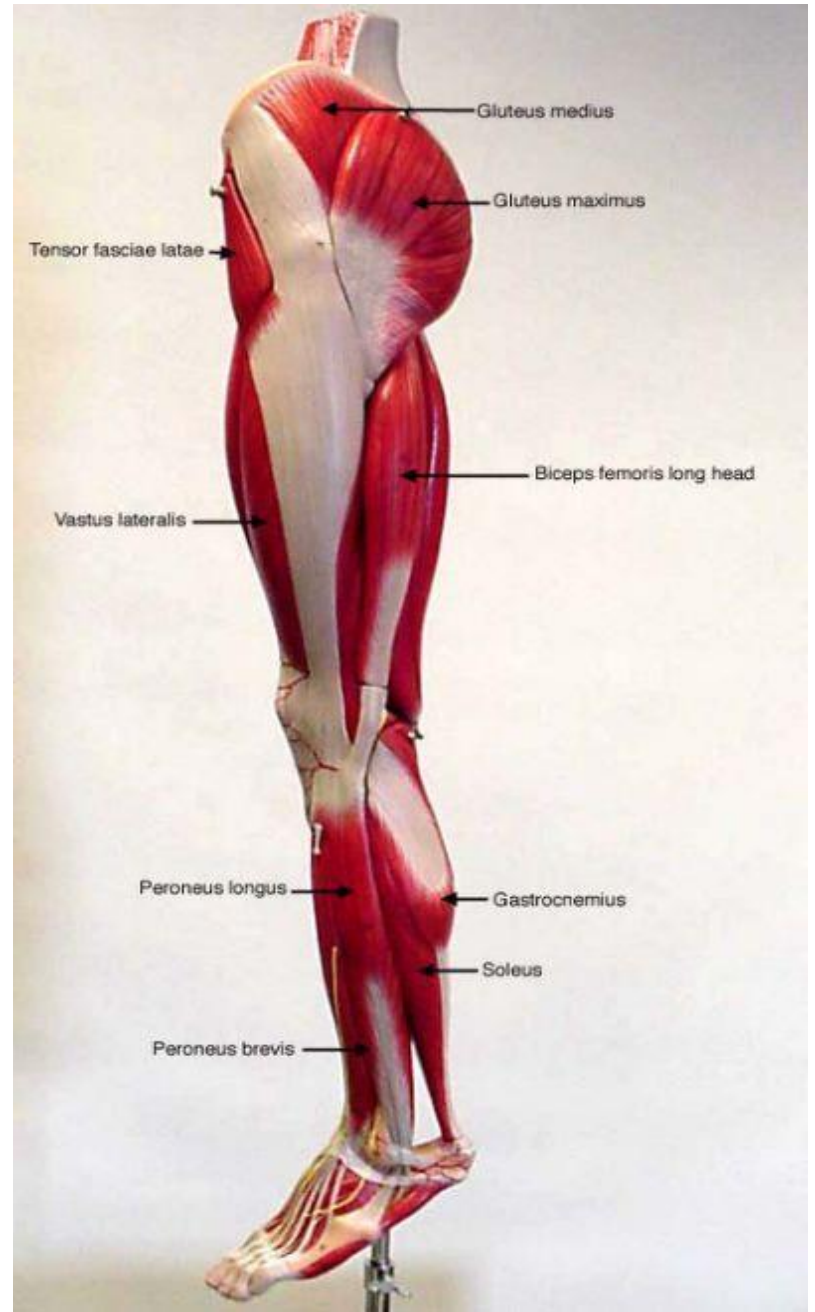
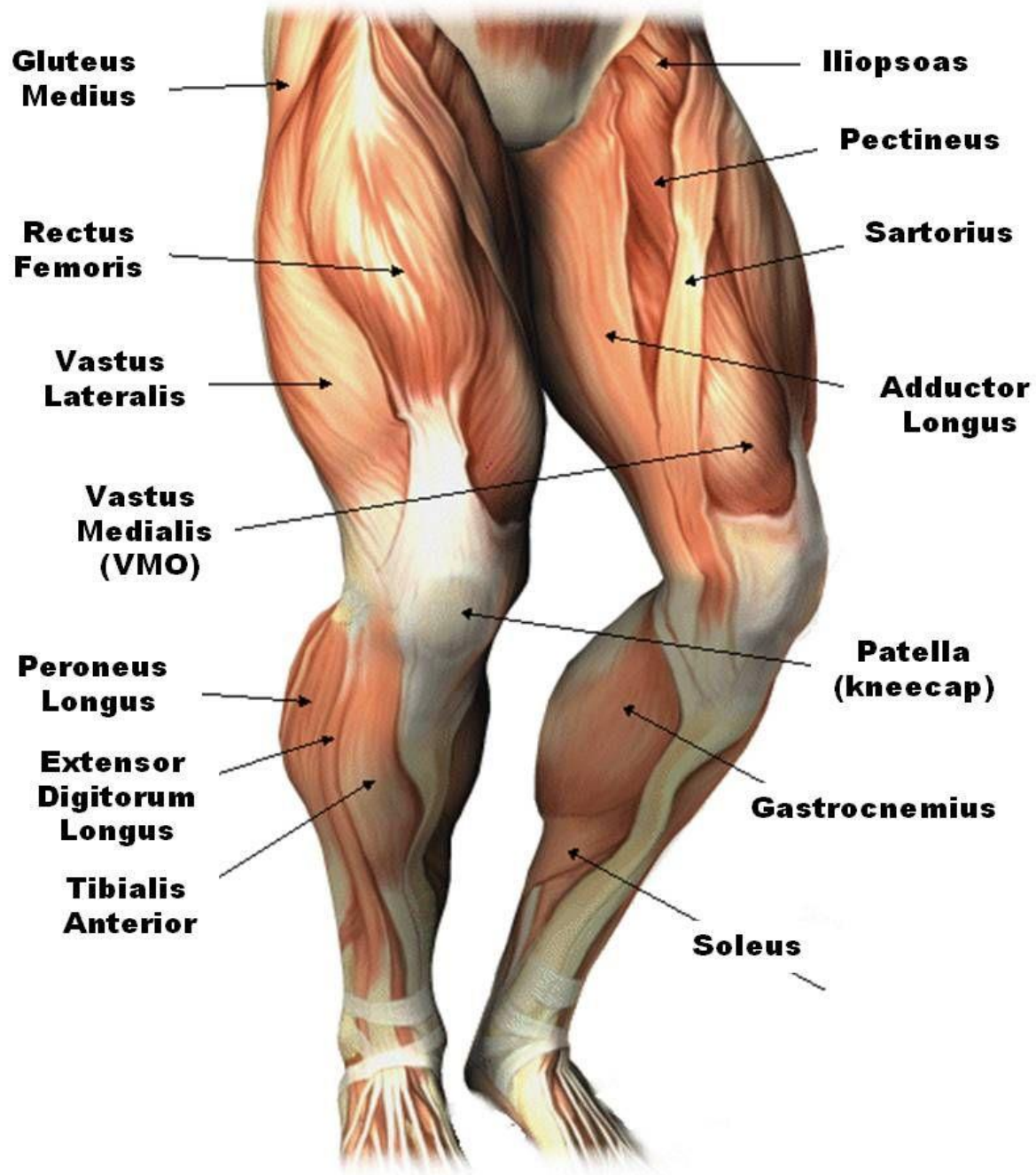


# *Muscles of Lower Leg*

## *Anterior, Lateral, Posterior Compartments*

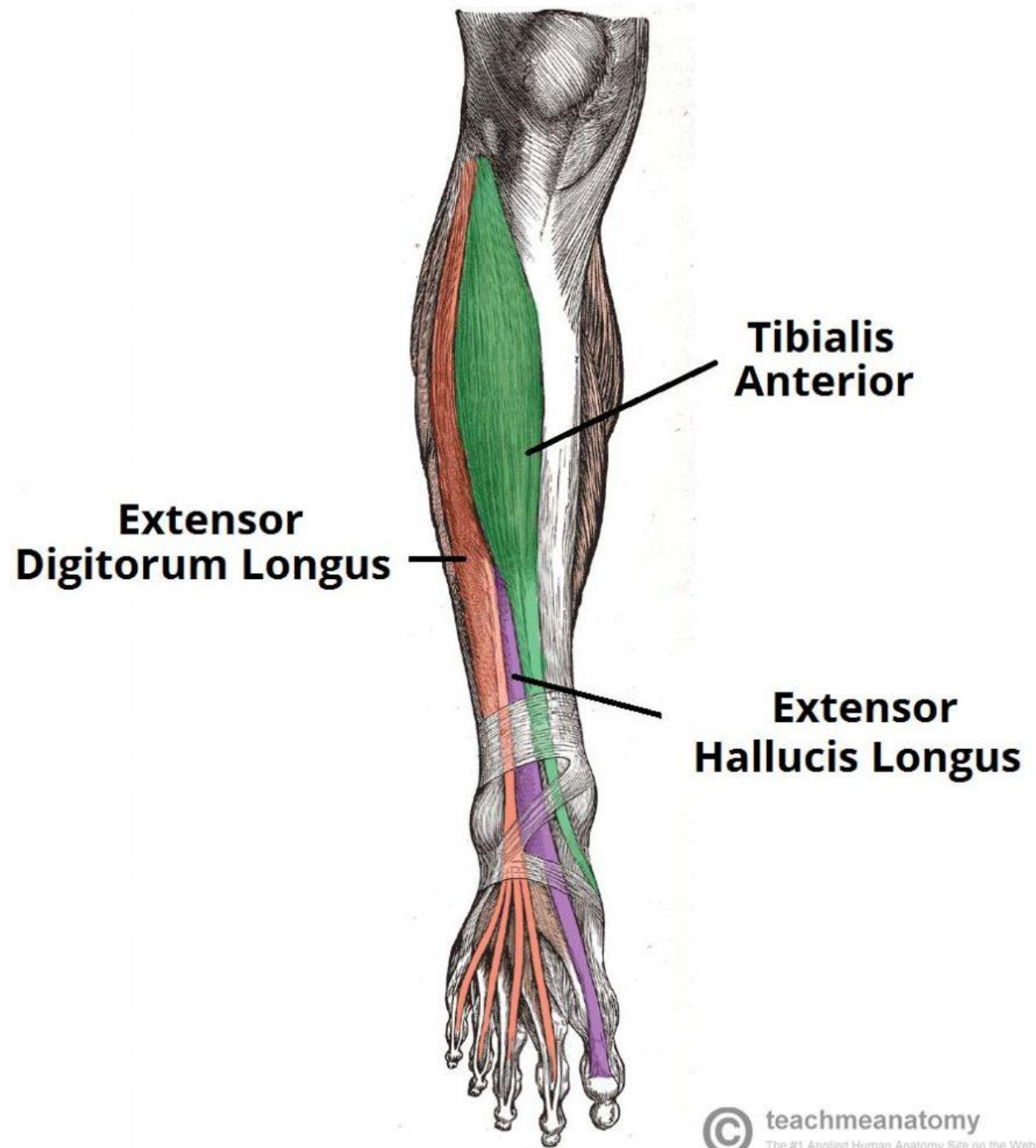
Dr. Attaullah DPT, MSPT\*






Khyber Medical University



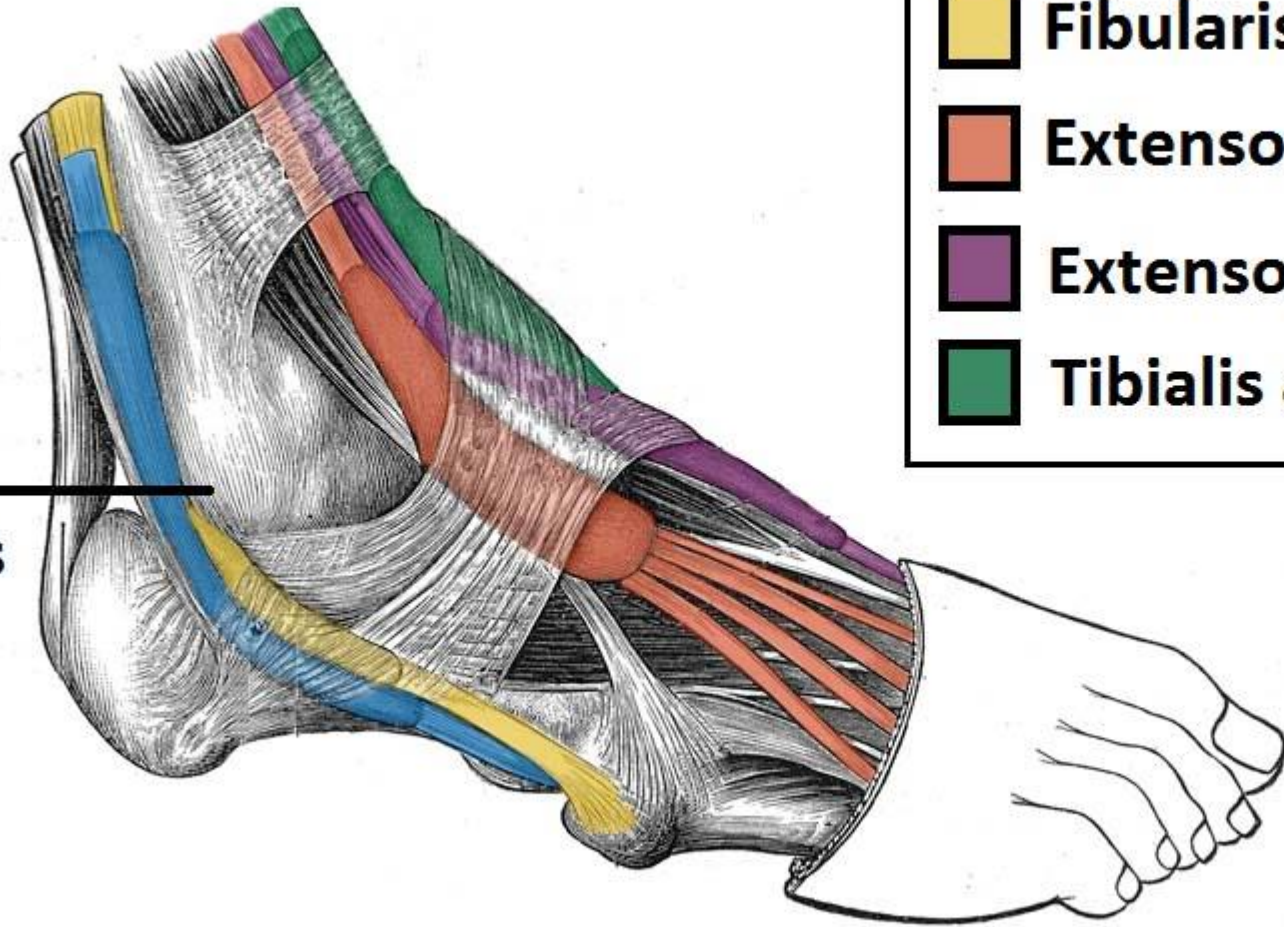
# MUSCLES IN THE ANTERIOR COMPARTMENT OF THE LEG

- There are four muscles in the anterior compartment of the leg; tibialis anterior, extensor digitorum longus, extensor hallucis longus and fibularis tertius.
- Collectively, they act to **dorsiflex** and **invert** the foot at the ankle joint.
- The extensor digitorum longus and extensor hallucis longus also extend the toes.
- The muscles in this compartment are innervated by the **deep fibular nerve** (L4-L5), and blood is supplied via the **anterior tibial artery**



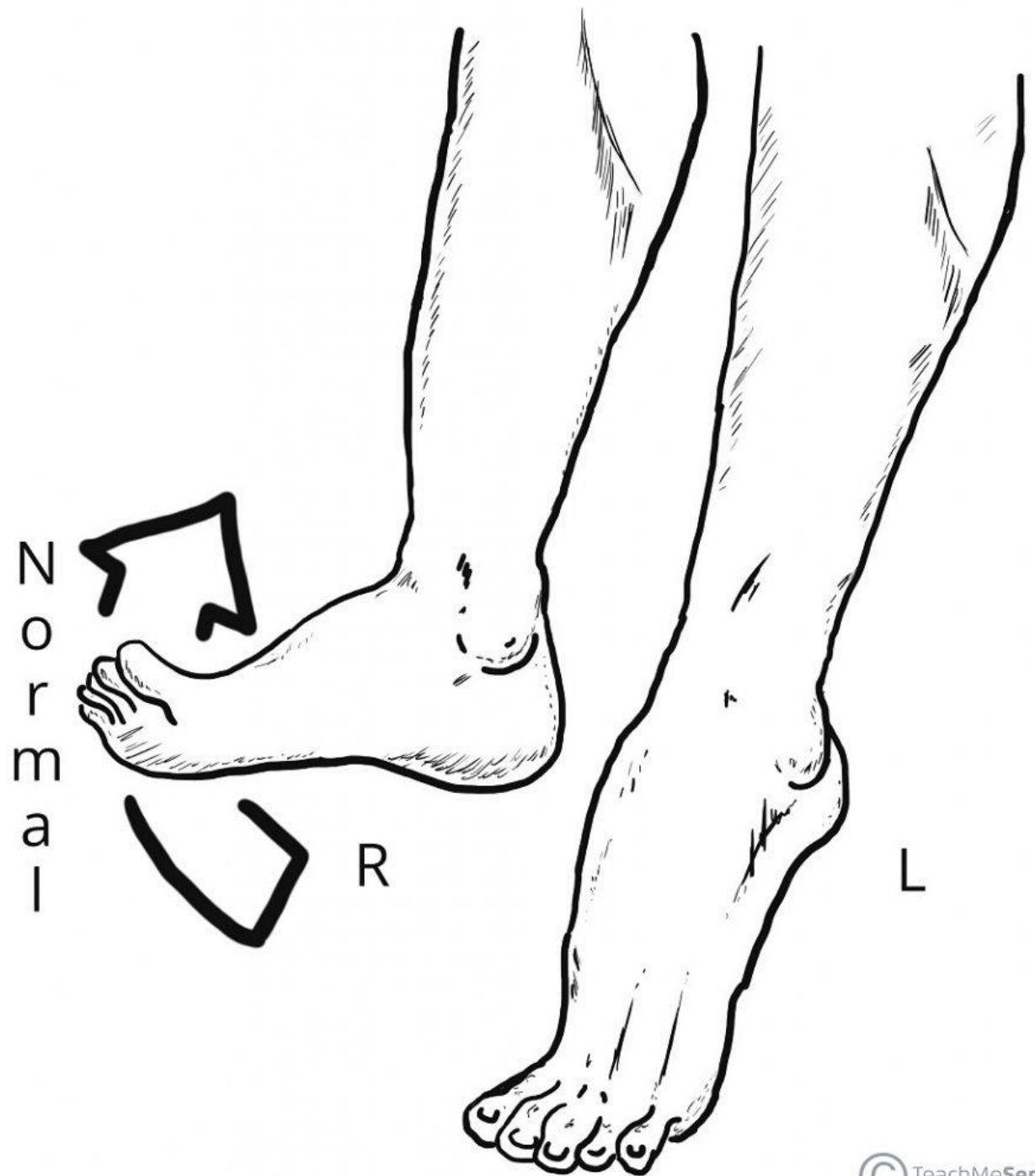
-  **Fibularis longus**
-  **Fibularis brevis**
-  **Extensor digitorum longus**
-  **Extensor hallucis longus**
-  **Tibialis anterior**

**Lateral malleolus**



# Clinical Relevance: Foot drop

- **Foot drop** is a clinical sign indicating paralysis of the muscles in the anterior compartment of the leg. It is most commonly seen when the **common fibular nerve** (from which the deep fibular nerve arises) is damaged.
- In foot drop, the muscles in the anterior compartment are paralyzed. The unopposed pull of the plantar flexor produces permanent **plantarflexion**.
- This can interfere with walking – as the affected limb can drag along the ground.



Normal

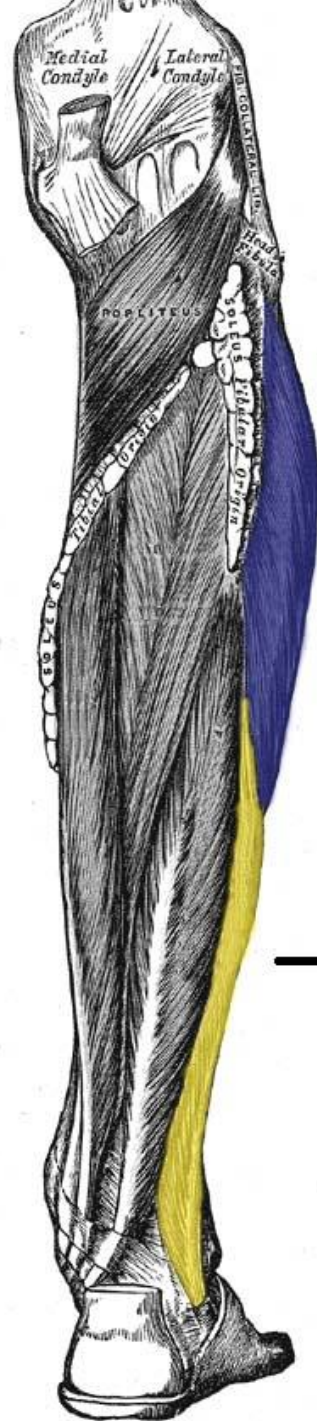
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# MUSCLES IN THE LATERAL COMPARTMENT OF THE LEG

- There are two muscles in the lateral compartment of the leg; the **fibularis longus** and **brevis** (also known as peroneal longus and brevis).
- The common function of the muscles is **eversion** – turning the sole of the foot outwards. They are both innervated by the superficial fibular nerve.
- *Note: From the anatomical position, only a few degrees of eversion are possible. In reality, the job of these muscles is to 'fix' the medial margin of the foot during running, and prevent excessive inversion.*





— **Fibularis  
longus**

— **Fibularis  
brevis**



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# MUSCLES IN THE POSTERIOR COMPARTMENT OF THE LEG

- The posterior compartment of the leg contains seven muscles, organized into two layers – **superficial** and **deep**.
- The two layers are separated by a band of fascia.
- The posterior leg is the largest of the three compartments. Collectively, the muscles in this area **plantarflex** and **invert** the foot.
- They are innervated by the **tibial nerve**, a terminal branch of the sciatic nerve.

# Superficial Muscles

- The superficial muscles form the characteristic ‘calf’ shape of the posterior leg.
- They all insert into the calcaneus of the foot (the heel bone), via the **calcaneal tendon**.
- The calcaneal reflex tests spinal roots S1-S2.
- To minimize friction during movement, there are two bursae (fluid filled sacs) associated with the calcaneal tendon:
- **Subcutaneous calcaneal bursa** – lies between the skin and the calcaneal tendon.
- **Deep bursa of the calcaneal tendon** – lies between the tendon and the calcaneus.

# Gastrocnemius

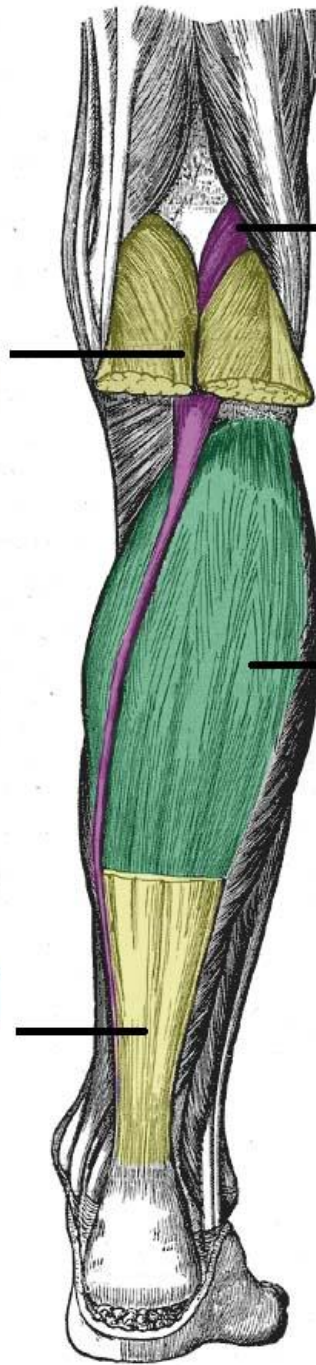
- The gastrocnemius is the most superficial of all the muscles in the posterior leg. It has two heads – medial and lateral, which converge to form a single muscle belly.
- **Actions:** It plantarflexes at the ankle joint, and because it crosses the knee, it is a flexor there.
- **Innervation:** Tibial nerve

**Heads of the  
gastrocnemius**

**Plantaris**

**Soleus**

**Calcaneal  
tendon**



# Plantaris

- The plantaris is a small muscle with a long tendon, which can be mistaken for a nerve as it descends down the leg. **It is absent in 10% of people.**
- **Actions:** It plantarflexes at the ankle joint, and because it crosses the knee, it is a flexor there. It is not a vital muscle for these movements.
- **Innervation:** Tibial nerve.



# Soleus

- The soleus is located deep to the gastrocnemius. It is large and flat, named soleus due to its resemblance of a sole – a flat fish.
- **Actions:** Plantarflexes the foot at the ankle joint.
- **Innervation:** Tibial Nerve.

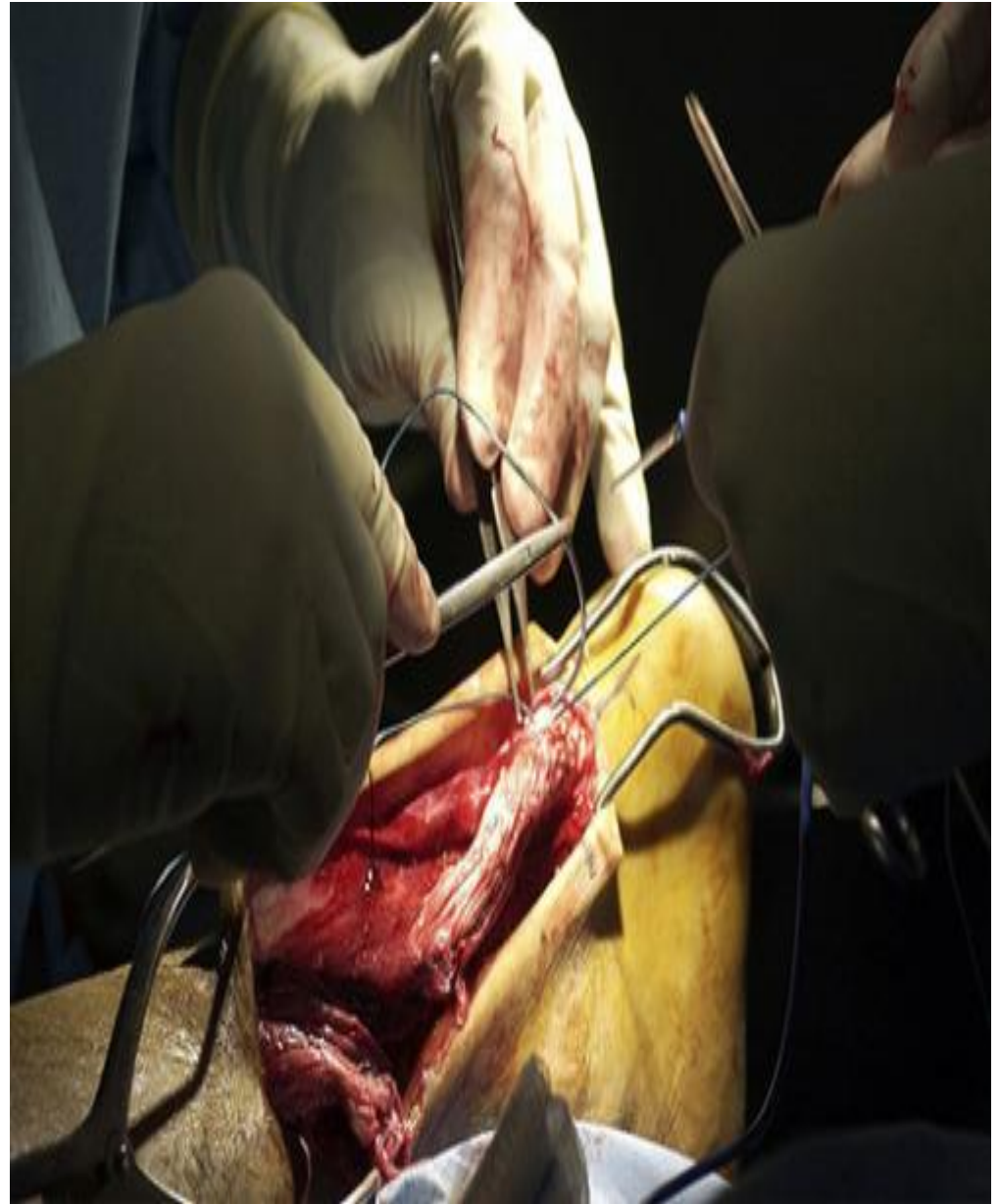


# Clinical Relevance: Ruptured Calcaneal Tendon

- Rupture of the **calcaneal tendon** refers to a partial or complete tear of the tendon. It is more likely to occur in people with a history of **calcaneal tendinitis** (chronic inflammation of the tendon).
- The injury is usually sustained during forceful **plantarflexion** of the foot. The patient will be unable to plantarflex the foot against resistance, and the affected foot will be permanently dorsiflexed. The soleus and gastrocnemius can contract to form a lump in the calf region.
- Treatment of a ruptured calcaneal tendon is usually Conservative (Physiotherapy), except in those with active lifestyles.



Achilles Tendon Rupture

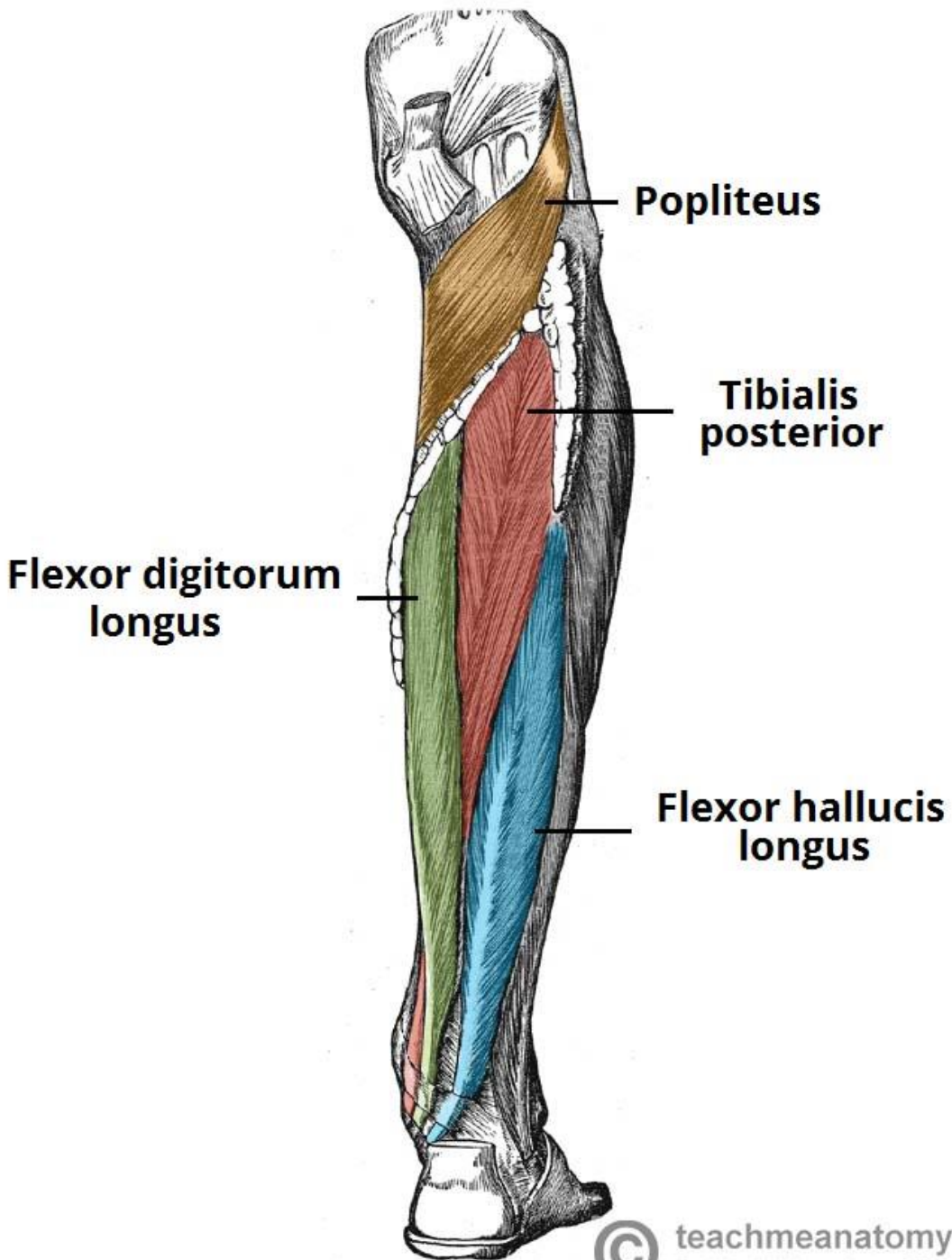






# Deep Muscles

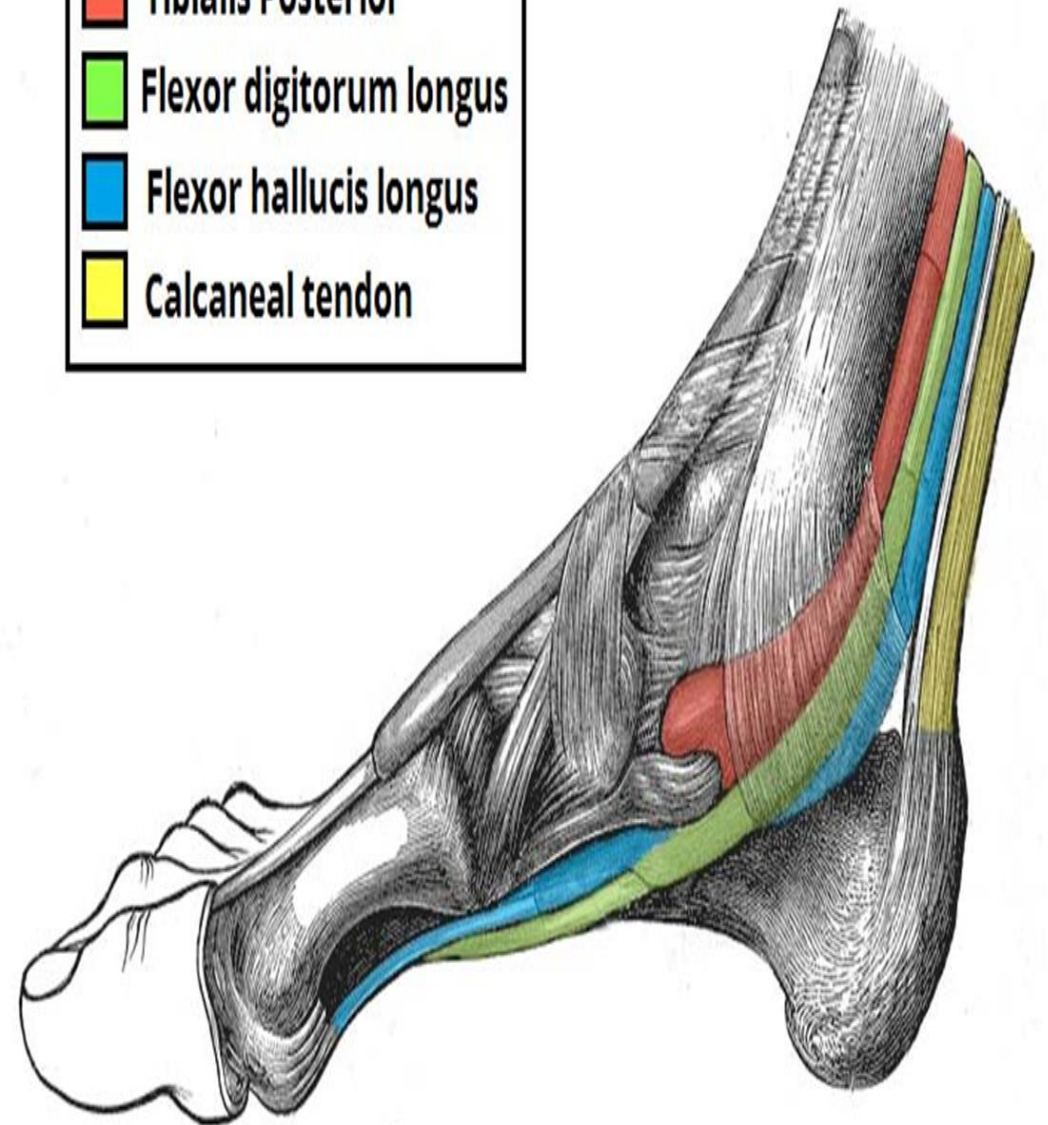
- There are four muscles in the deep compartment of the posterior leg. One muscle, the popliteus, acts only on the knee joint. The remaining three muscles (tibialis posterior, flexor hallucis longus and flexor digitorum longus) act on the ankle and foot.

# The popliteus

- The popliteus is located superiorly in the leg. It lies behind the knee joint, forming the base of the [popliteal fossa](#).
- There is a bursa (fluid filled sac) that lies between the popliteal tendon and the posterior surface of the knee joint. It is called the popliteus bursa.
- **Actions:** Laterally rotates the femur on the tibia – ‘unlocking’ the knee joint so that flexion can occur.
- **Innervation:** Tibial nerve.



-  Tibialis Posterior
-  Flexor digitorum longus
-  Flexor hallucis longus
-  Calcaneal tendon



# Thank You!

