# Learning Objectives

- Cross-section of leg to show compartments
- Muscles of anterior, lateral & posterior compartment of leg (enumerate & orient)
- Extensor & flexor retinaculae
- Interosseous membrane (syndesmoses)

# Cross-section of leg Showing Its Compartment

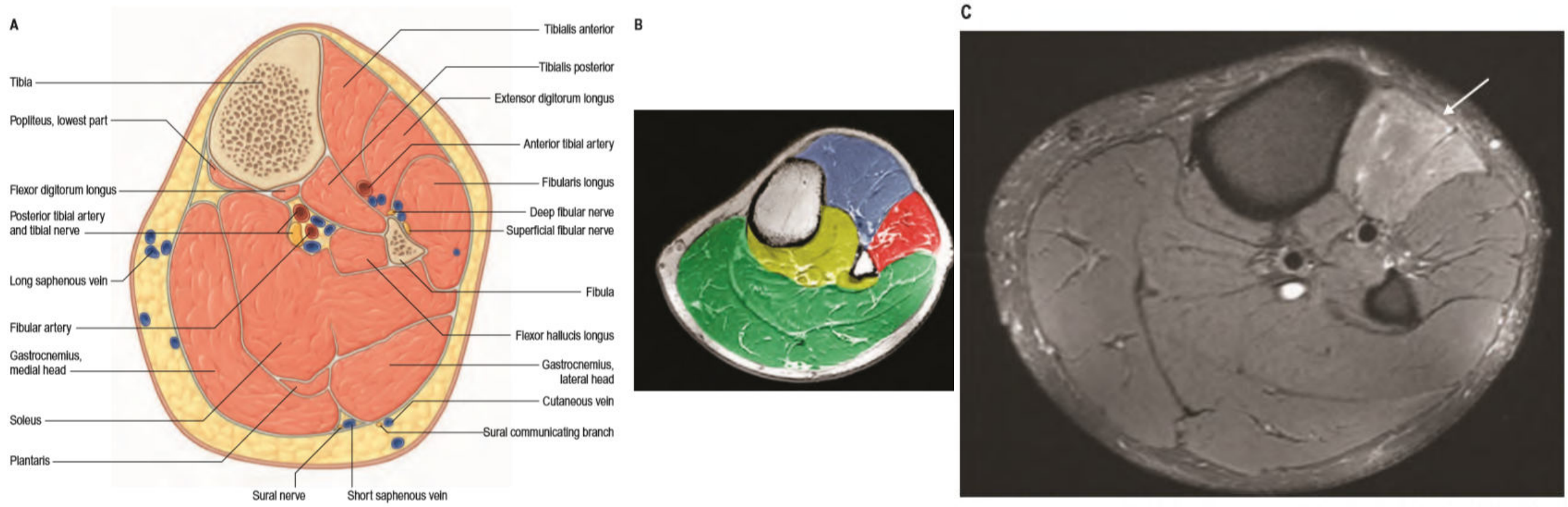



**Fig. 83.2 A**, A transverse (axial) section through the left leg, approximately 10 cm distal to the knee joint. **B**, Colour-coded axial magnetic resonance imaging (MRI) of the leg. Observe the anterior (blue), lateral (red) and posterior (deep part yellow and superficial part green) compartments of the leg. (C, *continued online*)

**Fig. 83.2 C**, An axial T2-weighted MRI of the leg in a patient with anterior compartment denervation (arrow).

# Muscles of Anterior Compartment of Leg

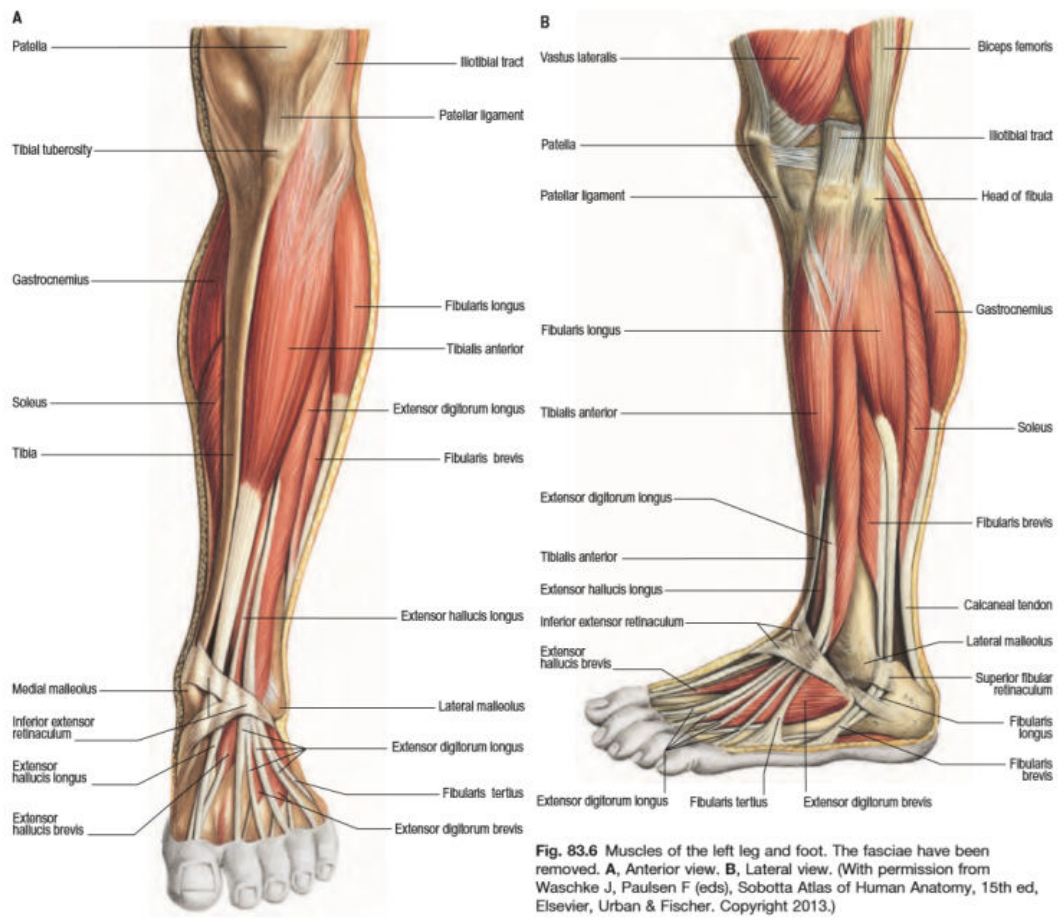



**Fig. 83.6** Muscles of the left leg and foot. The fasciae have been removed. **A**, Anterior view. **B**, Lateral view. (With permission from Waschke J, Paulsen F (eds), Sobotta Atlas of Human Anatomy, 15th ed, Elsevier, Urban & Fischer. Copyright 2013.)

# Anterior Group of Muscles

| MUSCLE | ORIGIN | INSERTION | NERVE SUPPLY | NERVE ROOT[a] | ACTION |
|---|---|---|---|---|---|
| Tibialis anterior | Lateral surface of shaft of tibia and interosseous membrane | Medial cuneiform and base of first metatarsal bone | Deep fibular nerve | **L4,** 5 | Extends[b] 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 fibular nerve | L5; S1 | Extends toes; extends foot at ankle joint |
| Fibularis tertius | Anterior surface of shaft of fibula | Base of fifth metatarsal bone | Deep fibular 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 fibular nerve | L5; S1 | Extends big toe; extends foot at ankle joint; inverts foot at subtalar and transverse tarsal joints |

# Muscles of Lateral Compartment of Leg

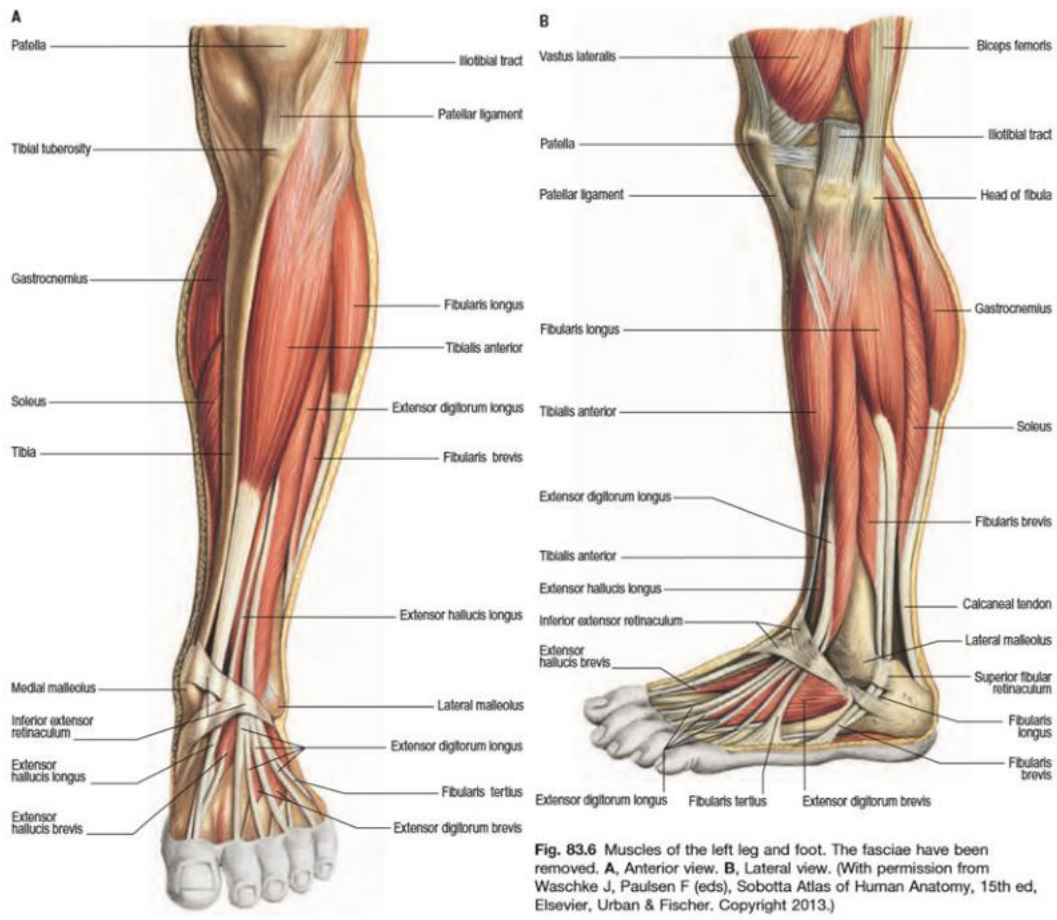
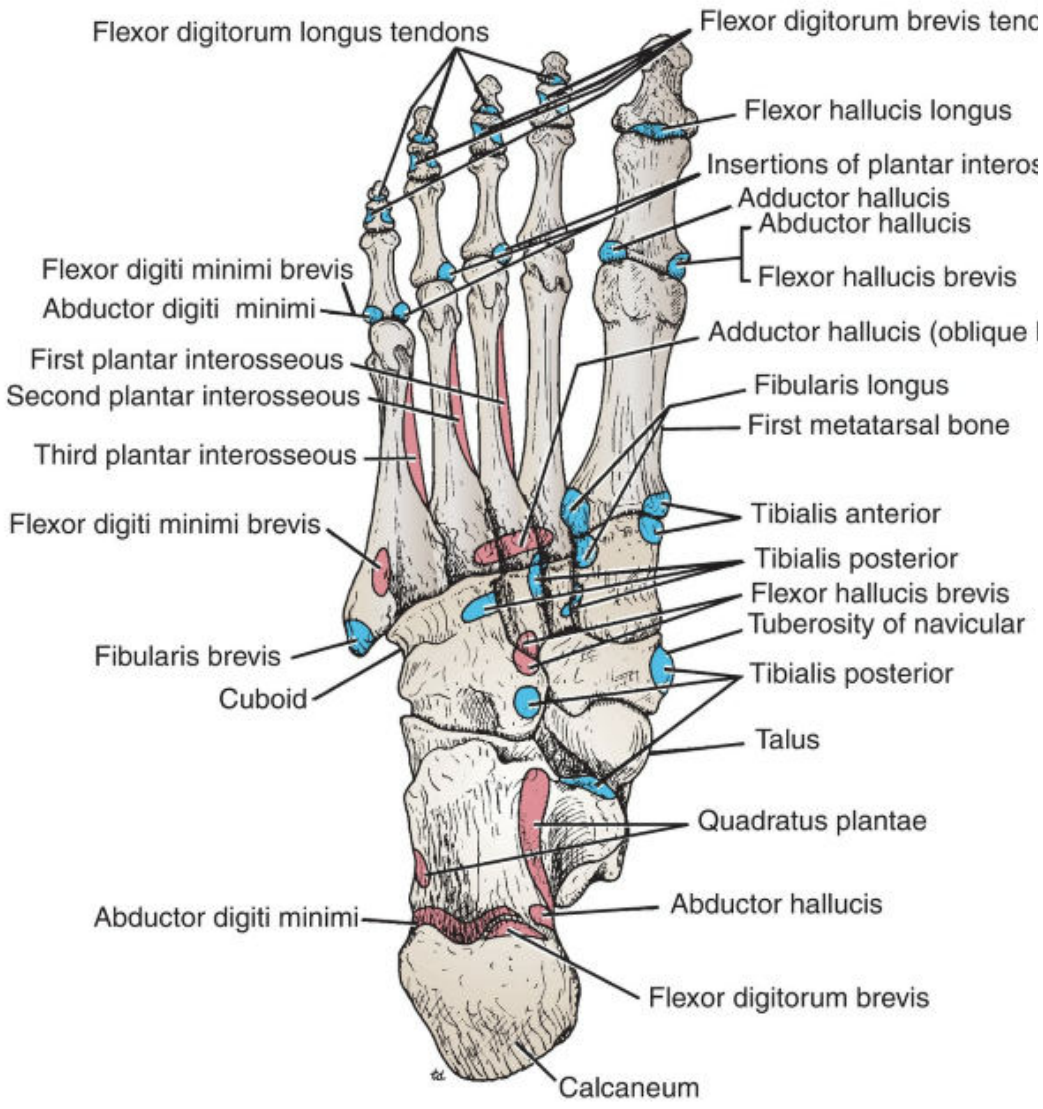
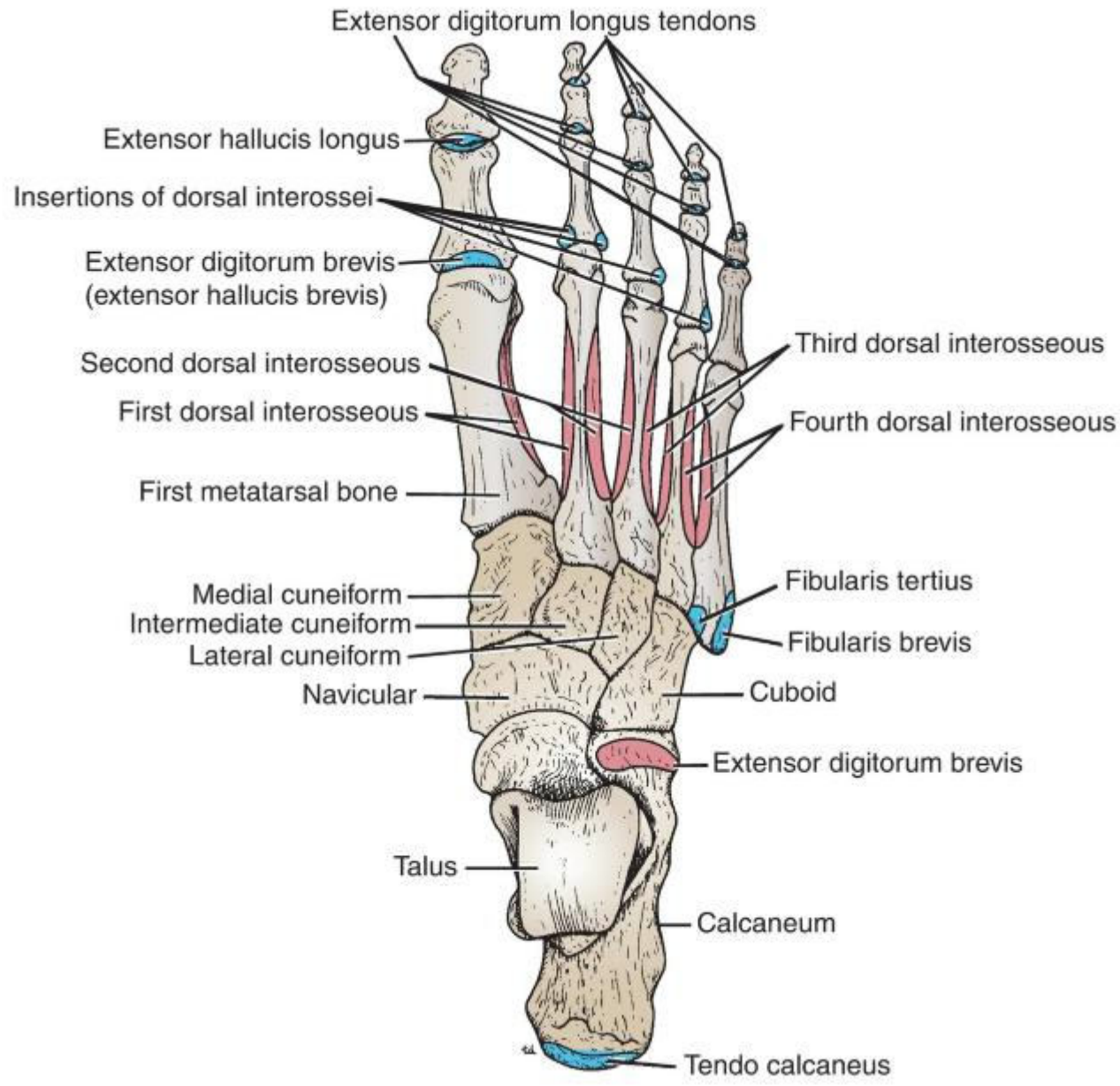



**Fig. 83.6** Muscles of the left leg and foot. The fasciae have been removed. **A**, Anterior view. **B**, Lateral view. (With permission from Waschke J, Paulsen F (eds), Sobotta Atlas of Human Anatomy, 15th ed, Elsevier, Urban & Fischer. Copyright 2013.)

# Lateral Group of Muscles

| MUSCLE | ORIGIN | INSERTION | NERVE SUPPLY | NERVE ROOT* | ACTION |
|---|---|---|---|---|---|
| Fibularis longus | Lateral surface of shaft of fibula | Base of first metatarsal and the medial cuneiform | Superficial fibular nerve | **L5; S1**, 2 | Plantar flexes foot at ankle joint; everts foot at subtalar and transverse tarsal joints; supports lateral longitudinal and transverse arches of foot |
| Fibularis brevis | Lateral surface of shaft of fibula | Base of fifth metatarsal bone | Superficial fibular nerve | **L5; S1**, 2 | Plantar flexes foot at ankle joint; everts foot at subtalar and transverse tarsal joint; supports lateral longitudinal arch of foot |




# Muscles of Posterior Compartment of Leg

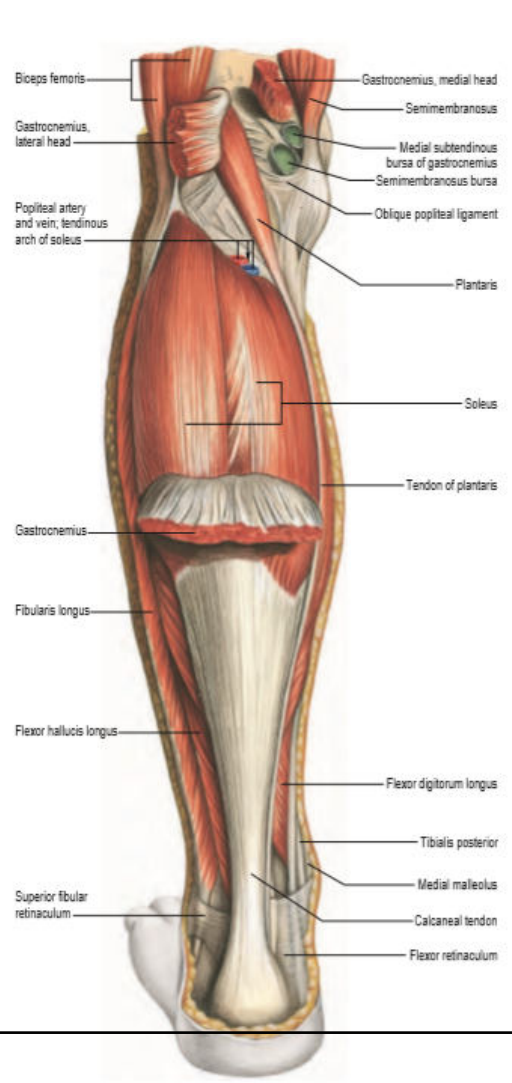



Fig. 83.8 Muscles of the left leg, posterior aspect. Gastrocnemius has been partially removed. (With permission from Waschke J, Paulsen F (eds), Sobotta Atlas of Human Anatomy, 15th ed, Elsevier, Urban & Fischer. Copyright 2013.)

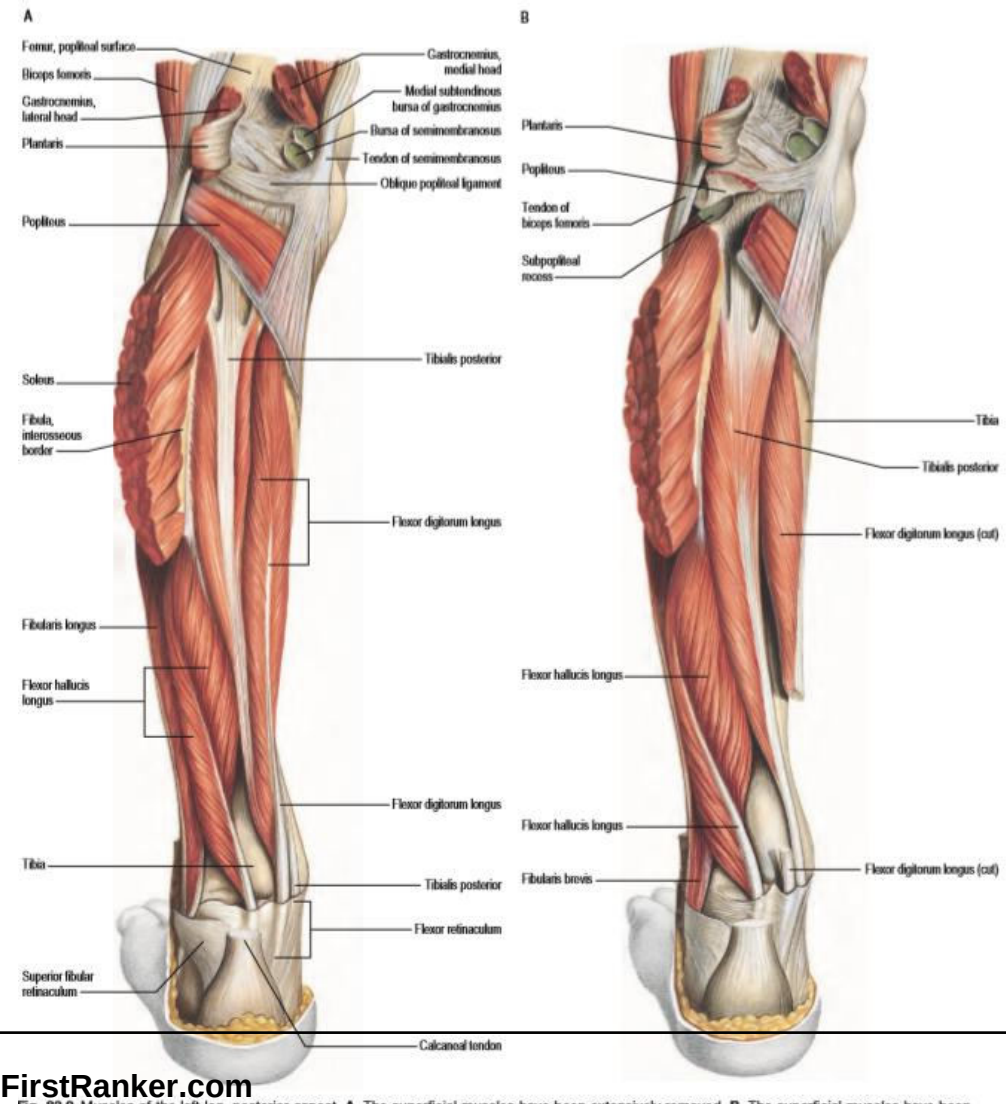



Fig. 83.9 Muscles of the left leg, posterior aspect. **A**, The superficial muscles have been extensively removed. **B**, The superficial muscles have been extensively removed, popliteus has been sectioned and the tendon of flexor digitorum longus removed as it crosses the tendon of tibialis posterior. (With permission from Waschke J, Paulsen F (eds), Sobotta Atlas of Human Anatomy, 15th ed, Elsevier, Urban & Fischer. Copyright 2013.)

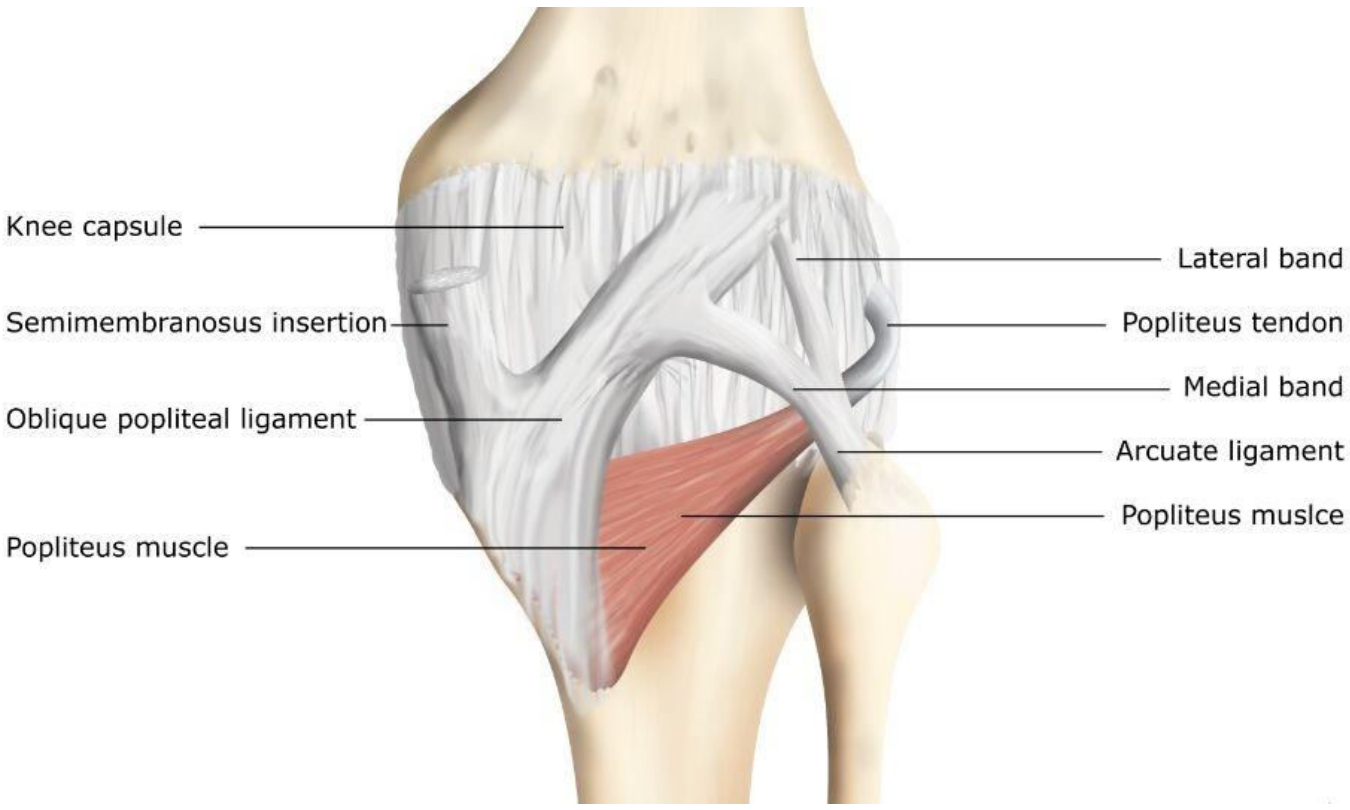
# Superficial Group of Muscles

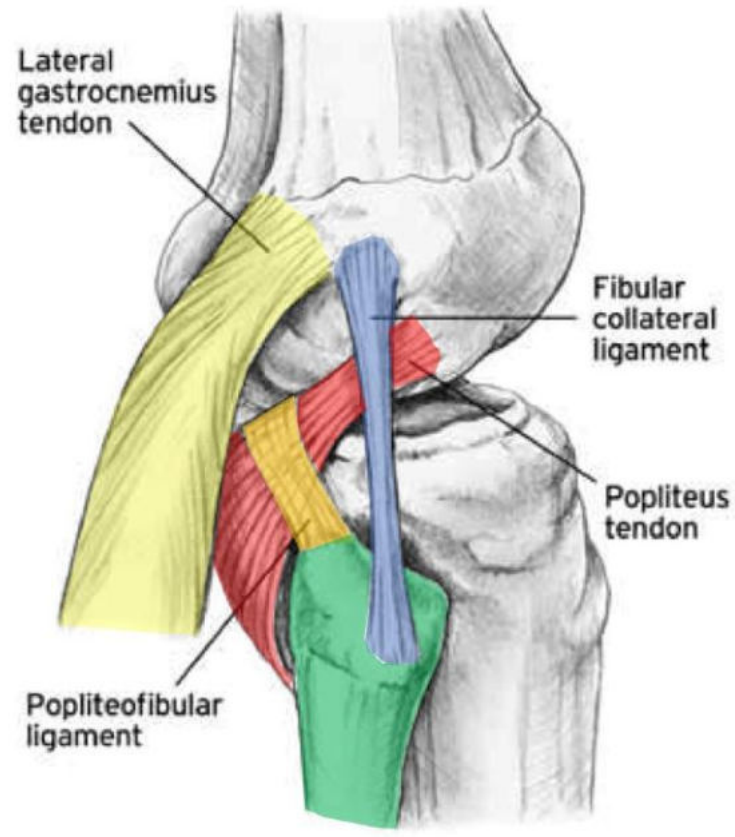
| | | | | | |
|---|---|---|---|---|---|
| Gastrocnemius | Lateral head from lateral condyle of femur and medial head from above medial condyle | Via tendo calcaneus into posterior surface of calcaneum | Tibial nerve | **S1**, 2 | Plantar flexes foot at ankle joint; flexes knee joint |
| Plantaris | Lateral 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 of Muscles

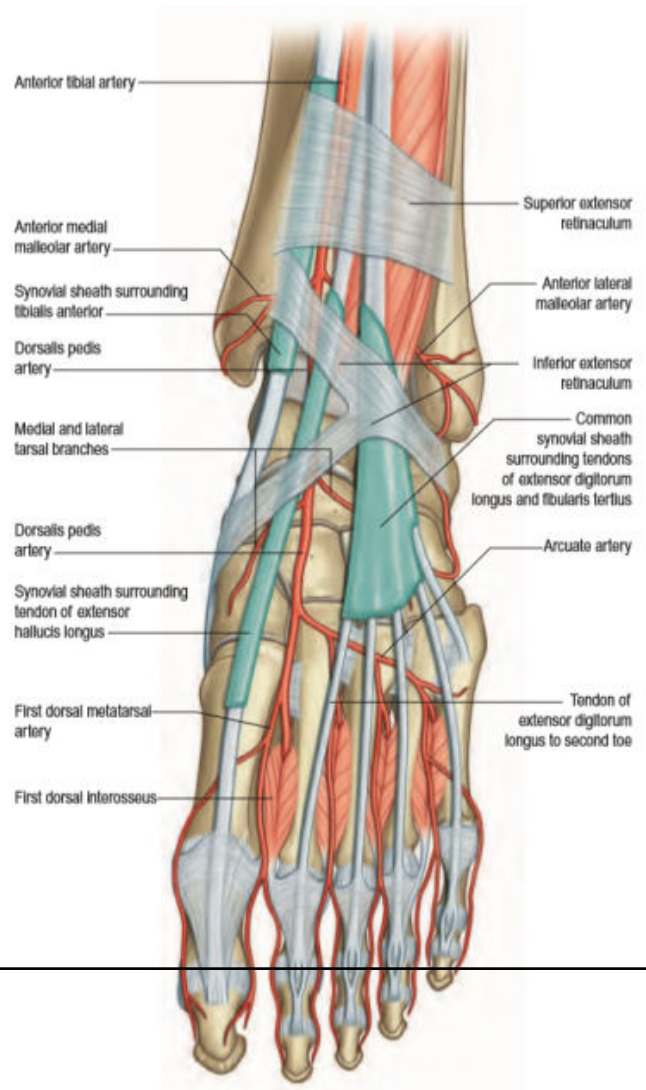
| | | | | | |
|---|---|---|---|---|---|
| Popliteus | Lateral surface of lateral condyle of femur | Posterior surface of shaft of tibia above soleal line | Tibial nerve | L4, 5; S1 | Flexes leg at knee joint; unlocks knee joint by lateral rotation of femur on tibia and slackens ligaments of joint |
| 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 |

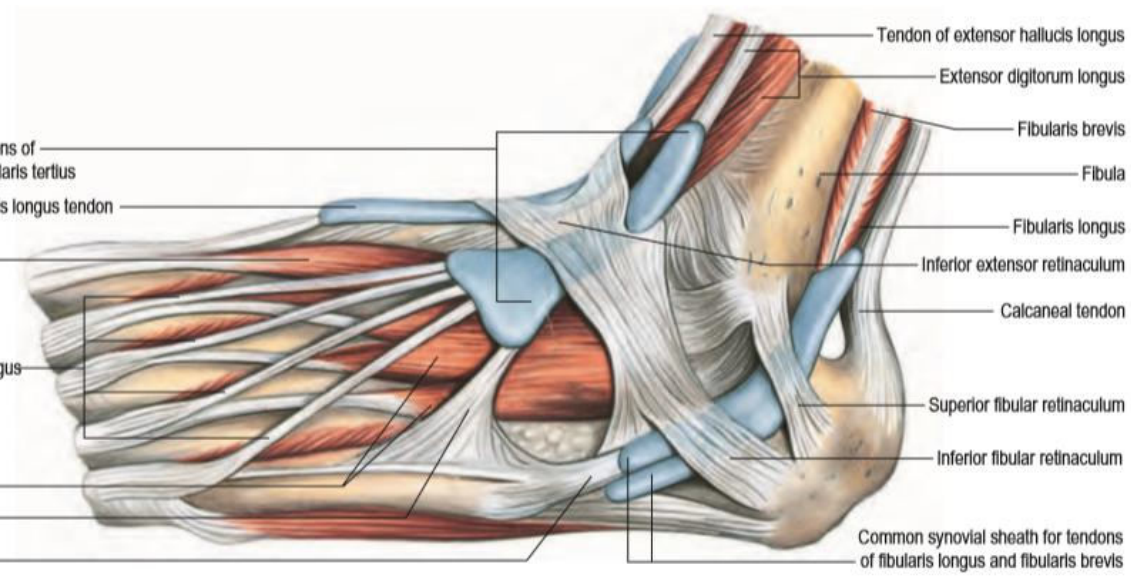
# Popliteus

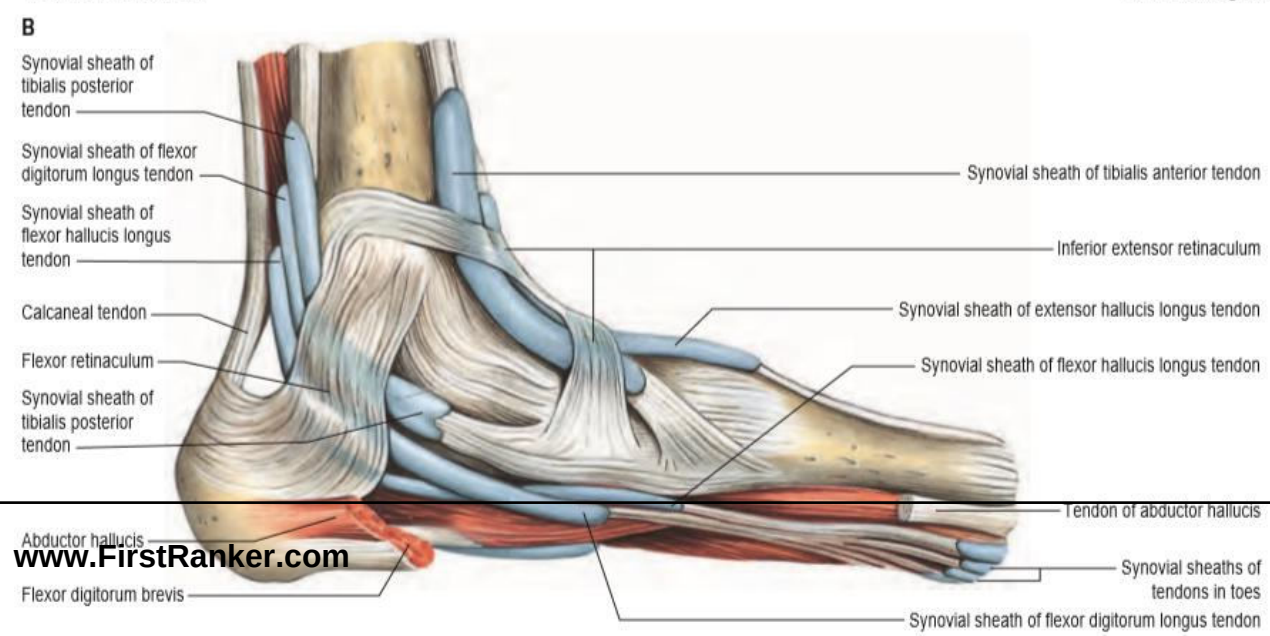



# Extensor, Flexor and Peroneal Retinaculae



# Interosseous membrane (syndesmoses)

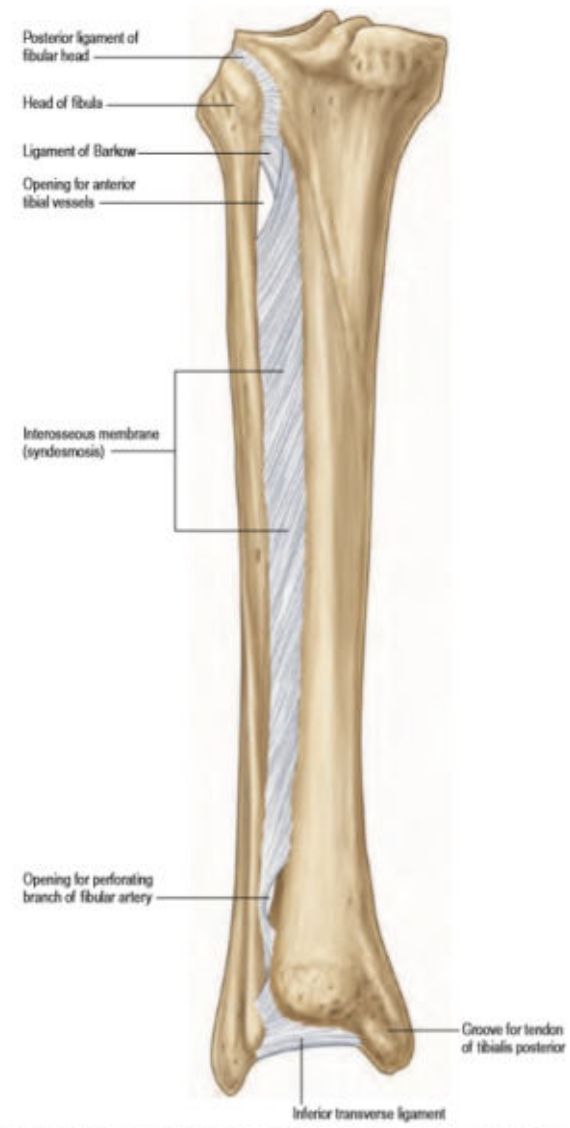



**Fig. 83.1** The posterior aspect of the interosseous membrane. Note the contrasting direction of the fibre bundles around the vascular openings.

# MCQs

**Question**:- Which of the following is true regarding synovial sheaths at ankle?

a. All peroneal muscles are having common sheath
b. Peroneus brevis and tertius are having common sheath
c. Peroneus tertius and extensor digitorum longus are having common sheath
d. Extensor digitorum and extensor halluces longus are having common sheath

**Question:-** Hallux saltans is a condition of great toe in ballet dancers where there is pain and triggering of great toe. Which of the following is correct explanation of this condition?

a. Fracture of the tip of first metatarsal
b. Fracture of the base of first metatarsal
c. Distal nodule in tendon of flexor halluces longus
d. Proximal nodule in tendon of flexor halluces longus

Ballet Dancer