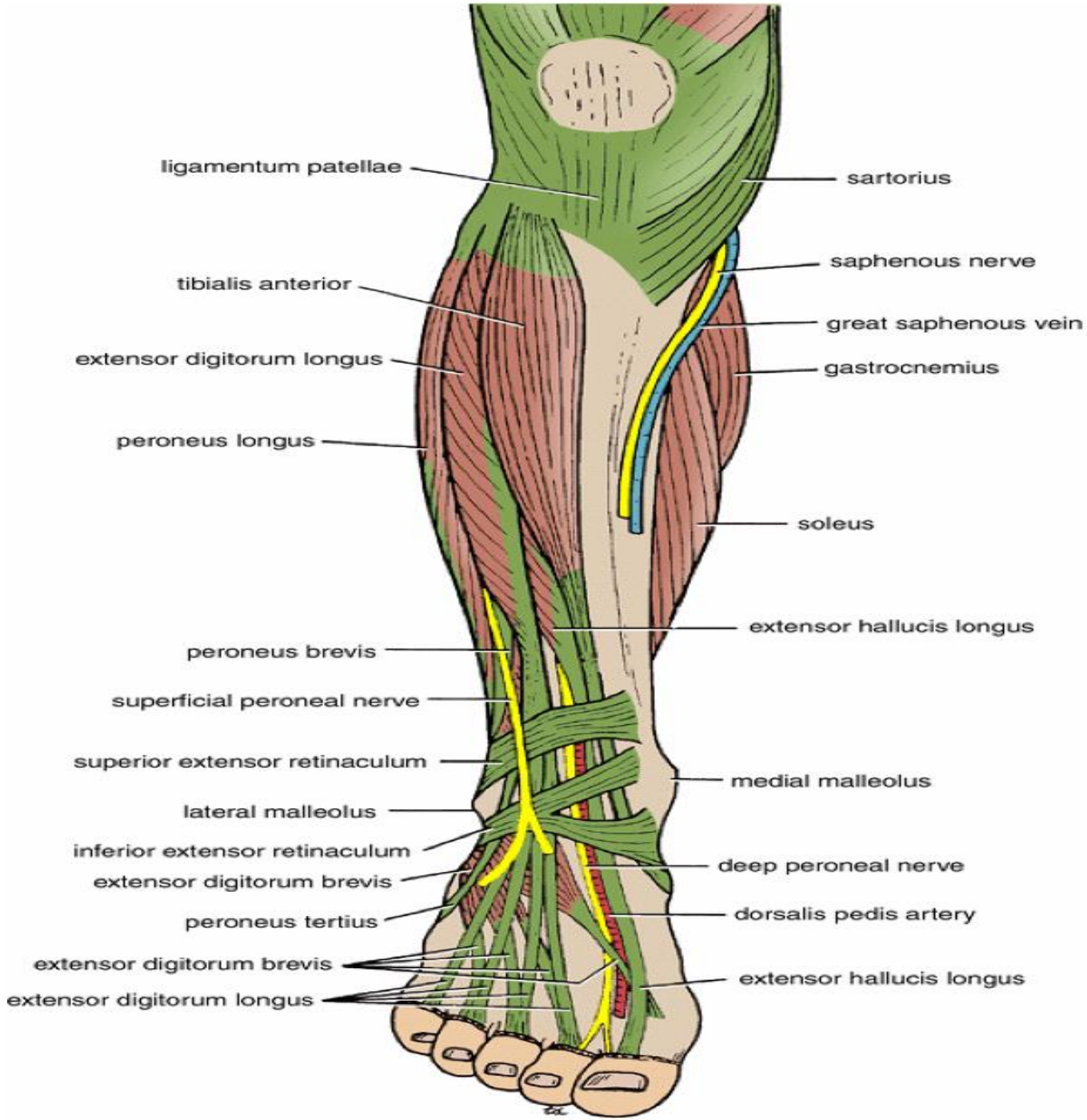
See next slide

The professor's explanation on *Extensor Digitorum Brevis* (see last slide):

- This muscle originates from the dorsum of the tarsal bones.
- Its tendons join the long extensor tendons of the four lateral toes.
- It inserts into the dorsal digital expansion of those toes.
- Note: the details enclosed by the rectangle in the table in the last slide clearly differs from what the Dr. has mentioned (in the 3 lines above)!

Some rules:

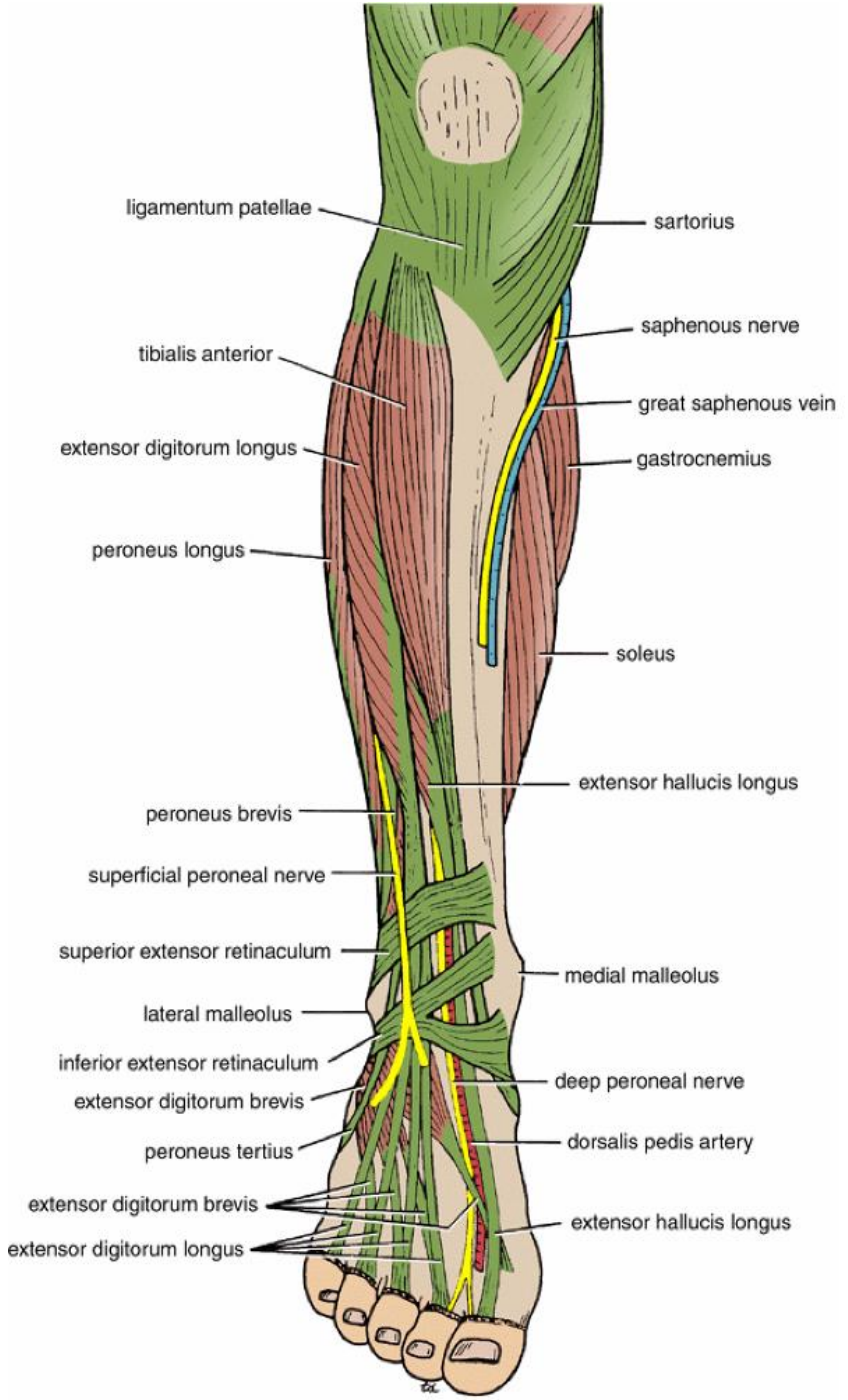
- Any muscle with the name "Tibialis" is responsible for inversion of the foot.
- Any muscle with the name "Peroneus" (or Fibularis, which is the same) does eversion of the foot.
- Muscles in the anterior compartment of the leg perform dorsiflexion (also called extension) of the ankle joint


ligamentum patellae
tibialis anterior
extensor digitorum longus
peroneus longus
peroneus brevis
superficial peroneal nerve
superior extensor retinaculum
lateral malleolus
inferior extensor retinaculum
extensor digitorum brevis
peroneus tertius
extensor digitorum brevis
extensor digitorum longus
sartorius
saphenous nerve
great saphenous vein
gastrocnemius
soleus
extensor hallucis longus
medial malleolus
deep peroneal nerve
dorsalis pedis artery
extensor hallucis longus

Artery of the Anterior Fascial Compartment of the Leg:

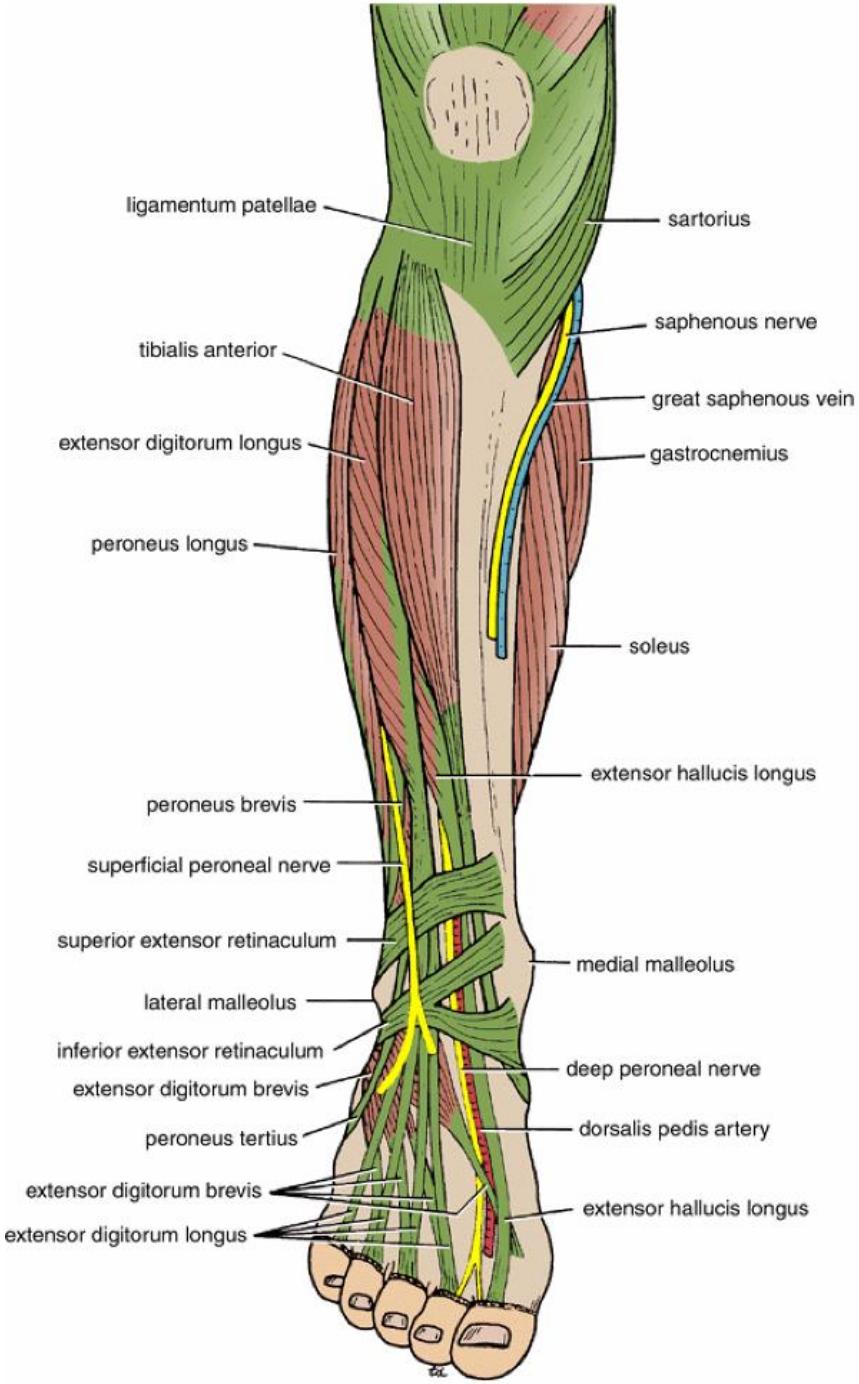
Anterior Tibial Artery:

- The anterior tibial artery is the smaller of the terminal branches of the popliteal artery.
- It arises at the level of the lower border of the popliteus muscle divide anterior and posterior and the anterior branch passes forward into the anterior compartment of the leg through an opening in the upper part of the interosseous membrane



Ant.tibial artery……cont

- It descends on the anterior surface of the interosseous membrane, accompanied by the deep peroneal nerve
- In the upper part of its course, it lies deep beneath the muscles of the compartment.
- In the lower part of its course, it lies superficial in front of the lower end of the tibia
- Having passed behind the superior extensor retinaculum, it has the tendon of the extensor hallucis longus on its medial side and the deep peroneal nerve and the tendons of extensor digitorum longus on its lateral side.
- It is here that its pulsations can easily be felt in the living subject. In front of the ankle joint, the artery becomes the dorsalis pedis artery



Dorsalis Pedis Artery

- The **anterior tibial artery** passes **deep to the extensor retinaculum** at the ankle joint and continues as the **dorsalis pedis artery** on the **dorsum of the foot**.
- It runs **between the tendon of extensor hallucis longus (medially)** and **extensor digitorum longus (laterally)** — a position that makes its **pulse easily palpable** on clinical examination.
- The dorsalis pedis lies **between the first and second metatarsal bones** and gives rise to the **arcuate artery**, which gives off **digital arteries** to the toes.

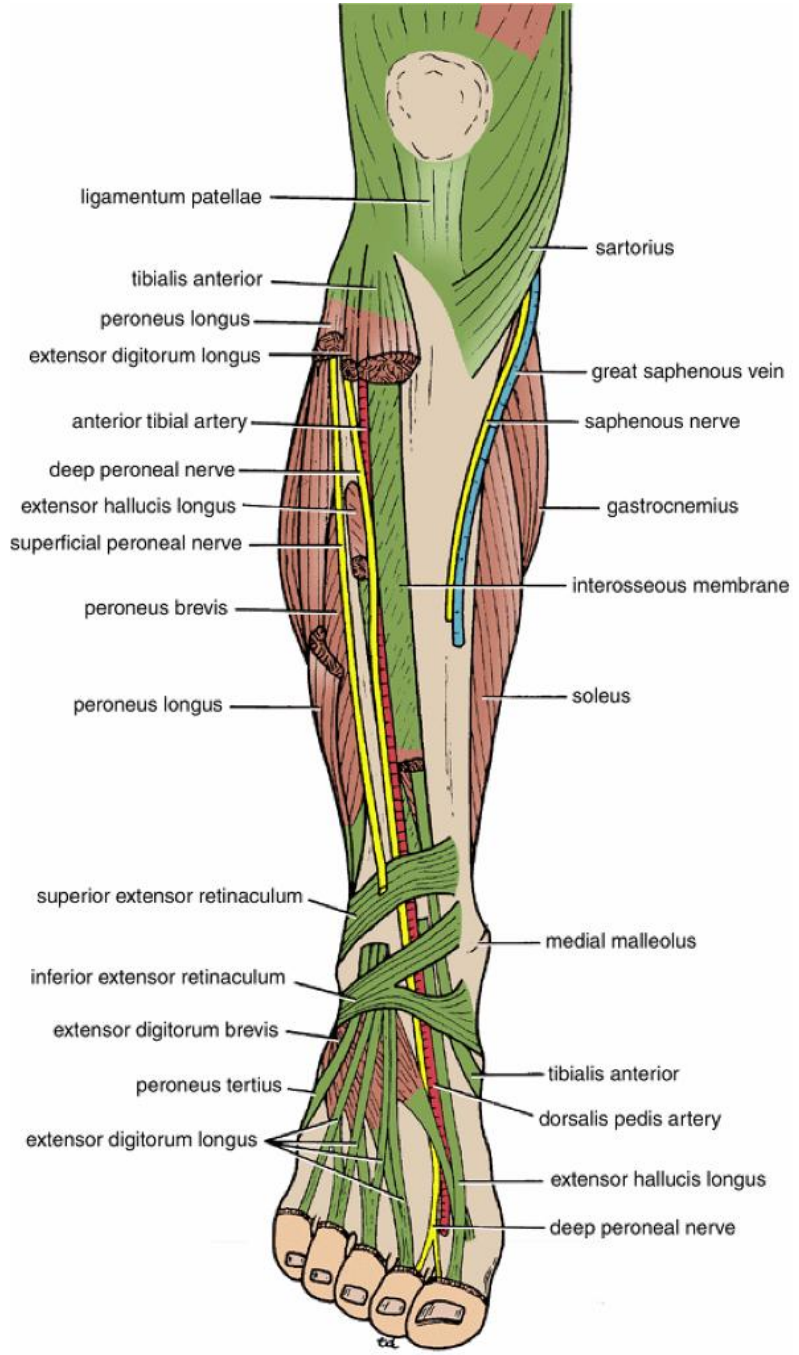
Branches of the Anterior Tibial Artery:

- **Muscular branches** to neighboring muscles
- **Anastomotic branches** that anastomose with branches of other arteries around the knee and ankle joints
- **Venae comitantes** of the anterior tibial artery join those of the posterior tibial artery in the popliteal fossa to form the **in the end they reach the** popliteal vein.

- **Nerve Supply of the Anterior Fascial Compartment of the Leg**

Deep Peroneal Nerve

- The deep peroneal nerve innervates all the muscles in the anterior compartment of the leg. Cutaneously, it supplies the first cleft (the skin between the first and second toes) and the medial side of the big toe.
- The deep peroneal nerve is one of the terminal branches of the common peroneal nerve
- It arises in the substance of the peroneus longus muscle on the lateral side of the neck of the fibula
- The nerve enters the anterior compartment by piercing the anterior fascial septum.
- It then descends deep to the extensor digitorum longus muscle, first lying lateral, then anterior, and finally lateral to the anterior tibial artery
- The nerve passes behind the extensor retinacula.



Branches of deep peroneal nerve

- **Muscular branches** to the tibialis anterior, the extensor digitorum longus, the peroneus tertius, and the extensor hallucis longus

- **Articular branch** to the ankle joint

Contents of the Lateral Fascial Compartment of the Leg

- **Muscles:** Peroneus longus and peroneus brevis
- **Blood supply**: Branches from the peroneal artery (branch of posterior tibial)
- **Nerve supply**: Superficial peroneal nerve (**musculocutaneous**) arises from the common peroneal nerve. It **innervates the peroneus longus and peroneus brevis muscles**, then continues as a **cutaneous nerve supplying the lower anterior leg and most of the dorsum of the foot**. It **excludes the first web space between the big toe and second toe** (supplied by the **deep peroneal nerve**) and **does not supply the medial and lateral edges of the foot**, which are innervated by the **saphenous and sural nerves**, respectively.
- **Note the following:**
  - The peroneus longus and brevis muscles both flex the foot at the ankle joint and evert the foot at the subtalar and transverse tarsal joints.
  - They also play an important role in holding up the lateral longitudinal arch in the foot.
  - In addition, the peroneus longus tendon serves as a tie to the transverse arch of the foot.

Clinical Notes

- Tenosynovitis and Dislocation of the Peroneus Longus and Brevis Tendons

Tenosynovitis :(inflammation of the synovial sheaths)

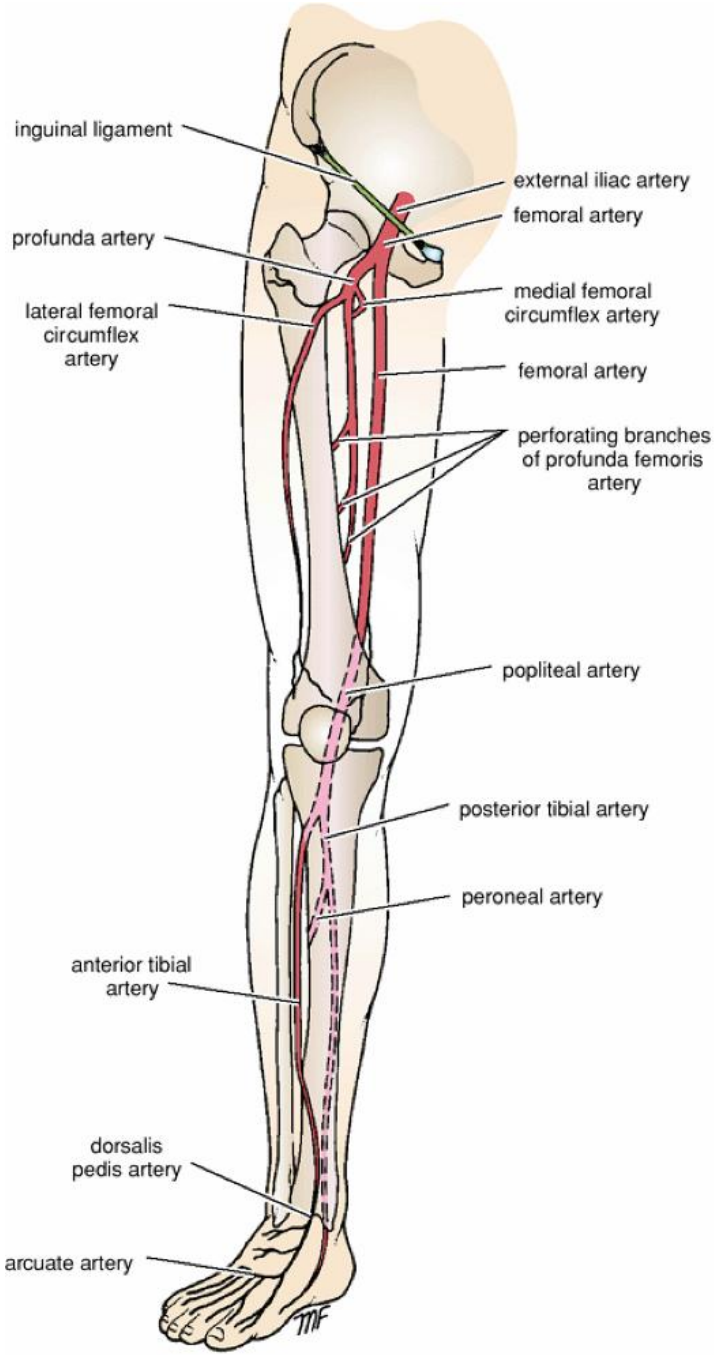
- It can affect the tendon sheaths of the peroneus longus and brevis muscles as they pass posterior to the lateral malleolus. Can lead to dislocation of tendons.
- Treatment consists of immobilization, heat, and physiotherapy.

Tendon dislocation

- It can occur when the tendons of peroneus longus and brevis dislocate forward from behind the lateral malleolus.
- For this condition to occur, the superior peroneal retinaculum must be torn. It usually occurs in older children and is caused by trauma.

Artery of the Lateral Fascial Compartment of the Leg

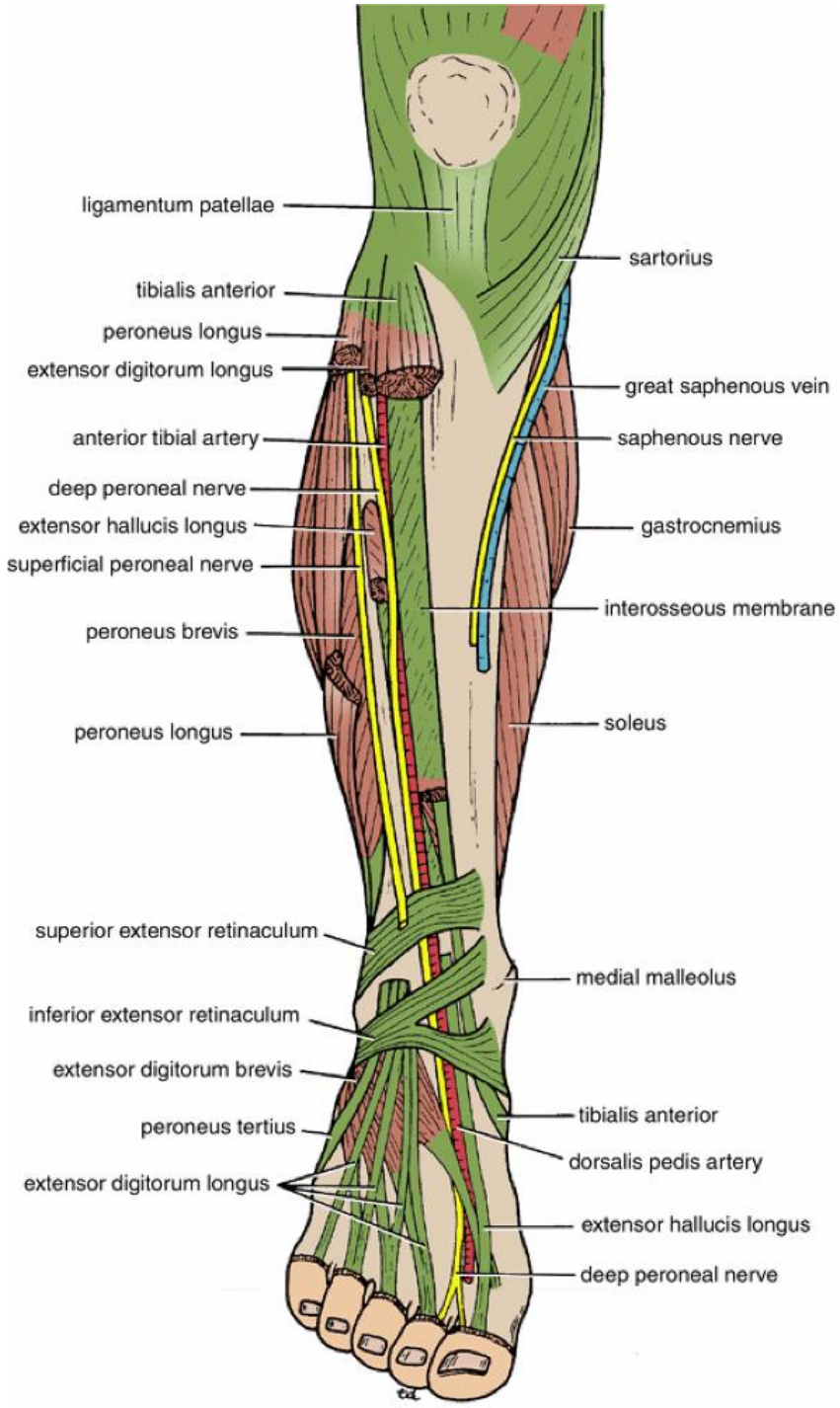
- Numerous branches from **the peroneal artery** which lies in the posterior compartment of the leg, pierce the posterior fascial septum and supply the peroneal muscles.
- After the femoral artery enters the adductor canal, it exits through the adductor hiatus (an opening in the adductor magnus) and becomes the popliteal artery. The popliteal artery then divides into the anterior and posterior tibial arteries. The peroneal (fibular) artery arises from the posterior tibial artery and sends branches to the lateral compartment of the leg. The posterior tibial artery continues in the posterior compartment, while the anterior tibial artery passes through the interosseous membrane to enter the anterior compartment. At the ankle, the anterior tibial artery becomes the dorsalis pedis artery, which gives rise to the arcuate artery.



Nerve of the Lateral Fascial Compartment of the Leg

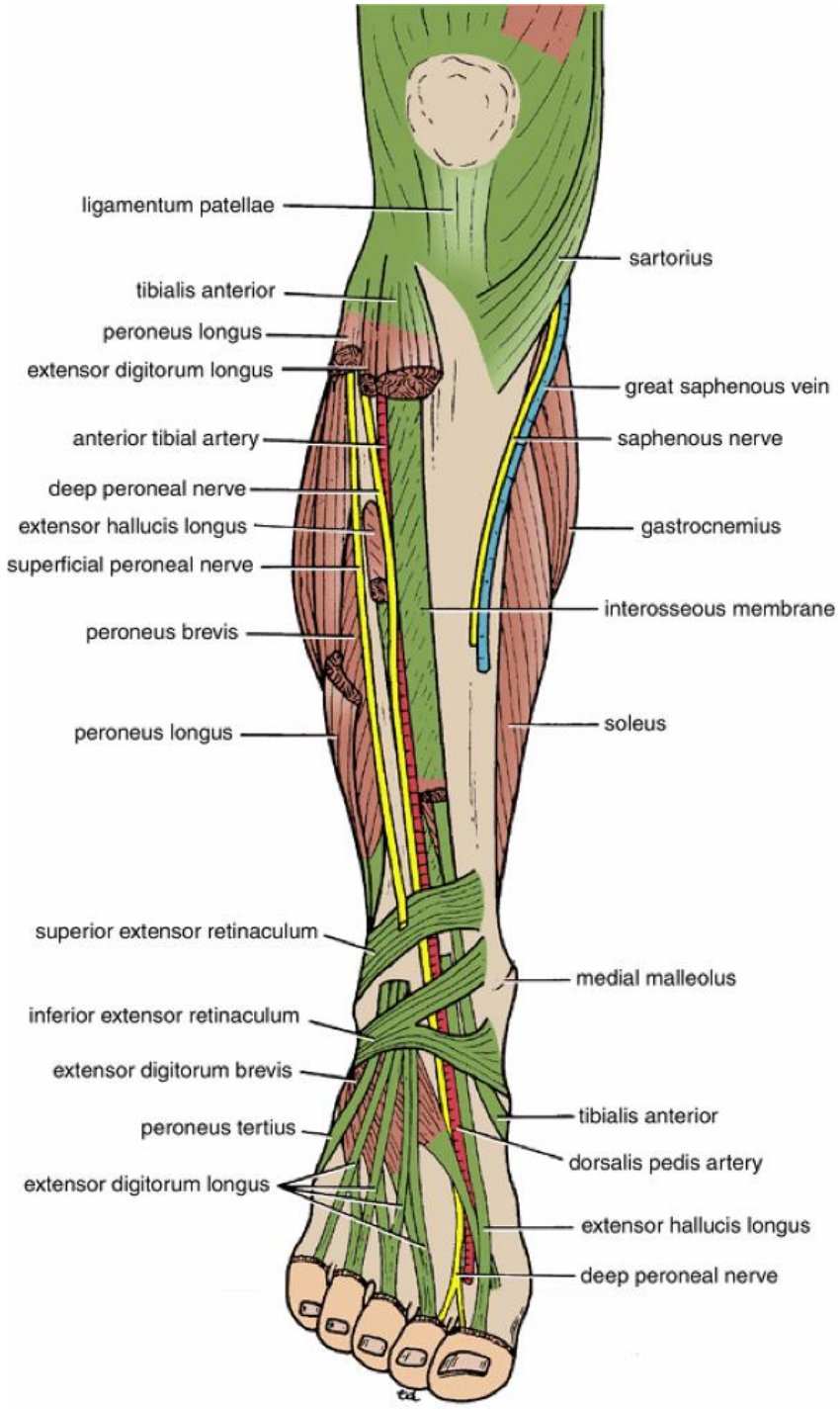
Superficial Peroneal Nerve:

- The superficial peroneal nerve is one of the terminal branches of the common peroneal nerve
- It arises in the substance of the peroneus longus muscle on the lateral side of the neck of the fibula
- It descends between the peroneus longus and brevis muscles, and in the lower part of the leg it becomes cutaneous, passing **anterior to the superior extensor retinaculum**.



Branches of superficial peroneal nerve:

- **Muscular branches** to the peroneus longus and brevis
- **Cutaneous:** Medial and lateral branches are distributed to the skin on the lower part of the front of the leg and the dorsum of the foot.
- In addition, branches supply the dorsal surfaces of the skin of all the toes, **except the adjacent sides of the first and second toes (deep peroneal nerve) and the lateral side of the little toe (sural nerve) and the medial side of the first toe (saphenous nerve)**

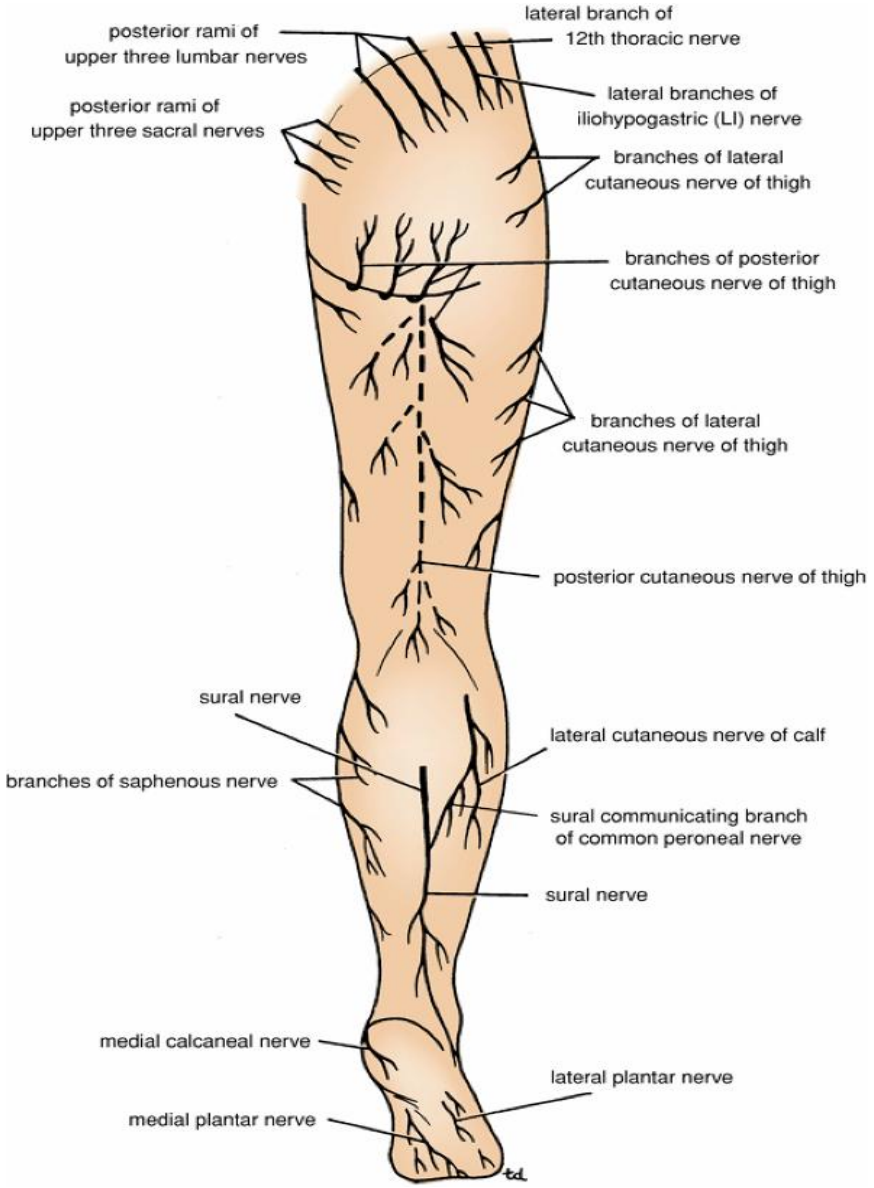


The Back of the Leg

Skin

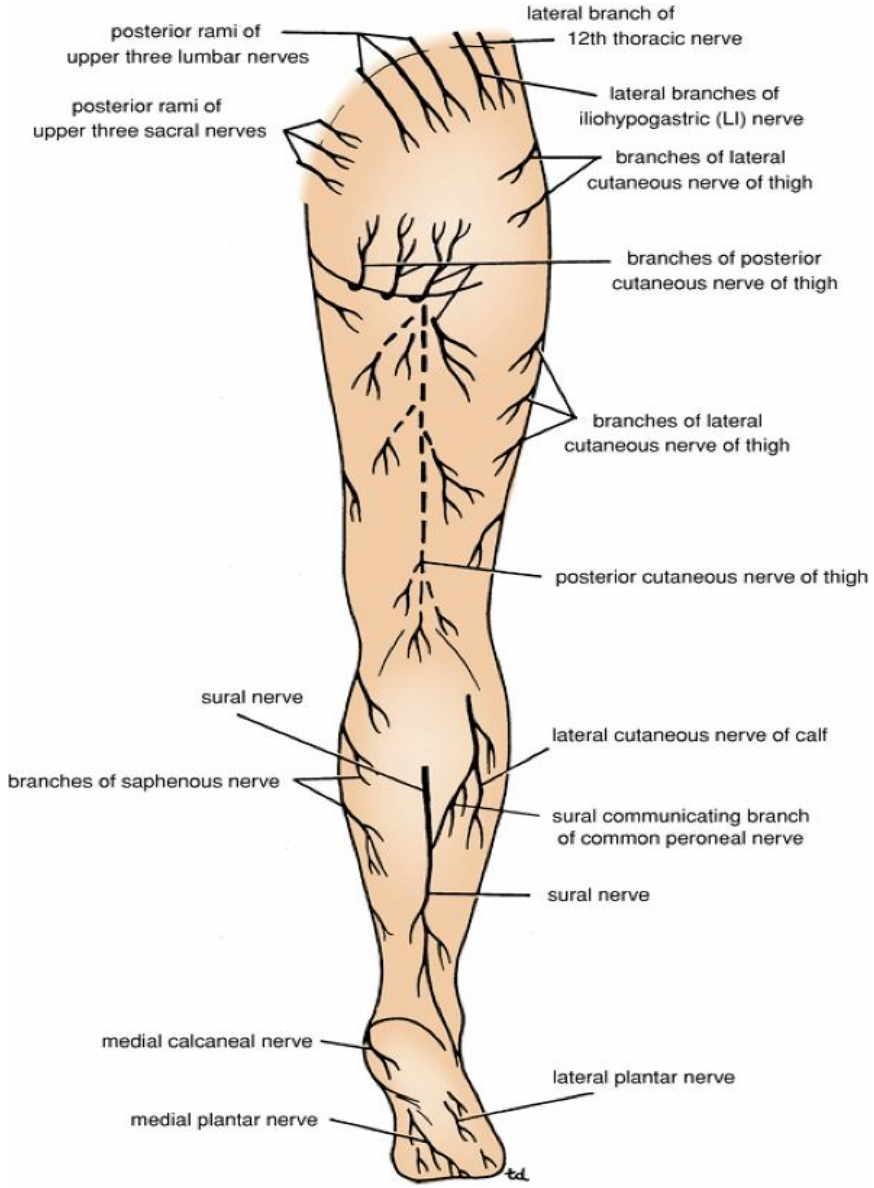
Cutaneous Nerves:

- **The posterior cutaneous nerve** of the thigh descends on the back of the thigh
- In the popliteal fossa, it supplies the skin over the popliteal fossa and the upper part of the back of the leg
- **The lateral cutaneous nerve of the calf,** a branch of the common peroneal nerve supplies the skin on the upper part of the posterolateral surface of the leg



- **The sural nerve**, a branch of the tibial nerve, supplies the skin on the lower part of the posterolateral surface of the leg

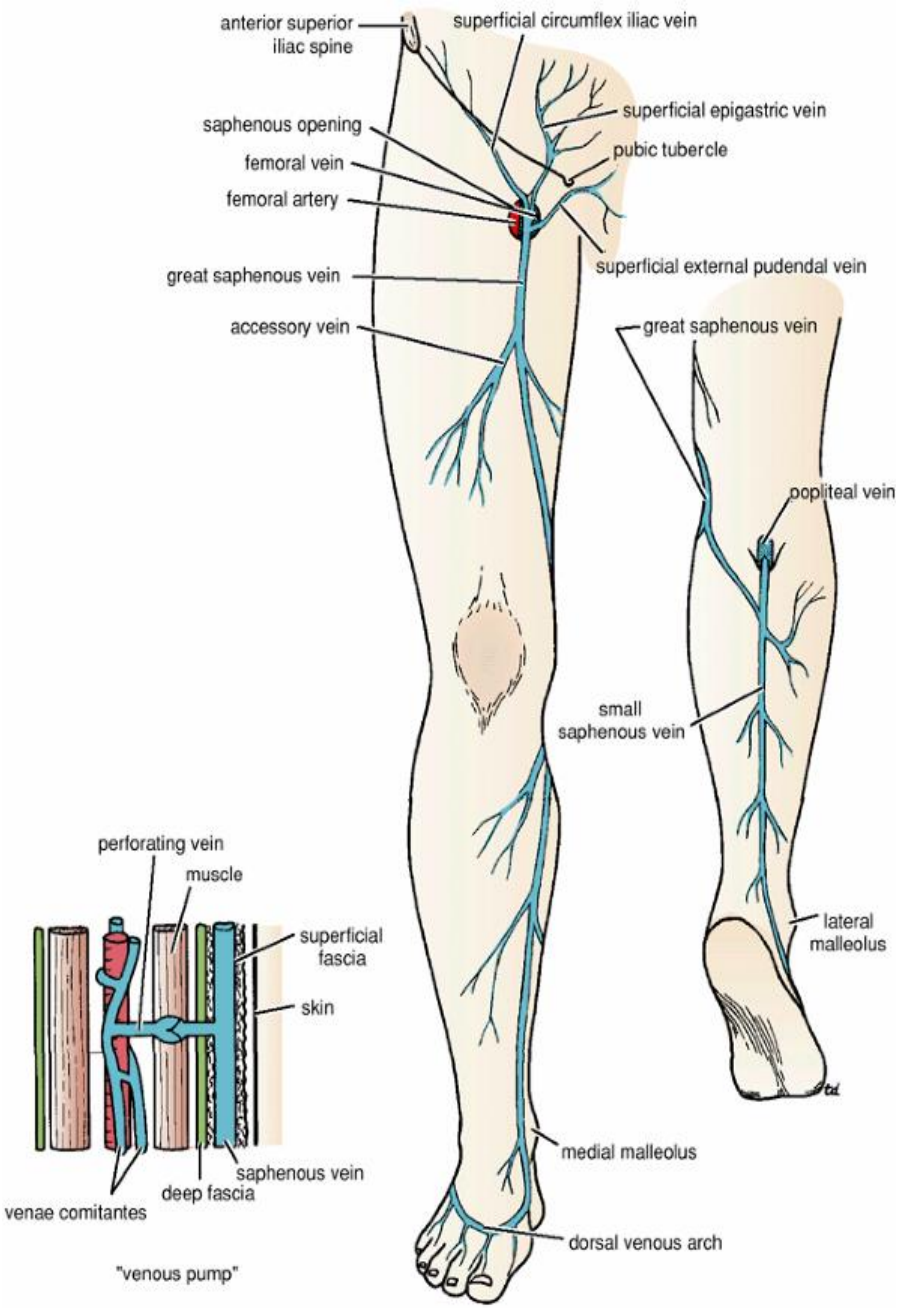
- **The saphenous nerve**, a branch of the femoral nerve, gives off branches that supply the skin on the posteromedial surface of the leg
- The **sole of the foot is innervated by branches of the posterior tibial nerve**, which **divides into the medial and lateral plantar nerves**



Superficial Veins:

The doctor said that we've already discussed the veins and lymphatics.

- The small saphenous vein arises from the lateral part of the dorsal venous arch of the foot
- It ascends behind the lateral malleolus in company with the sural nerve.
- It follows the lateral border of the tendo calcaneus and then runs up the middle of the back of the leg.



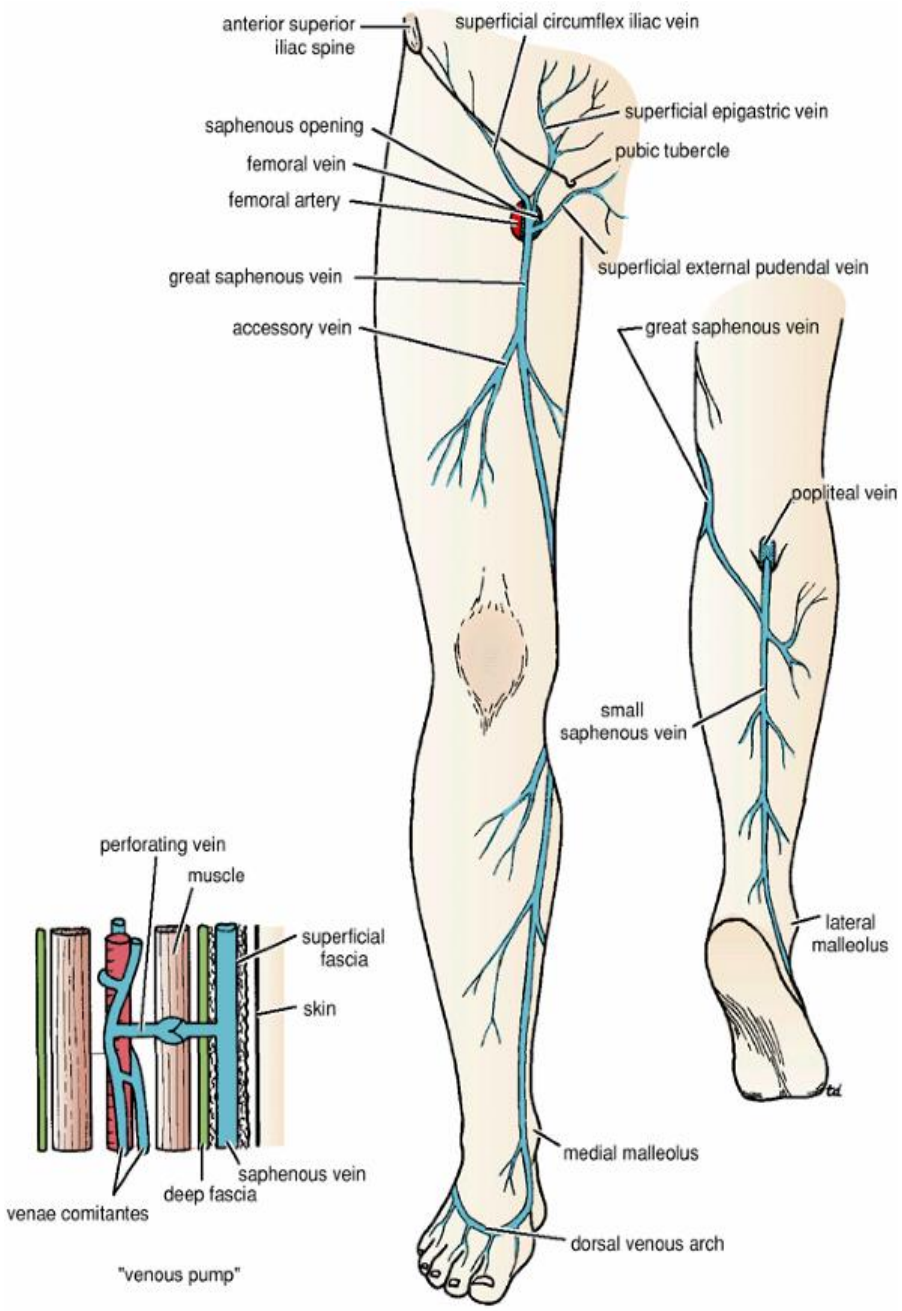
Superficial Veins.....cont

- The vein pierces the deep fascia and passes between the two heads of the gastrocnemius muscle in the lower part of the popliteal fossa
- it ends in the popliteal vein
- The small saphenous vein has numerous valves along its course.

Superficial Veins.....cont

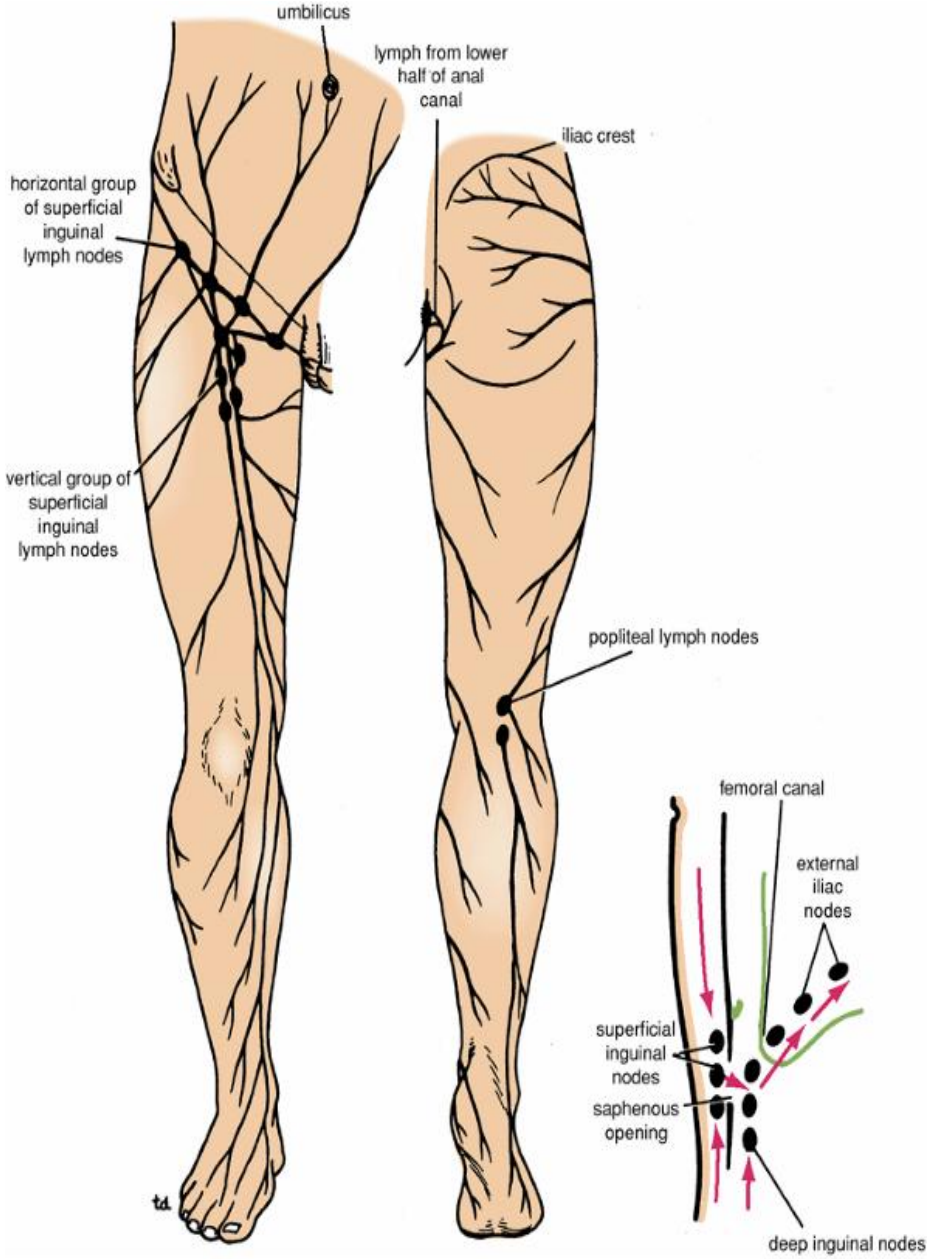
Tributaries

- Numerous small veins from the back of the leg
- **Communicating veins** with the deep veins of the foot
- **Important anastomotic branches** that run upward and medially and join the great saphenous vein
- The mode of termination of the small saphenous vein is subject to variation: It may join the popliteal vein; it may join the great saphenous vein; or it may split in two, one division joining the popliteal and the other joining the great saphenous vein.



Lymph Vessels of the back of the leg:

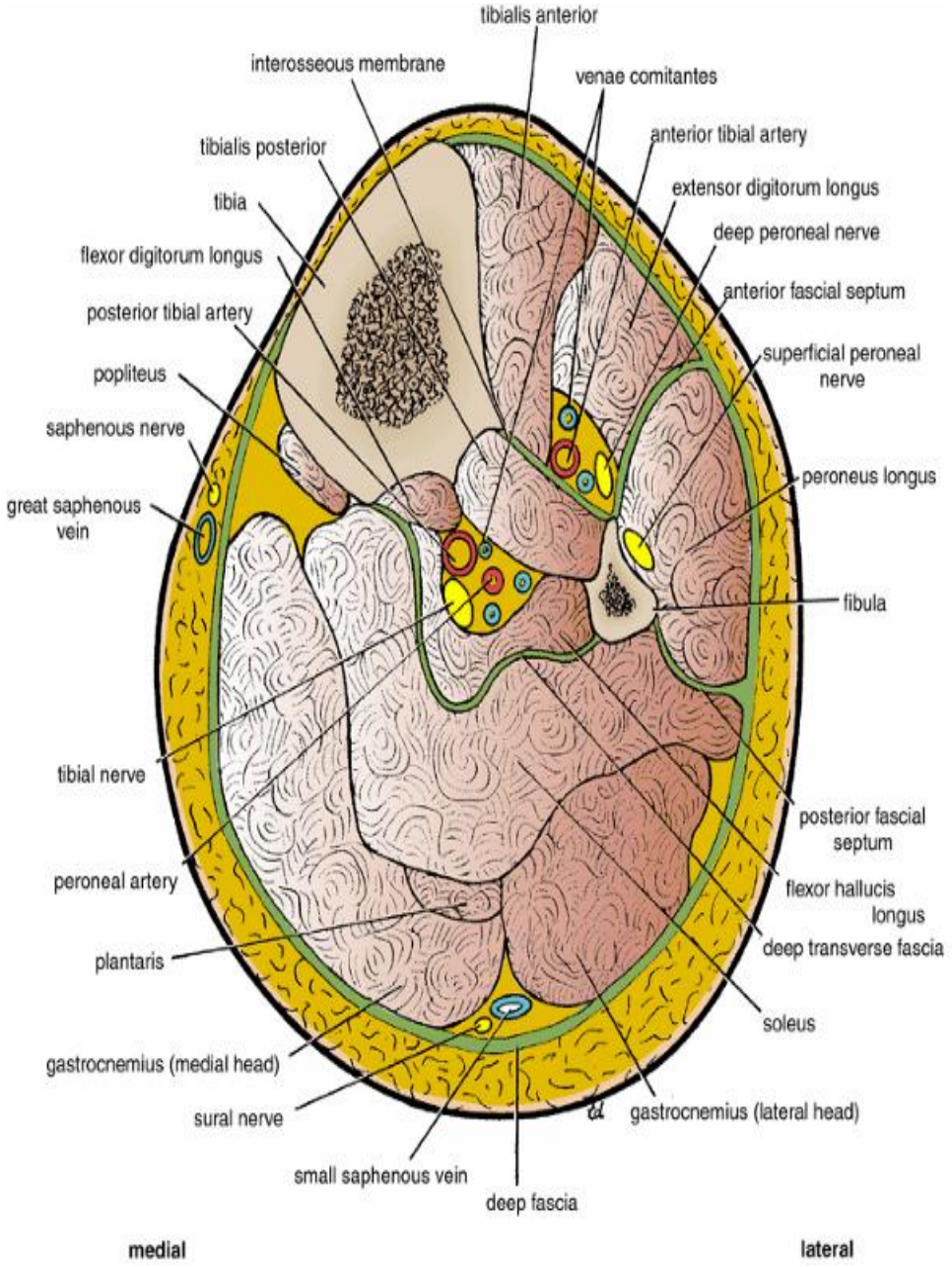
- Lymph vessels from the skin and superficial fascia on the back of the leg **drain upward and either pass forward around the medial side of the leg accompany the great saphenous vein to end in the vertical group of superficial inguinal nodes or those from the lateral side drain into the popliteal nodes**



Contents of the Posterior Fascial Compartment of the Leg:

- The deep transverse fascia of the leg is a septum that divides the muscles of the posterior compartment into superficial and deep groups

- **Superficial group of muscles (calf muscles):** Gastrocnemius (medial and lateral heads), plantaris, and soleus
- **Deep group of muscles:** Popliteus, flexor digitorum longus, flexor hallucis longus, and tibialis posterior. The order which can be seen beneath the flexor retinaculum: Tom does very nice hats
- **Blood supply:** Posterior tibial artery
- **Nerve supply:** Tibial nerve

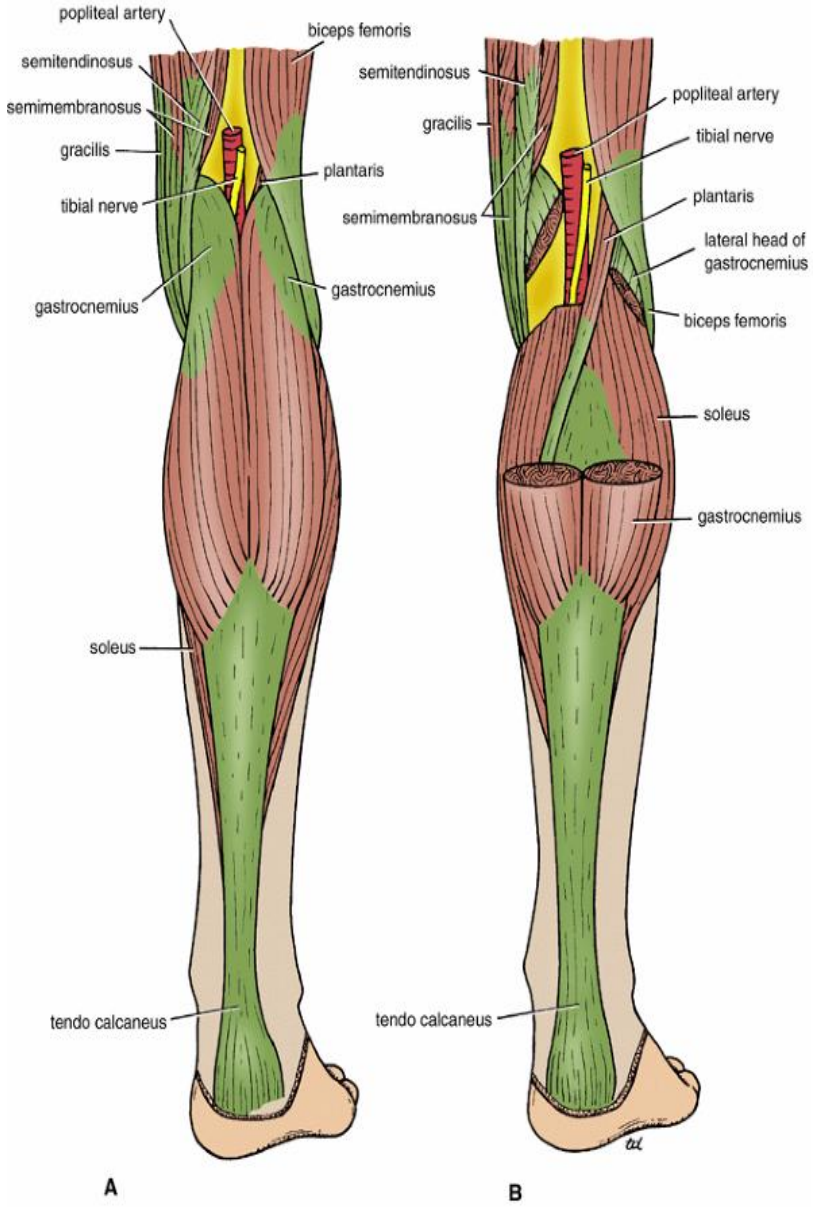


Muscles of the Posterior Fascial Compartment o the Leg:

Superficial Group:

Note the following:

- Together, the soleus, gastrocnemius, and plantaris act as powerful plantar flexors of the ankle joint.
- They provide the main forward propulsive force in walking and running by using the foot as a lever and raising the heel off the ground.
- They share a **strong common tendon**, known as the **Achilles tendon (tendo calcaneus)**, which **inserts into the posterior surface of the calcaneus**.



Muscles of the Posterior Fascial Compartment of the Leg

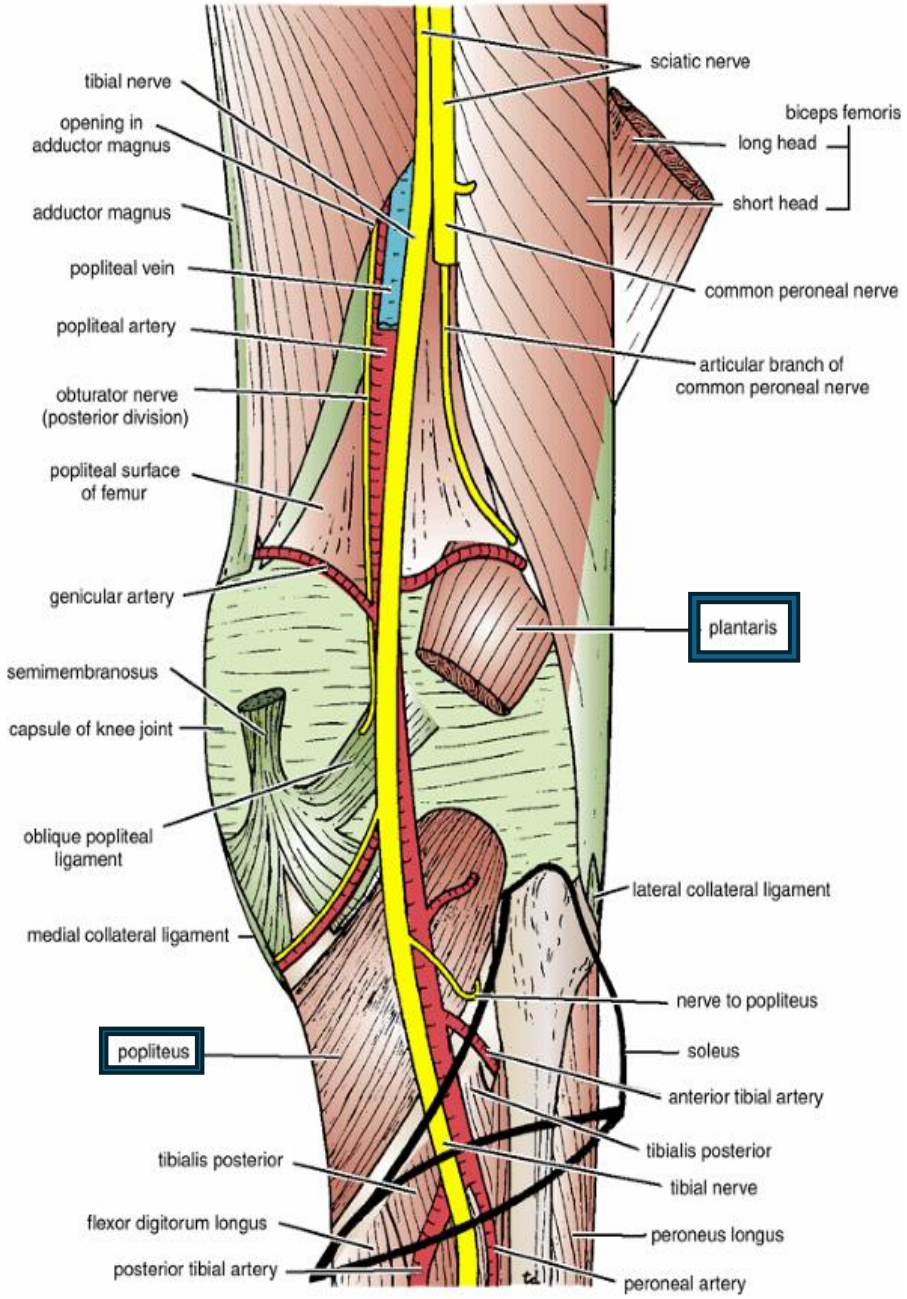
Muscle	Origin	Insertion	Nerve Supply	Nerve Rootsa	Action
Superficial Group					
Gastrocnemius	Lateral head from lateral condyle of femur and medial head from above medial condyle	Via tendo calcaneus into posterior surface of calcaneum	Tibial nerve	**S1,** 2	Plantar flexes foot at ankle joint; flexes knee joint
Plantaris	Lateral supracondylar ridge of femur	Posterior surface of calcaneum	Tibial nerve	**S1,** 2	Plantar flexes foot at ankle joint; flexes knee joint
Soleus	Shafts of tibia and fibula	Via tendo calcaneus into posterior surface of calcaneum	Tibial nerve	S1, **2**	Together with gastrocnemius and plantaris is powerful plantar flexor of ankle joint; provides main propulsive force in walking and running
Deep Group					
Popliteus	Lateral surface of lateral condyle of femur	Posterior surface of shaft of tibia above soleal line	Tibial nerve	L4, 5; S1	Flexes leg at knee joint; unlocks knee joint by lateral rotation of femur on tibia and slackens ligaments of joint
Flexor digitorum longus	Posterior surface of shaft of tibia	Bases of distal phalanges of lateral four toes	Tibial nerve	**S2,** 3	Flexes distal phalanges of lateral four toes; plantar flexes foot at ankle joint; supports medial and lateral longitudinal arches of foot
Flexor hallucis longus	Posterior surface of shaft of fibula	Base of distal phalanx of big toe	Tibial nerve	**S2,** 3	Flexes distal phalanx of big toe; plantar flexes foot at ankle joint; supports medial longitudinal arch of foot
Tibialis posterior	Posterior surface of shafts of tibia and fibula and interosseous membrane	Tuberosity of navicular bone and other neighboring bones	Tibial nerve	L4, 5	Plantar flexes foot at ankle joint; inverts foot at subtalar and transverse tarsal joints; supports medial longitudinal arch of foot

Muscles of the Posterior Fascial Compartment of the Leg:

Deep Group:

Note the following:

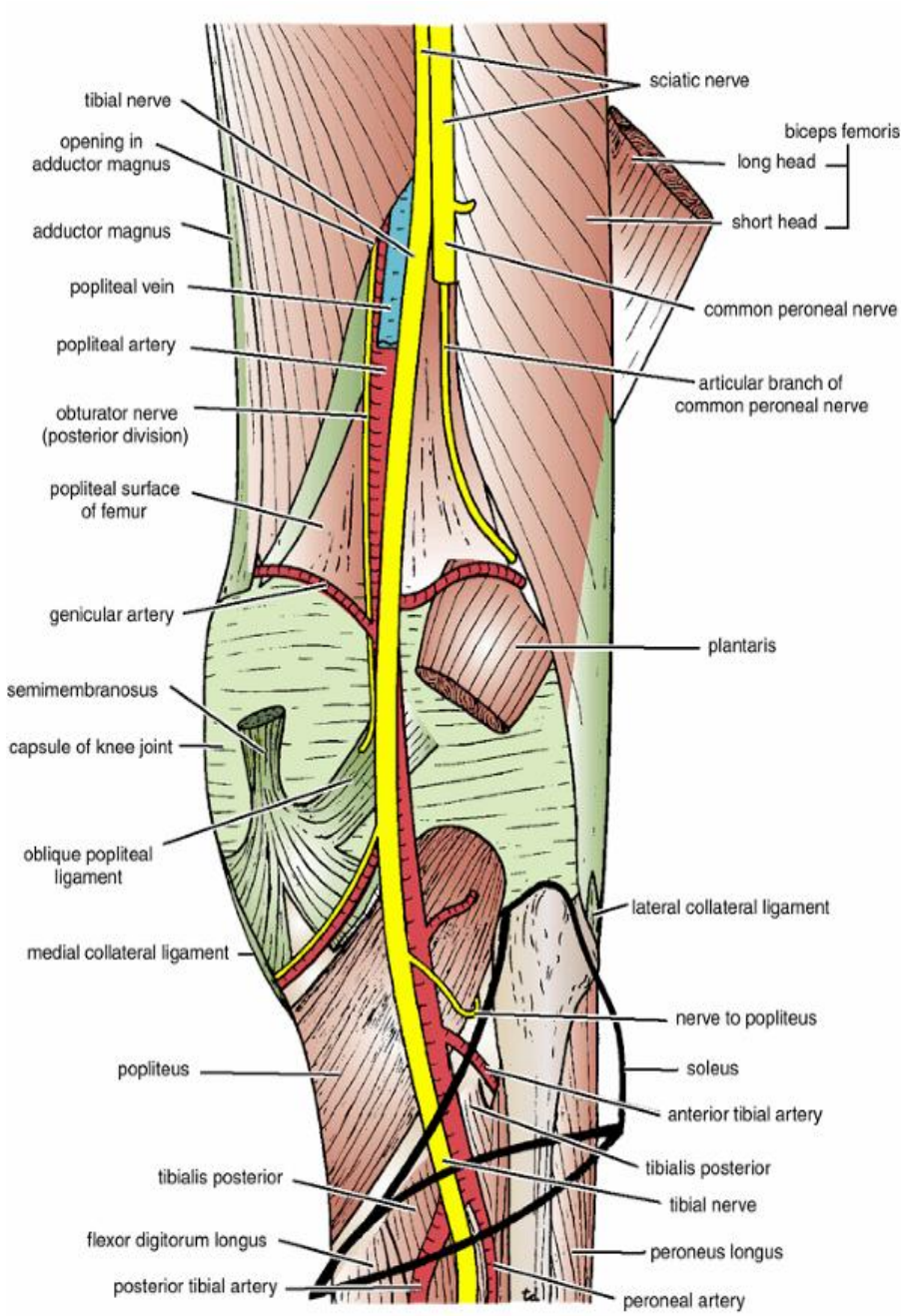
- They **act on** the knee joint, **particularly the popliteus, which originates** from the femur.
- The popliteus muscle arises inside the capsule of the knee joint and is inserted into the upper part of the posterior surface of the tibia.
- The tendon separates the lateral ligament of the knee joint from the lateral meniscus so that the meniscus is not tethered to the ligament and is free to move and adapt to the surfaces of the condyle of the femur and the tibia.
- At the end of extension, **the femur rotates medially** on the tibia (when the foot is fixed), leading to **locking of the knee joint.** This is **aided by the biceps femoris. Unlocking occurs via lateral rotation of the femur.**
- **The popliteus muscle is responsible for unlocking the knee** joint.



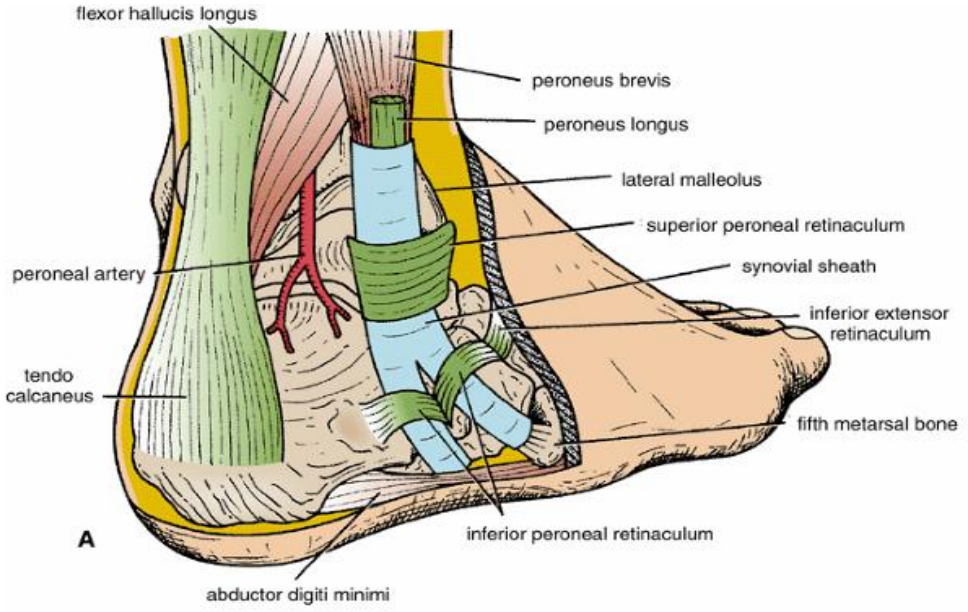
Artery of the Posterior Fascial Compartment of the Leg

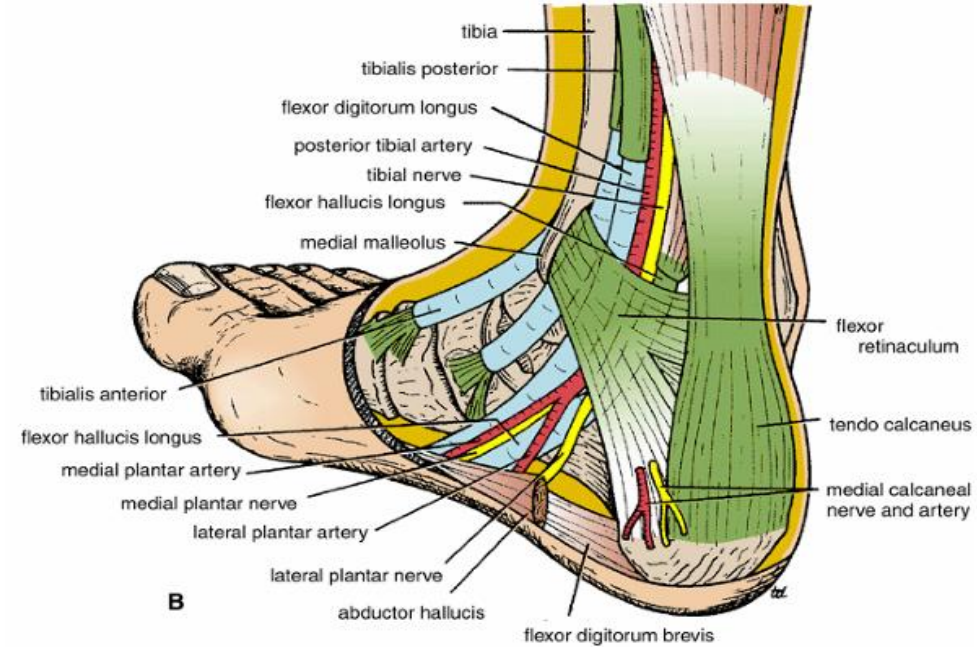
Posterior Tibial Artery:

- The posterior tibial artery is one of the terminal branches of the popliteal artery
- It begins at the level of the lower border of the popliteus muscle and passes downward deep to the gastrocnemius and soleus and the deep transverse fascia of the leg
- It lies on the posterior surface of the tibialis posterior muscle above and on the posterior surface of the tibia below.
- In the lower part of the leg the artery becomes superficial and is covered only by skin and fascia.



- The artery passes behind the medial malleolus deep to the flexor retinaculum and terminates by dividing into **medial and lateral plantar arteries**
- The **flexor retinaculum** is located on the **medial side** of the ankle, **posterior to the medial malleolus**.
- On the **lateral side**, there are **superior and inferior peroneal retinacula**.
- The **superior peroneal retinaculum** encloses a **single synovial sheath** that surrounds the **tendons of peroneus longus and peroneus brevis**.
- Under the **inferior peroneal retinaculum**, the tendons are **separated**, and **each is enclosed in its own synovial sheath**.



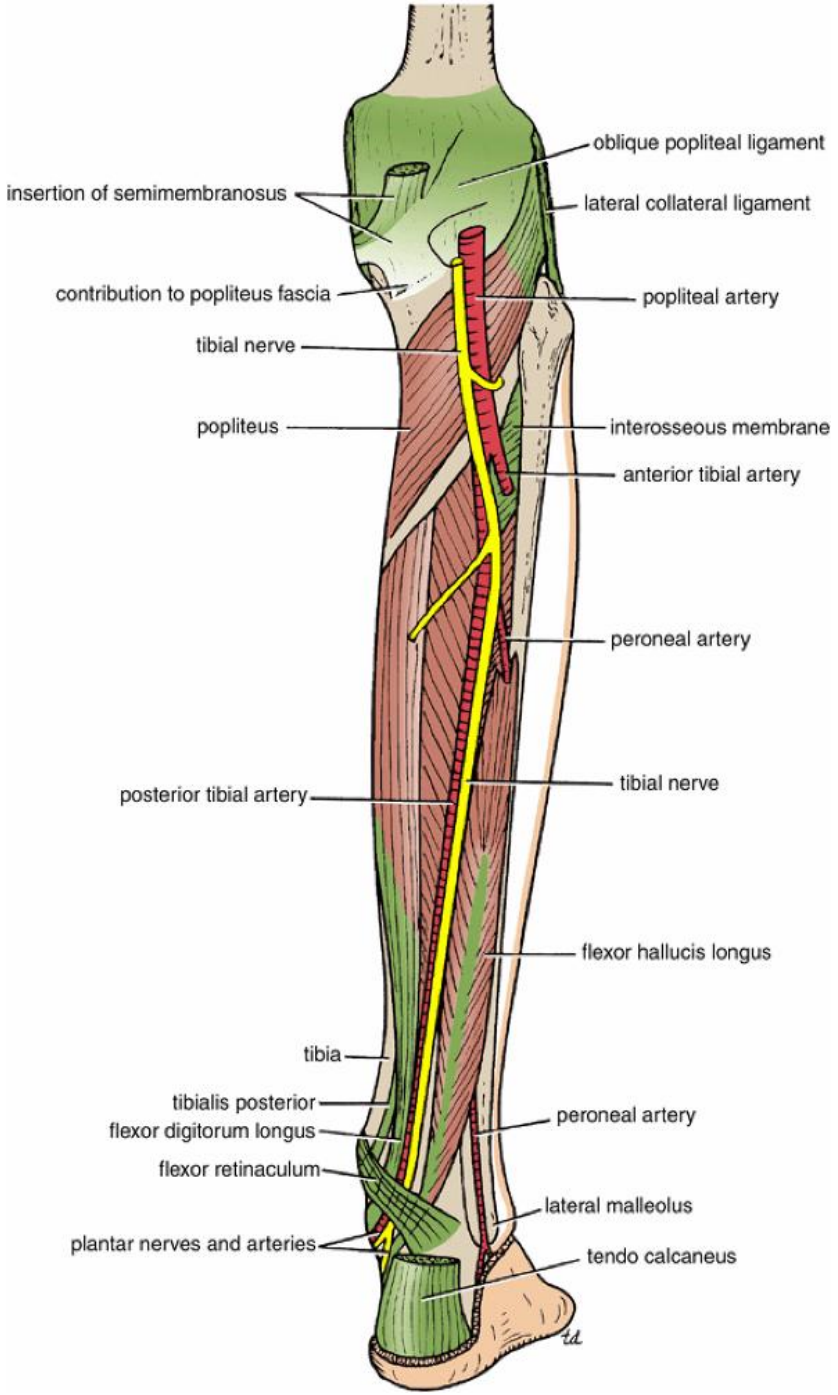


Branches of posterior tibial artery:

- Peroneal artery, which is a large artery that arises close to the origin of the posterior tibial artery
- It descends behind the fibula, either within the substance of the flexor hallucis longus muscle or posterior to it.
- The peroneal artery gives off numerous **muscular branches** **and a nutrient artery** to the fibula and ends by taking part in the anastomosis around the ankle joint.

- **A perforating branch** pierces the interosseous membrane to reach the lower part of the front of the leg.
- **Muscular branches** are distributed to muscles in the posterior compartment of the leg.
- **Nutrient artery** to the tibia

- **Anastomotic branches,** which join other arteries around the ankle joint
- **Medial and lateral plantar arteries**

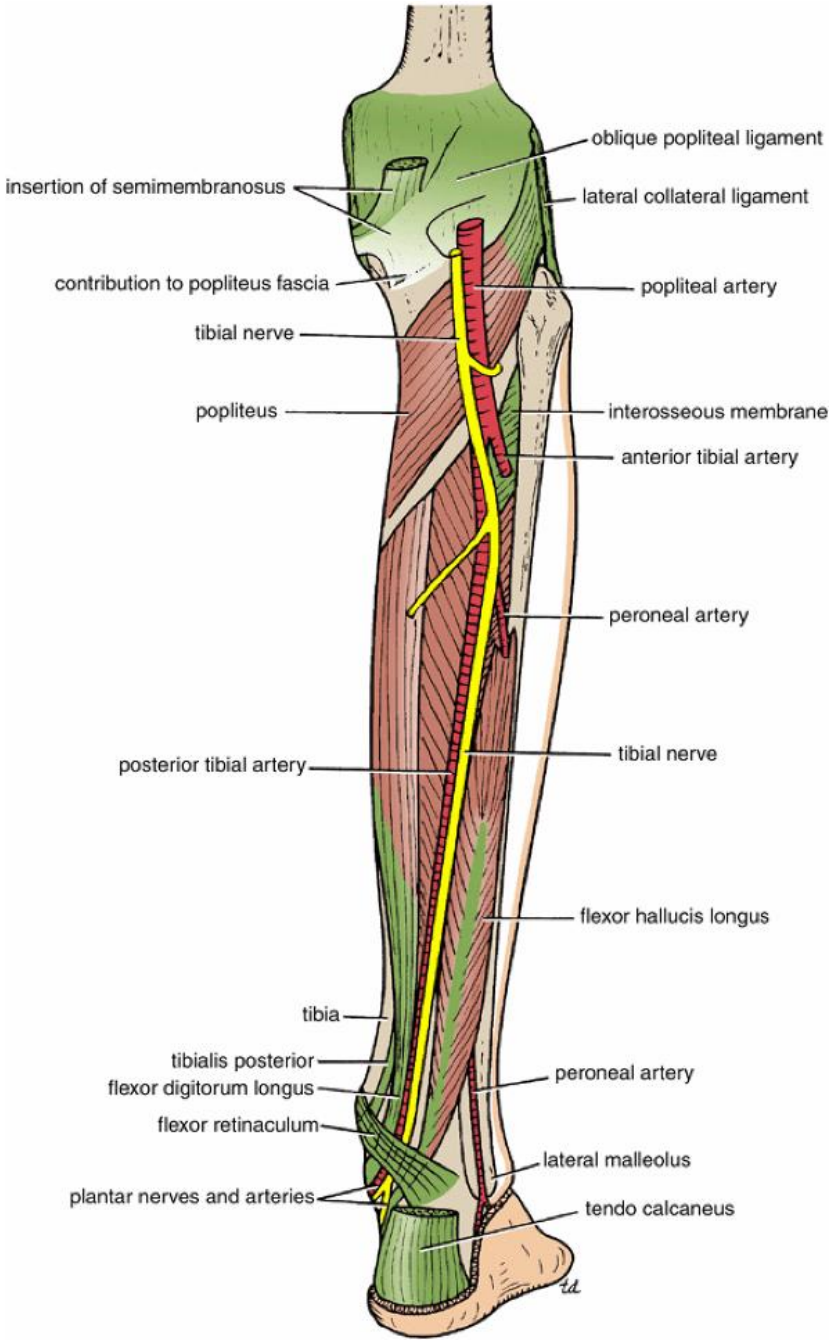


- **Venae comitantes** of the posterior tibial artery join those of the anterior tibial artery in the popliteal fossa to form the popliteal vein.

- **Nerve of the Posterior Fascial Compartment of the Leg**

Tibial Nerve:

- The tibial nerve is the larger terminal branch of the sciatic nerve
- in the lower third of the back of the thigh.
- It descends through the popliteal fossa and passes deep to the gastrocnemius and soleus muscles
- It lies on the posterior surface of the tibialis posterior and, lower down the leg, on the posterior surface of the tibia
- It gives the sural nerve.



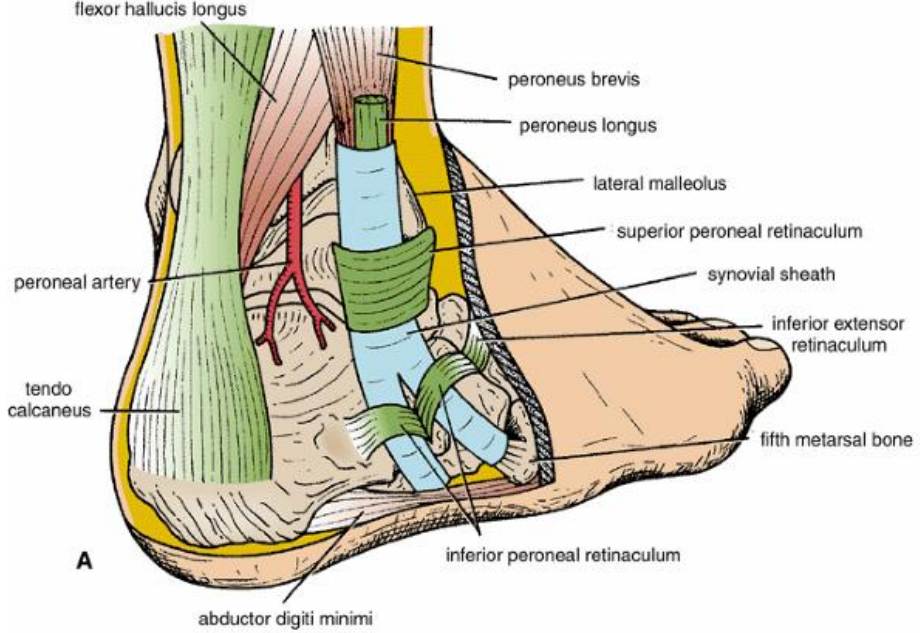
Tibial nerve.....cont

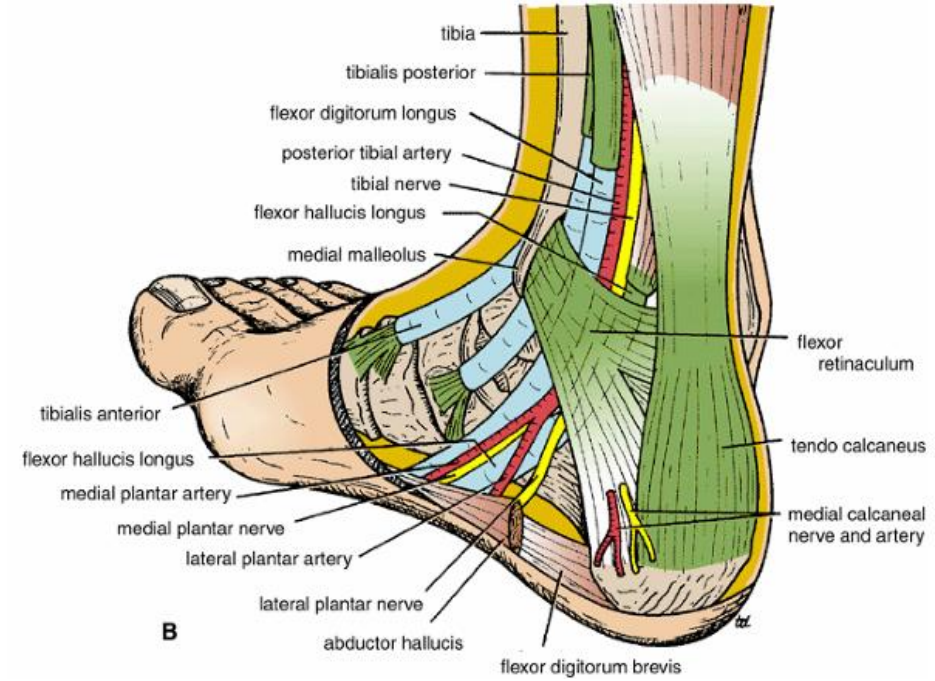
- The nerve accompanies the posterior tibial artery and lies **at first on its medial side, then crosses posterior to it, and finally lies on its lateral side.**

Tibial nerve.....cont

- The nerve, with the artery, passes **behind** the medial malleolus, between the tendons of the flexor digitorum longus and the flexor hallucis longus

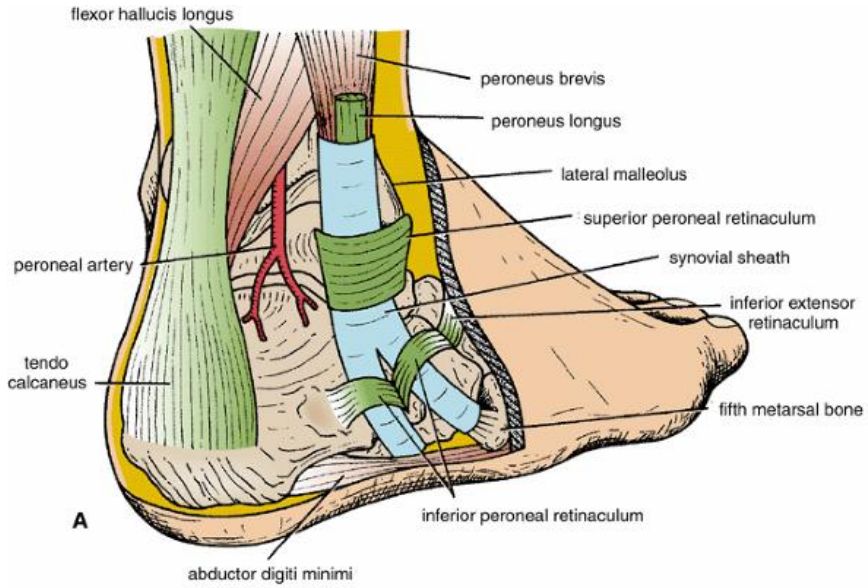
- It is covered here by **the flexor retinaculum** and divides into the **medial and lateral plantar nerves** which supply the muscles and skin of the foot.

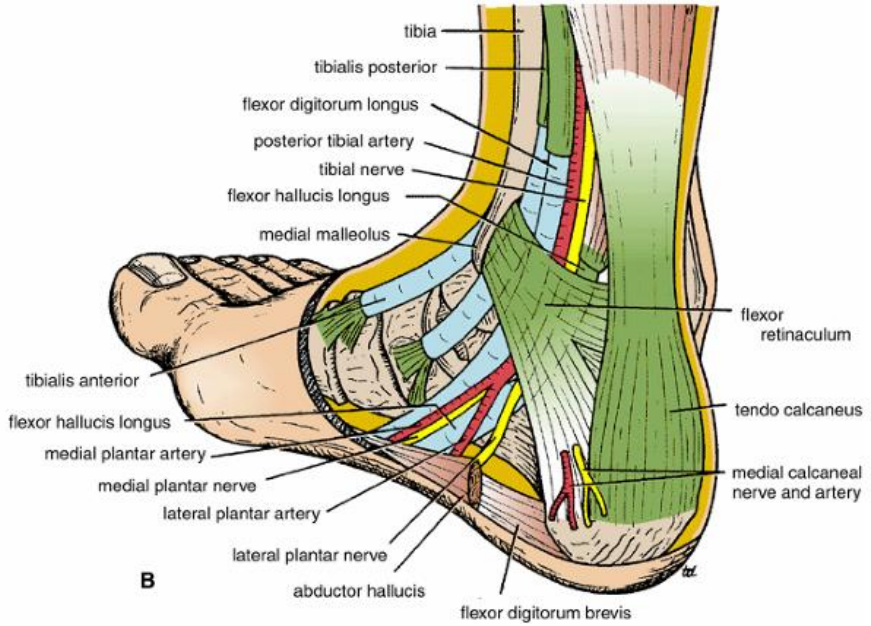




Branches in the Leg (Below the Popliteal Fossa)

- **Muscular branches** to the soleus, flexor digitorum longus, flexor hallucis longus, and tibialis posterior
- **Cutaneous:** The medial calcaneal branch supplies the skin over the medial surface of the heel
- **Articular branch** to the ankle joint





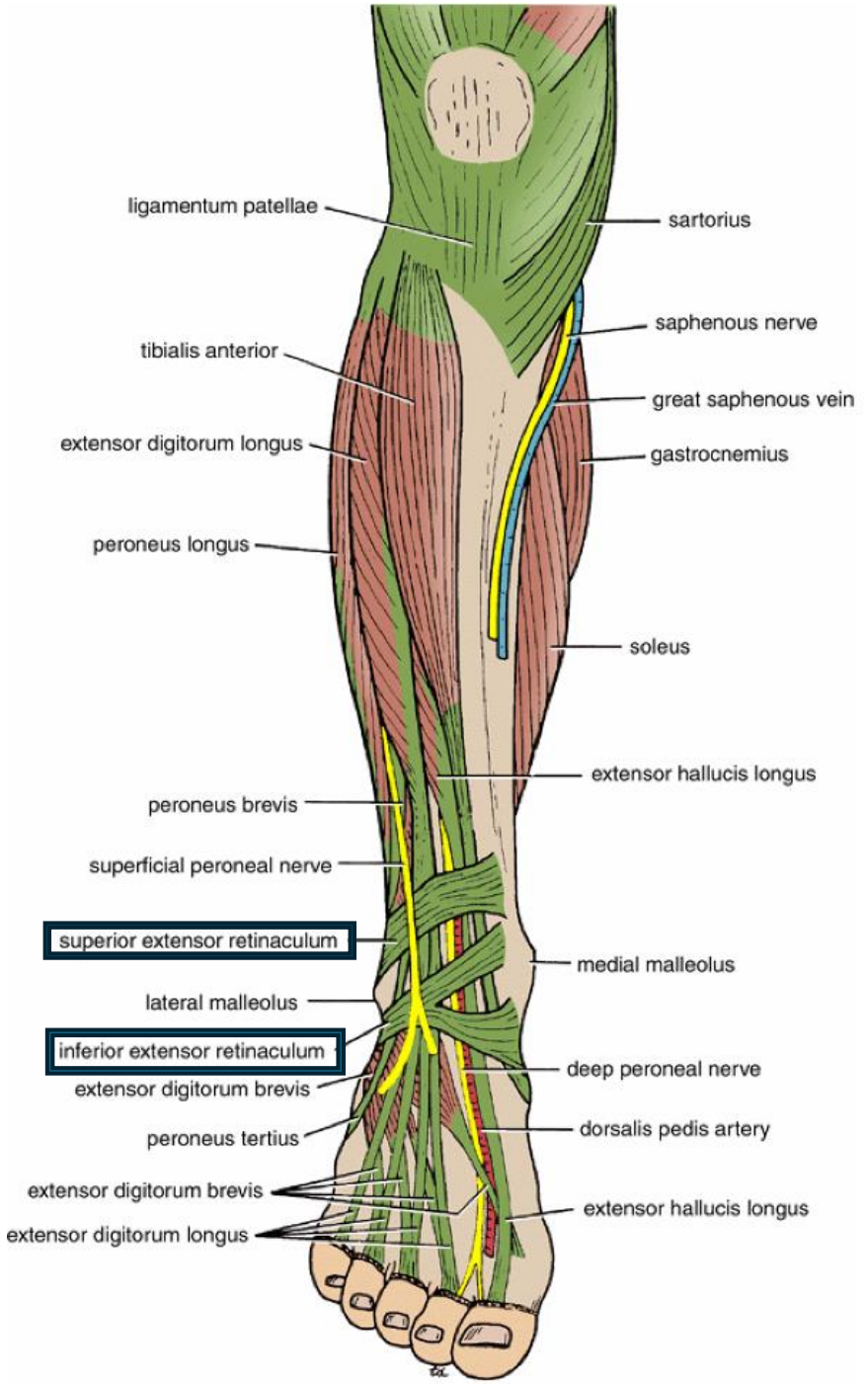
Retinacula of the Ankle

The doctor said that we've already discussed the retinacula.

- The retinacula are thickenings of the deep fascia that keep the long tendons around the ankle joint in position and act as pulleys.

In the anterior Compartment:

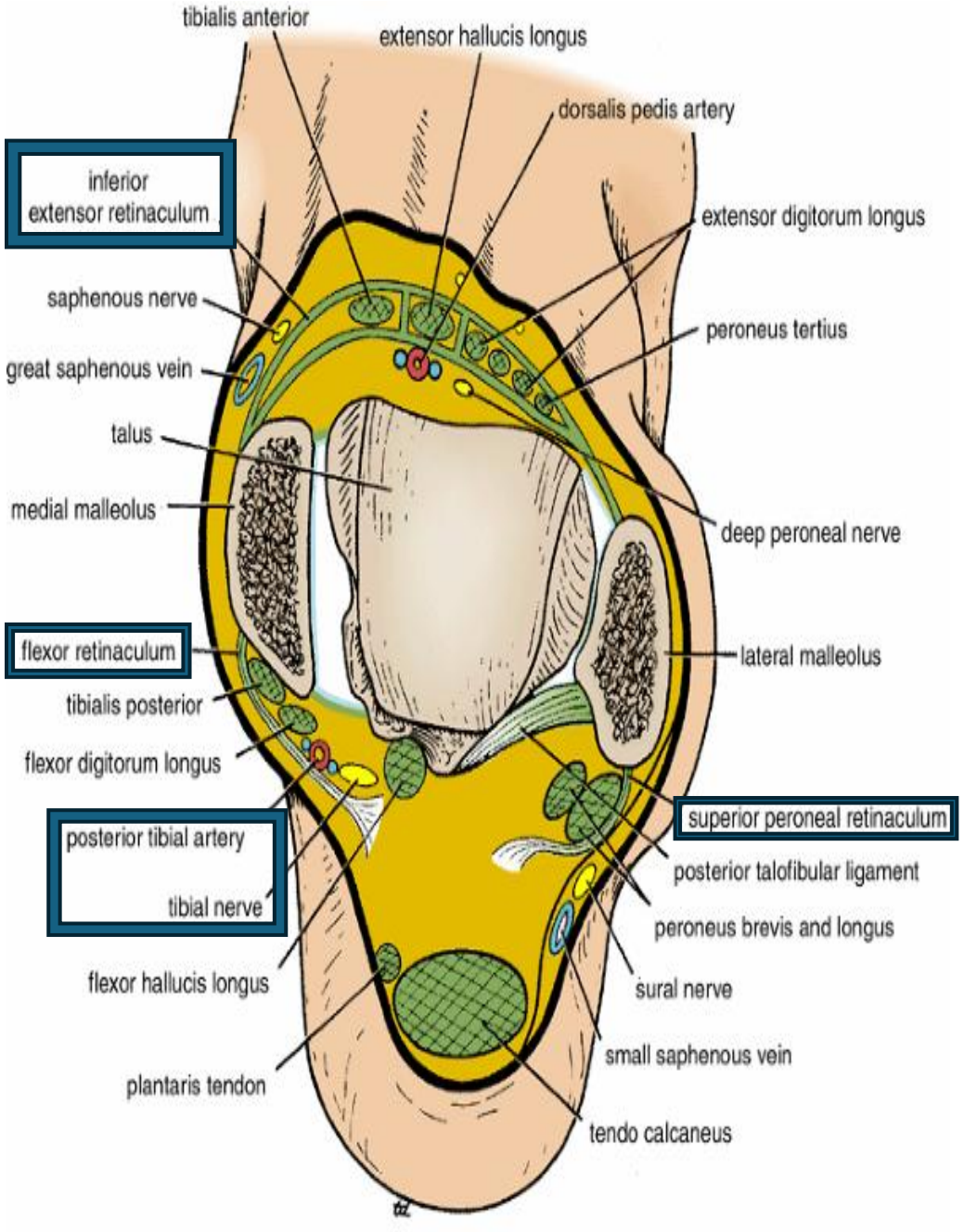
1. **Superior Extensor Retinaculum**
   - The superior extensor retinaculum is attached to the distal ends of the anterior borders of the fibula and tibia
2. **Inferior Extensor Retinaculum**
   - The inferior extensor retinaculum is a Y-shaped band located in front of the ankle joint
   - Fibrous bands separate the tendons into compartments
   - each of which is lined by a synovial sheath



In the posterior compartment:

Flexor Retinaculum:

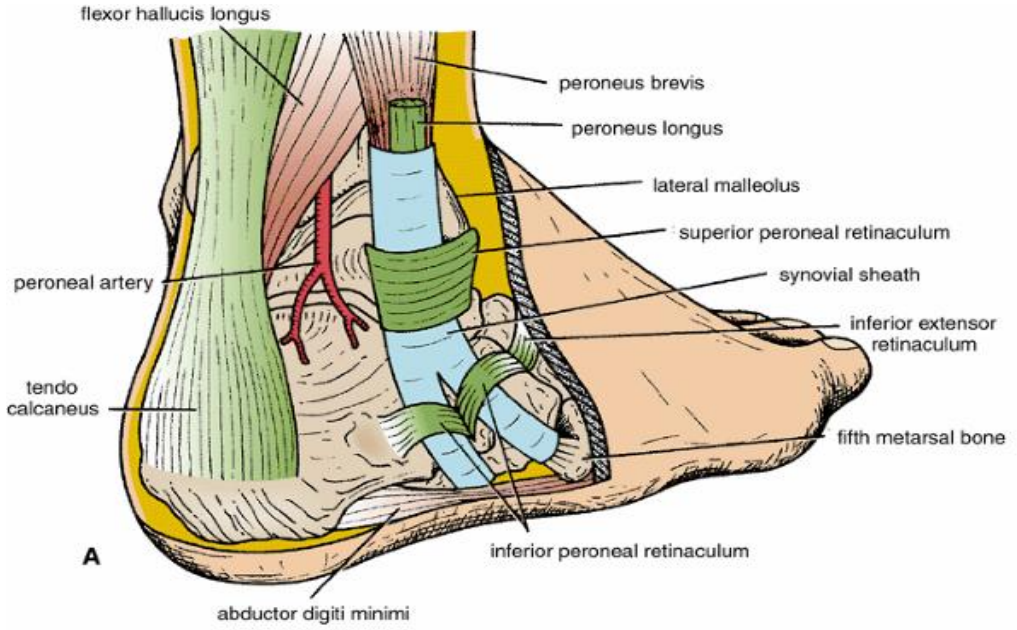
- The flexor retinaculum extends from the medial malleolus downward and backward to be attached to the medial surface of the calcaneum
- It binds the tendons of the deep muscles of the back of the leg to the back of the medial malleolus as they pass forward to enter the sole.
- The tendons lie in compartments
- each of which is lined by a synovial sheath.

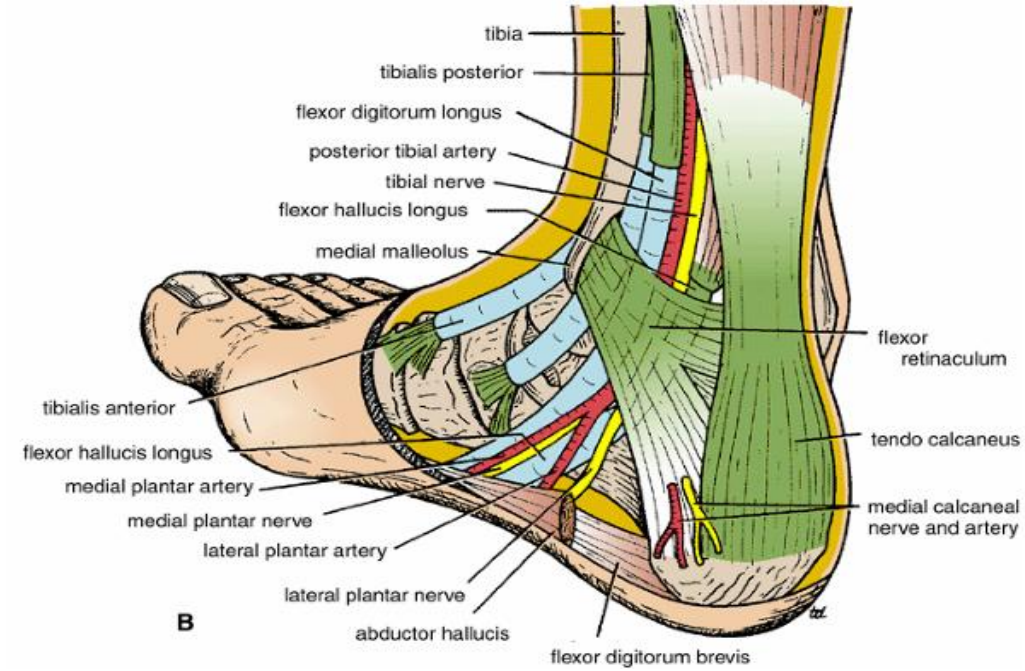


Superior Peroneal Retinaculum

- The superior peroneal retinaculum connects the lateral malleolus to the lateral surface of the calcaneum

- It binds the tendons of the peroneus longus and brevis to the back of the lateral malleolus. The tendons are provided with a common synovial sheath.

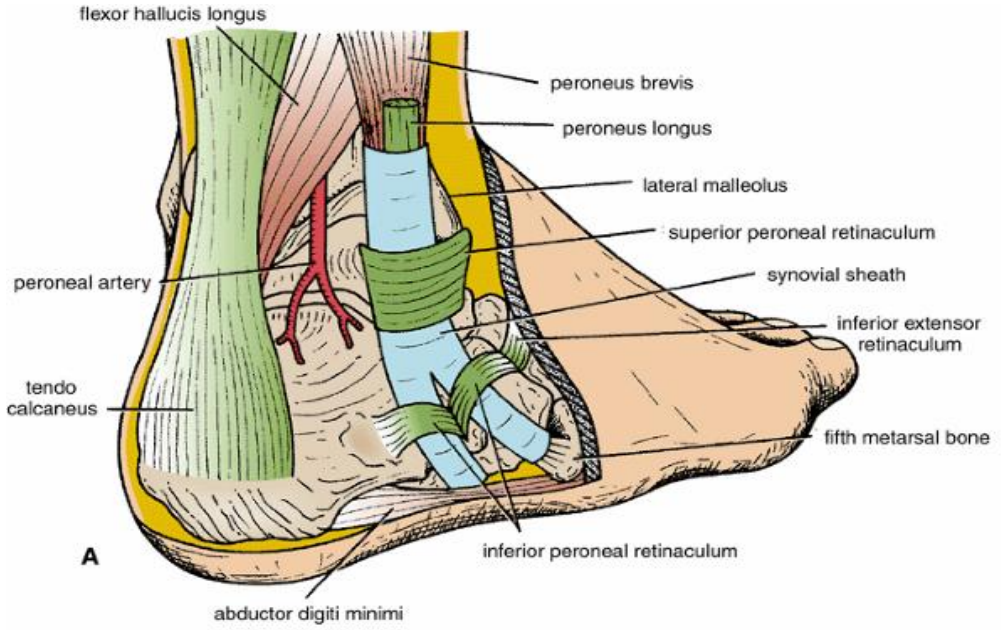


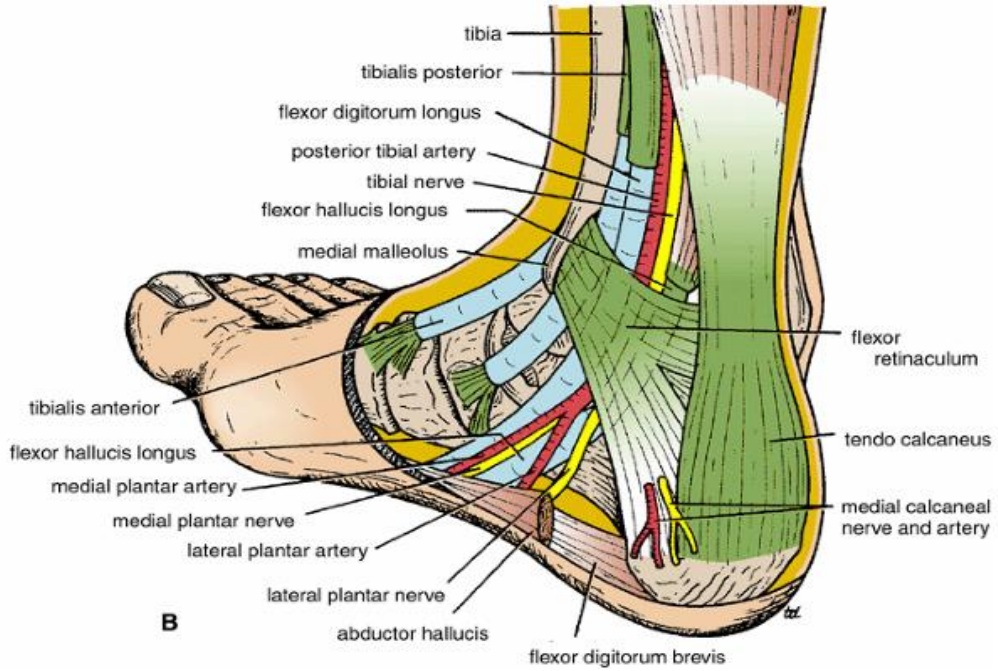


Inferior Peroneal Retinaculum:

- The inferior peroneal retinaculum binds the tendons of the peroneus longus and brevis muscles to the lateral side of the calcaneum

- The tendons each possess a synovial sheath, which is continuous above with the common sheath.



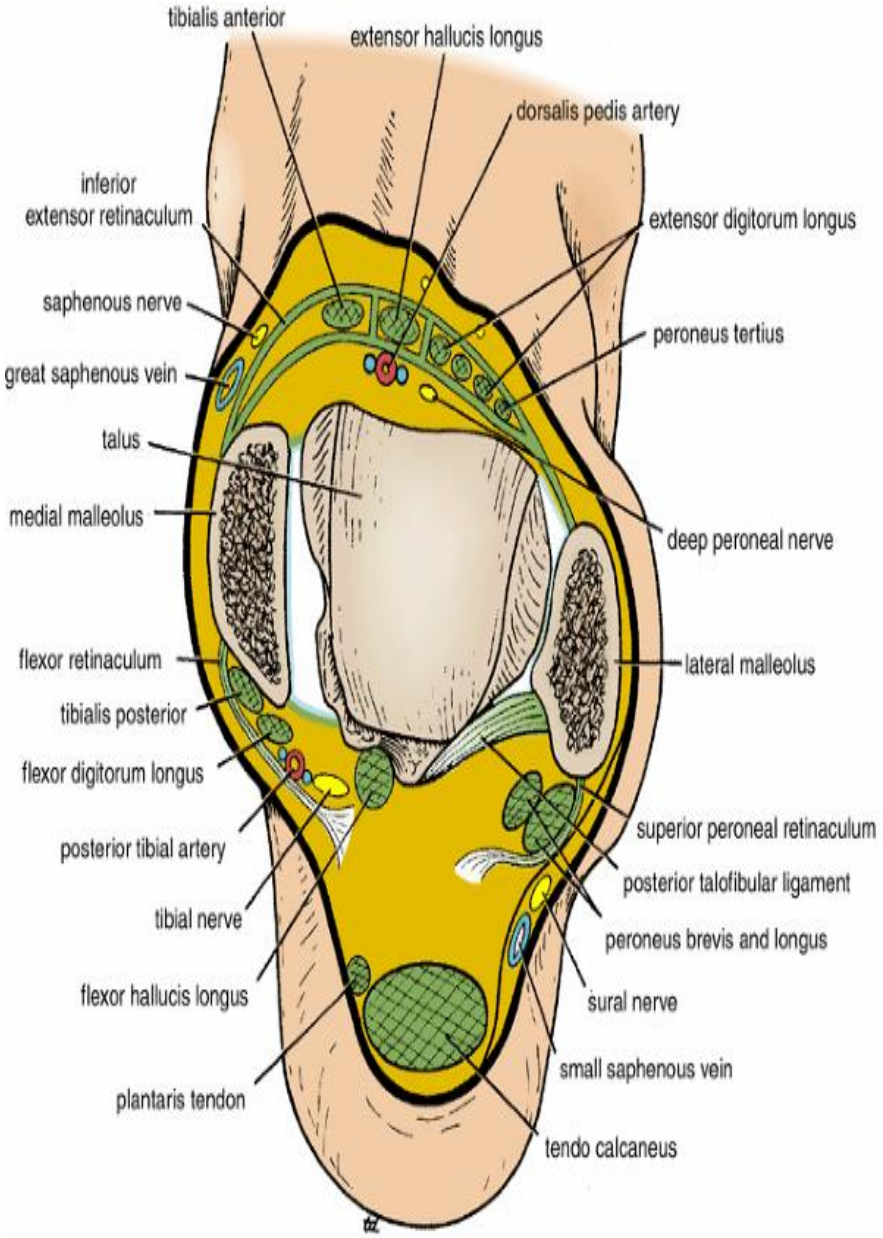


Anterior Aspect of the Ankle:

The doctor said that the upcoming slides have been explained before

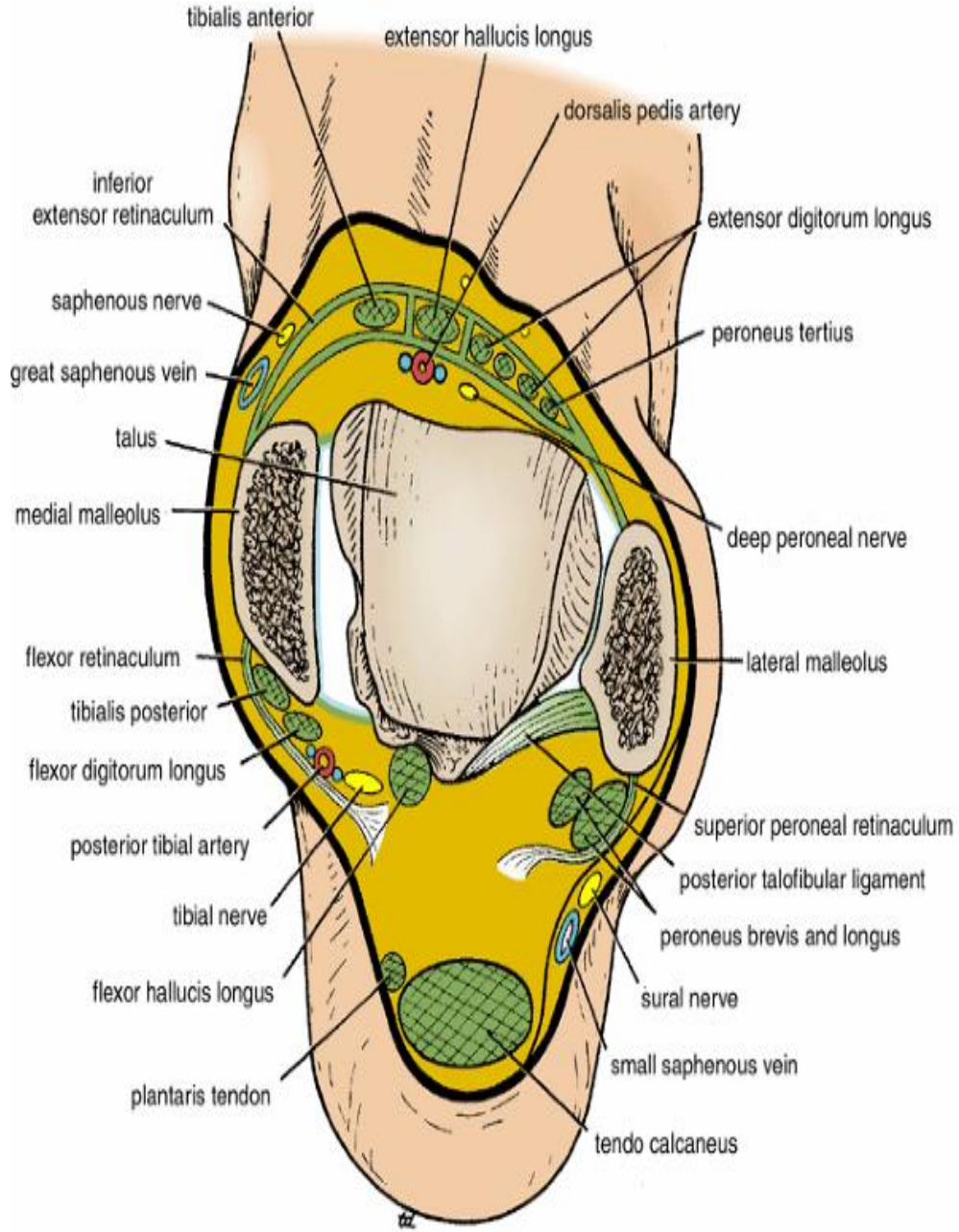
- Structures That Pass Anterior to the Extensor Retinacula From Medial to Lateral
- Saphenous nerve and great saphenous vein (in front of the medial malleolus)
- Superficial peroneal nerve (medial and lateral branches)
- **Structures That Pass Beneath or Through the Extensor Retinacula From Medial to Lateral :**
  - Tibialis anterior tendon
  - Extensor hallucis longus tendon
  - Anterior tibial artery with venae comitantes
  - Deep peroneal nerve
  - Extensor digitorum longus tendons
  - Peroneus tertius
  - As each of the above tendons passes beneath or through the extensor retinacula, it is surrounded by a synovial sheath.
  - The tendons of extensor digitorum longus and the peroneus tertius share a common synovial sheath.

- (tom has very nice dogs & pigs)



Structures That Pass in Front of the Medial Malleolus

- Great saphenous vein
- Saphenous nerve

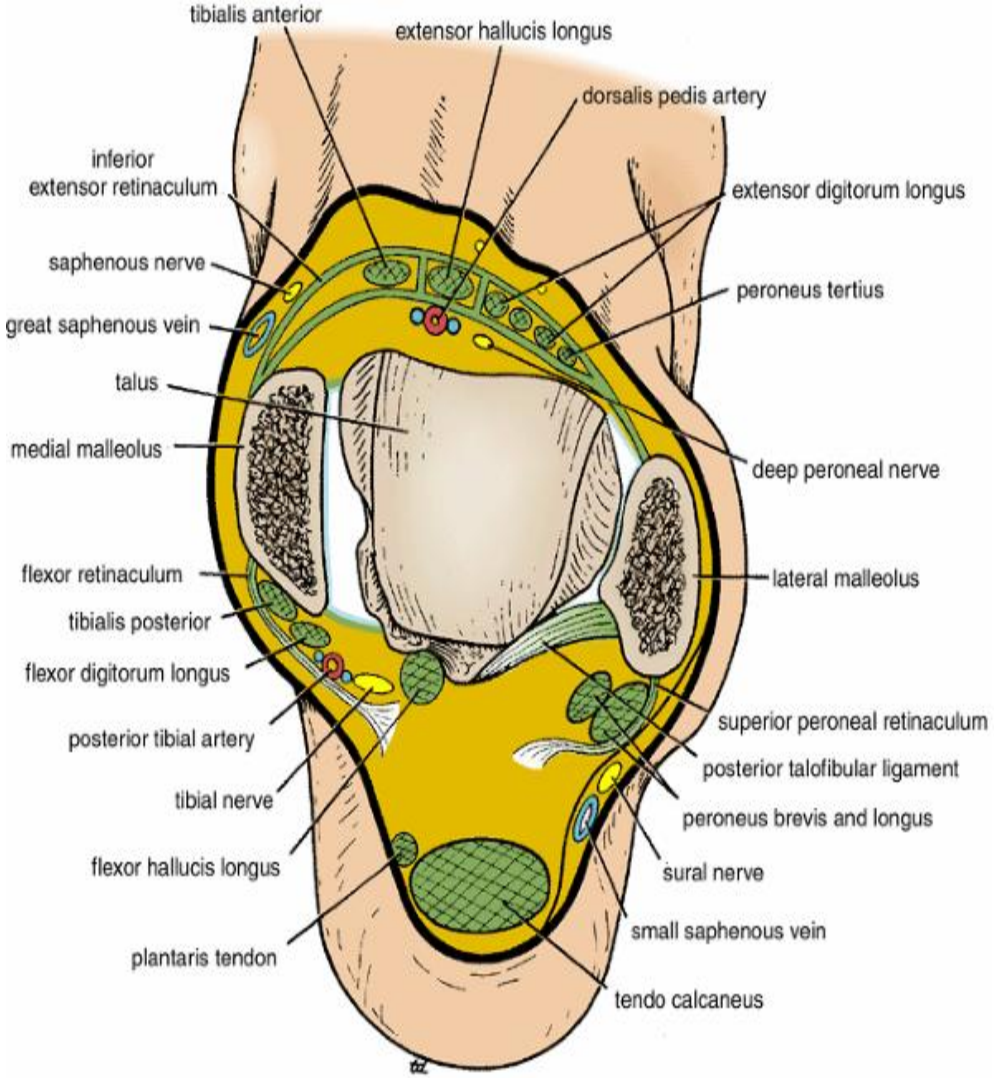


Posterior Aspect of the Ankle:

- **Structures That Pass Behind the Medial Malleolus Beneath the Flexor Retinaculum From Medial to Lateral**
  - Tibialis posterior tendon
  - Flexor digitorum longus
  - Posterior tibial artery with venae comitantes
  - Tibial nerve
  - Flexor hallucis longus

  As each of these tendons passes beneath the flexor retinaculum, it is surrounded by a synovial sheath.

  - **(tom does very nice hats)**



- **Structures That Pass Behind the Lateral Malleolus Superficial to the Superior Peroneal Retinaculum**

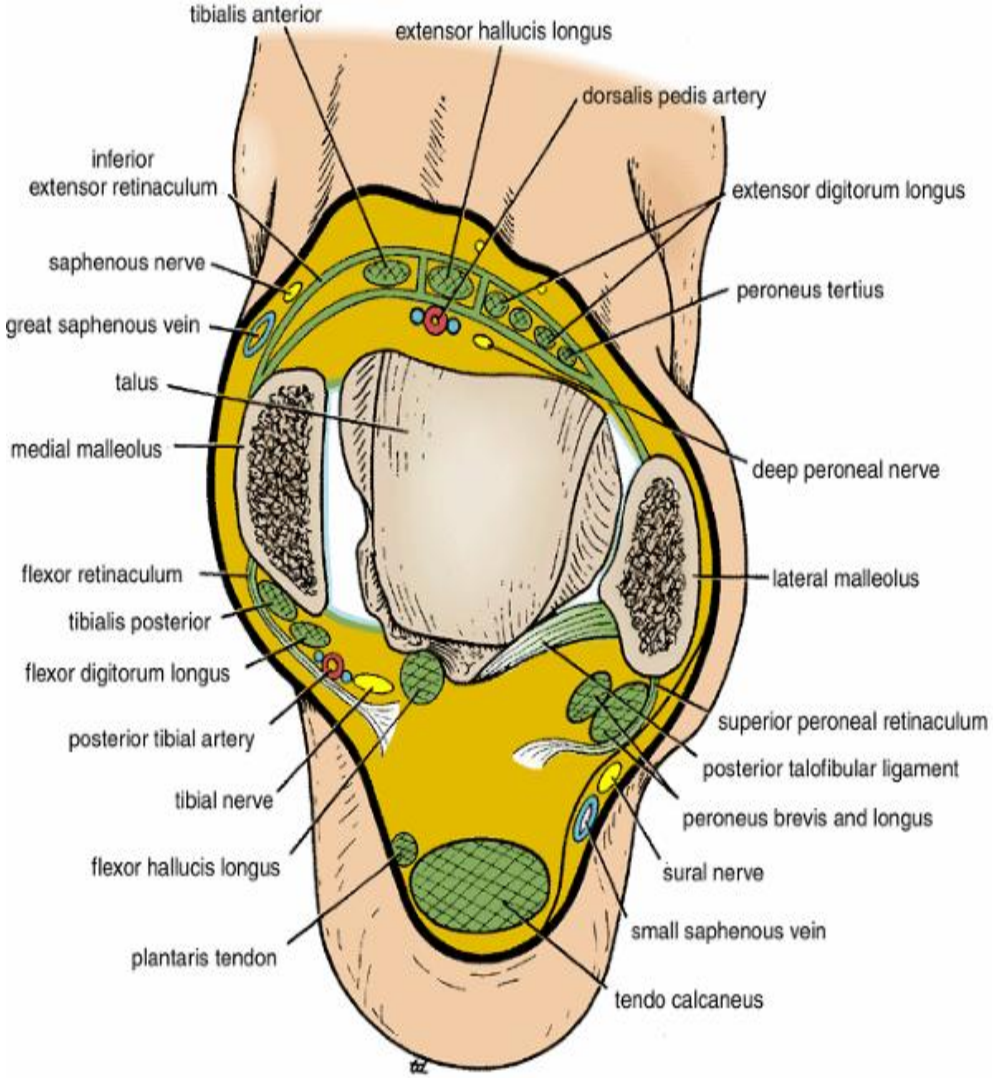
- The sural nerve
- Small saphenous vein

- **Structures That Pass Behind the Lateral Malleolus Beneath the Superior Peroneal Retinaculum**

- The peroneus longus and brevis tendons share a common synovial sheath.
- Lower down, beneath the inferior peroneal retinaculum, they have separate sheaths.

- **Structures That Lie Directly Behind the Ankle**

- The fat and the large tendon calcaneus lie behind the ankle



For any feedback, scan the code or click on it.

Corrections from previous versions:

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1			
V1 → V2			

رسالة من الفريق العلمي:

اسوء موديفايد بعمله.
التعازي تقبل عبر الواتساب