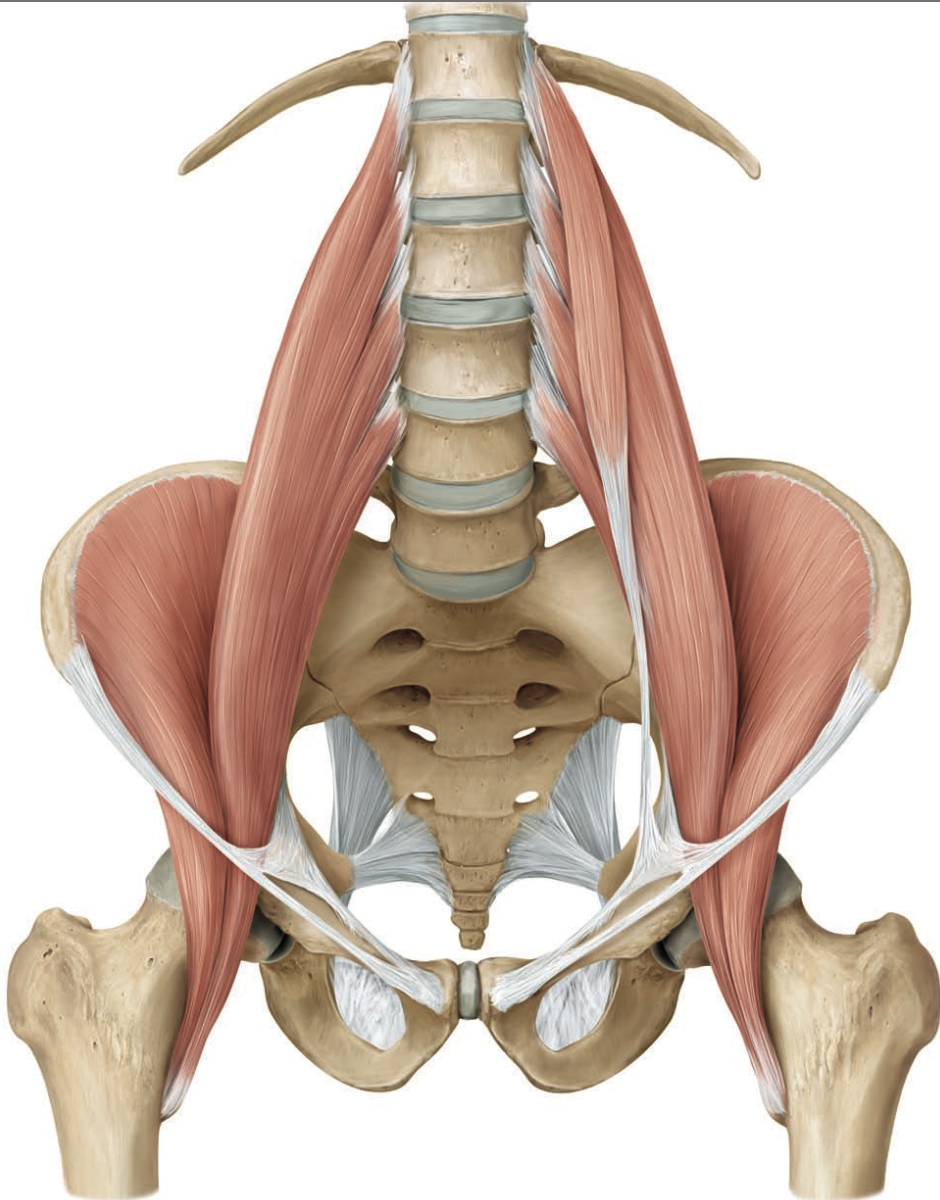


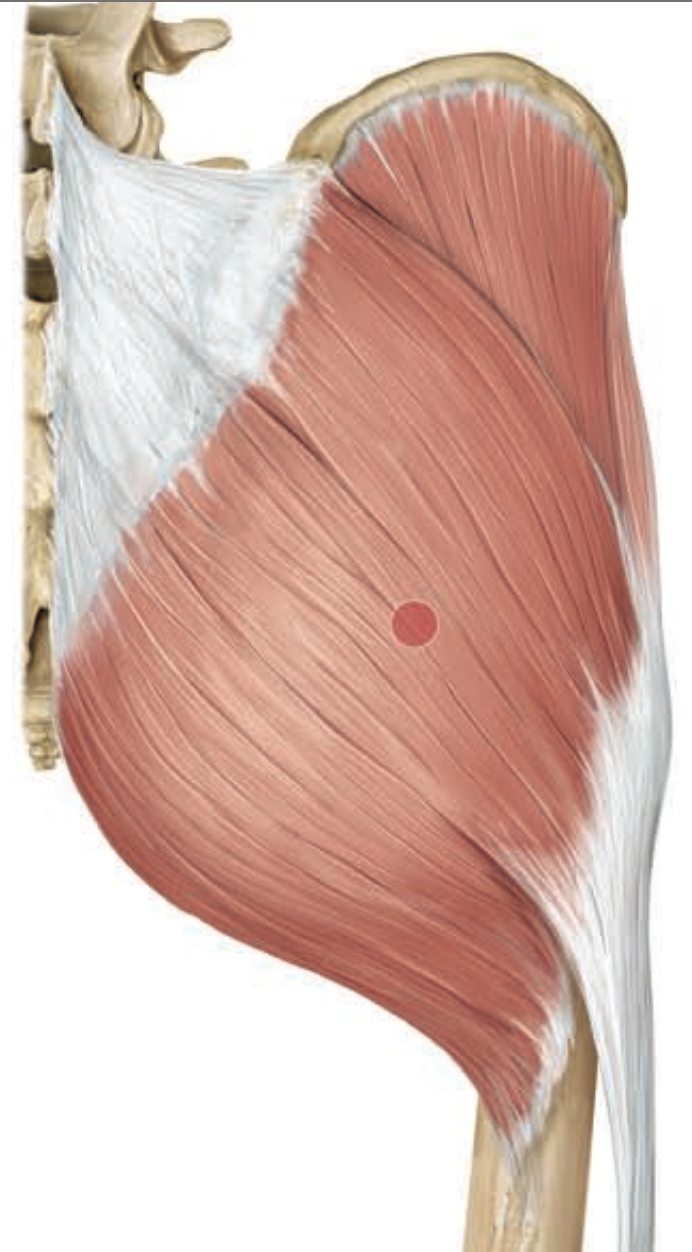
Membrum inferius II.

Prof. MUDr. Jiří Ferda, Ph.D.

Attachement to body

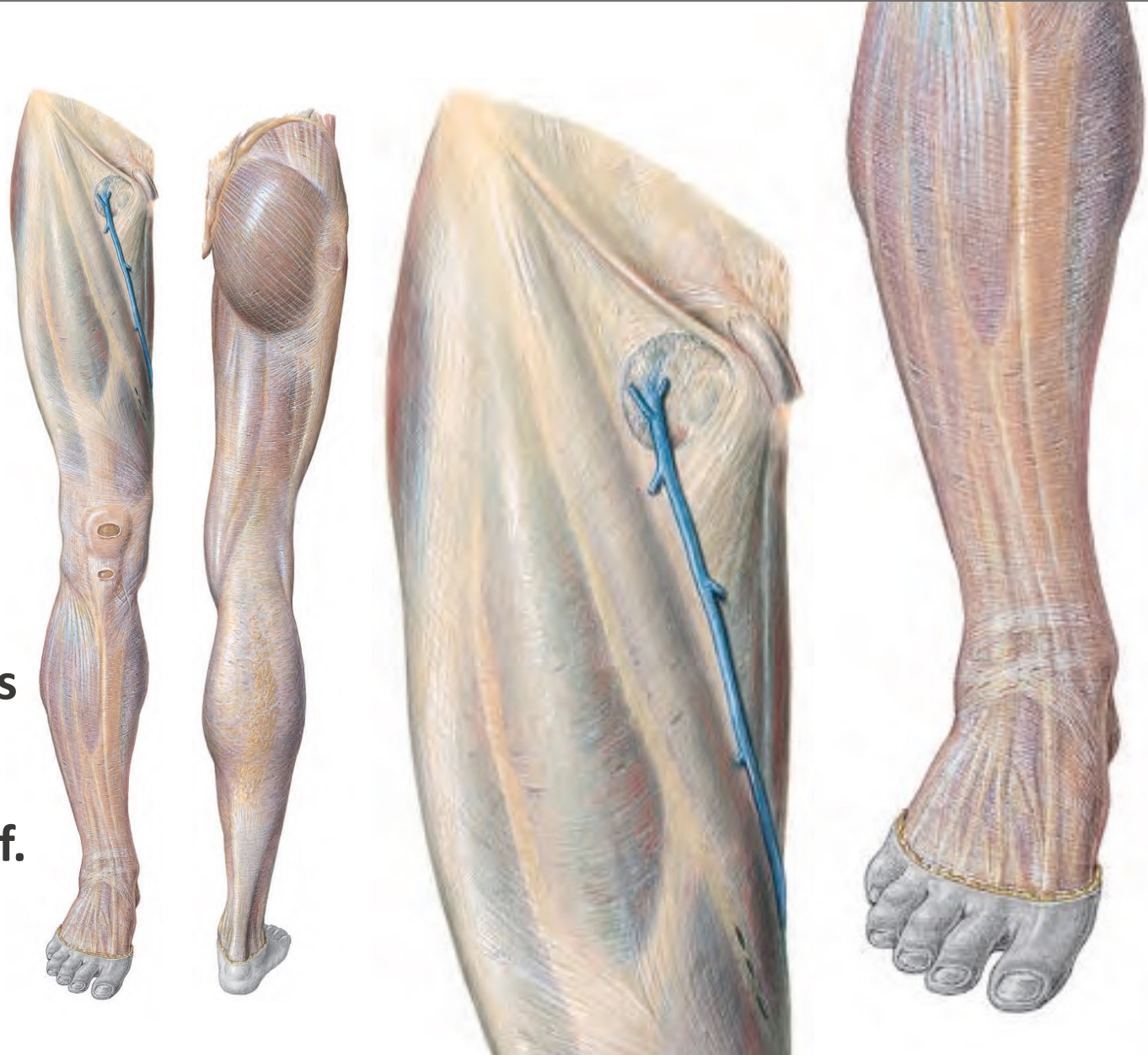


- ♦ **Vasa**
- ♦ *Vasa femoralia*
- ♦ *Vasa glutea*
- ♦ **Nervi**
- ♦ *Plexus lumbalis et sacralis*
- ♦ **Fasciae**
- ♦ **Musculi**
- ♦ *Mm. glutei*
- ♦ *M. psoas major*
- ♦ *M. iliacus*
- ♦ *Mm. femoris*

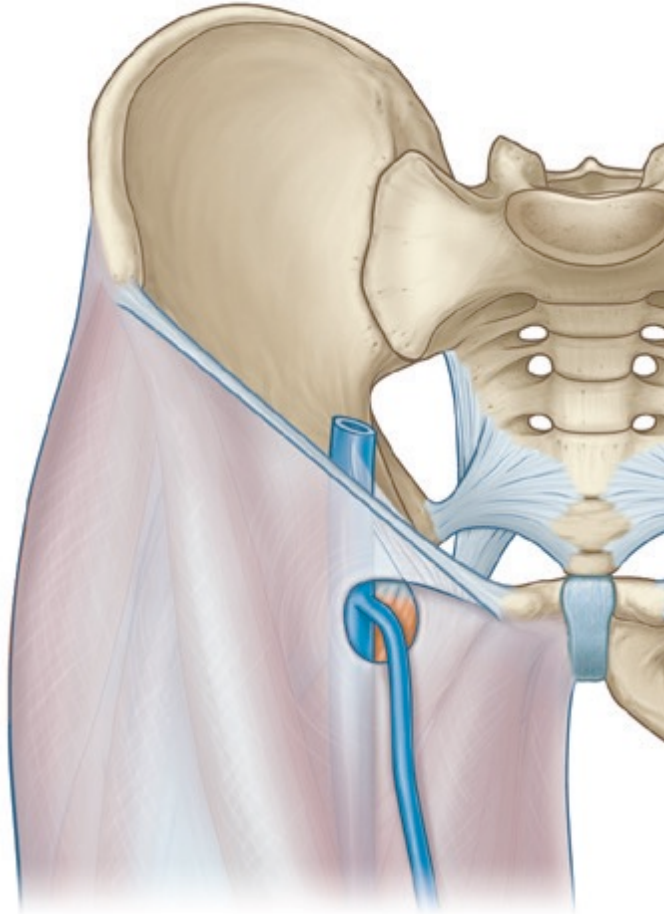
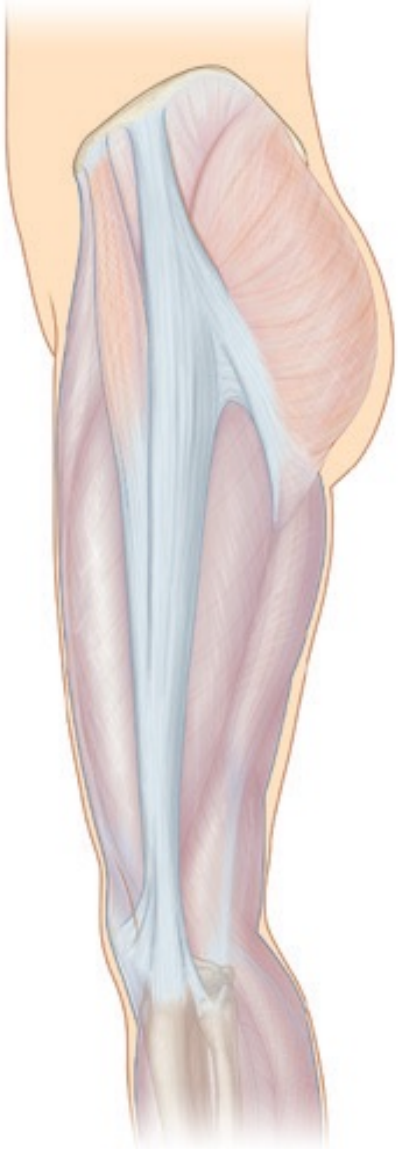


Fasciae

- ♦ Fossa iliopectinea
- ♦ Trigonum femorale
- ♦ Tractus iliotibialis
- ♦ Fascia femoris lata
 - ♦ *M. sartorius* – included into fascia
 - ♦ Fixation to knee
- ♦ Fascia cruris – anterior edge of tibia
- ♦ Retinaculum mm. extensorum superius
- ♦ Retinaculum mm. extensores inferius
- ♦ Retinaculum mm. peroneum sup. et inf.
- ♦ Retinaculum mm. flexores
- ♦ Fascia pedis



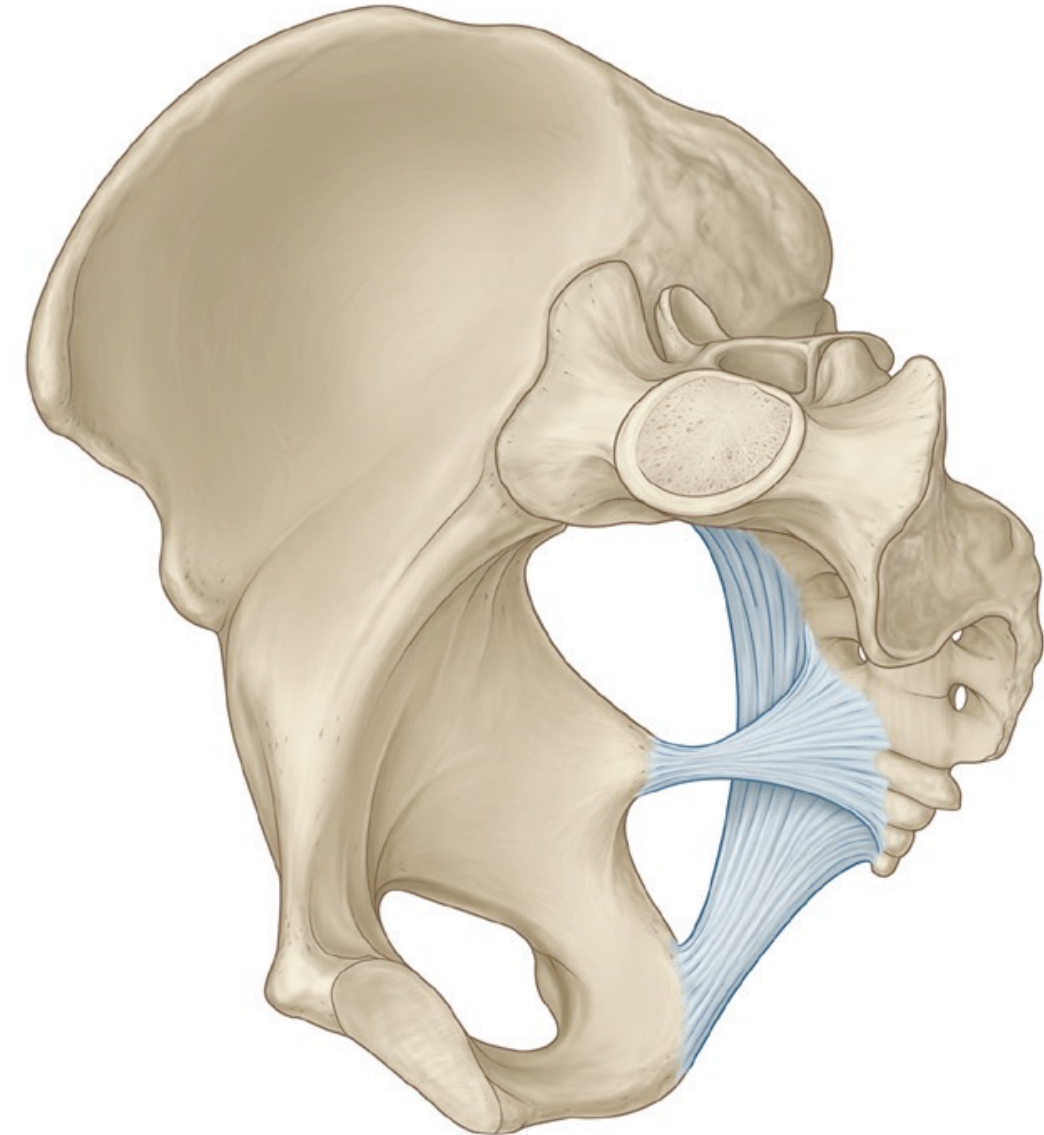
Fascia lata



- ♦ **Fascia lata**
 - ♦ Directly below superficial fascia
 - ♦ Covers all limb
 - ♦ Hiatus saphenus
 - ♦ Caudally continues to crus
 - ♦ like fascia profunda
- ♦ **Tractus iliotibialis**
 - ♦ Lateral thickening of fascia lata
 - ♦ M. tensor fasciae latae
 - ♦ M. gluteus maximus



Foramina ischiadica



- ♦ **Foramen ischiadicum majus**

- ♦ **M. piriformis**

- ♦ **Foramen suprapiriforme**

- ♦ Vasa et nervus gluteae superiores

- ♦ **Foramen infrapiriforme**

- ♦ Vasa et nervus gluteae inferiores

- ♦ N. ischiadicus

- ♦ N. cutaneus femoris posterior

- ♦ Vasa et nervus pudendi interni

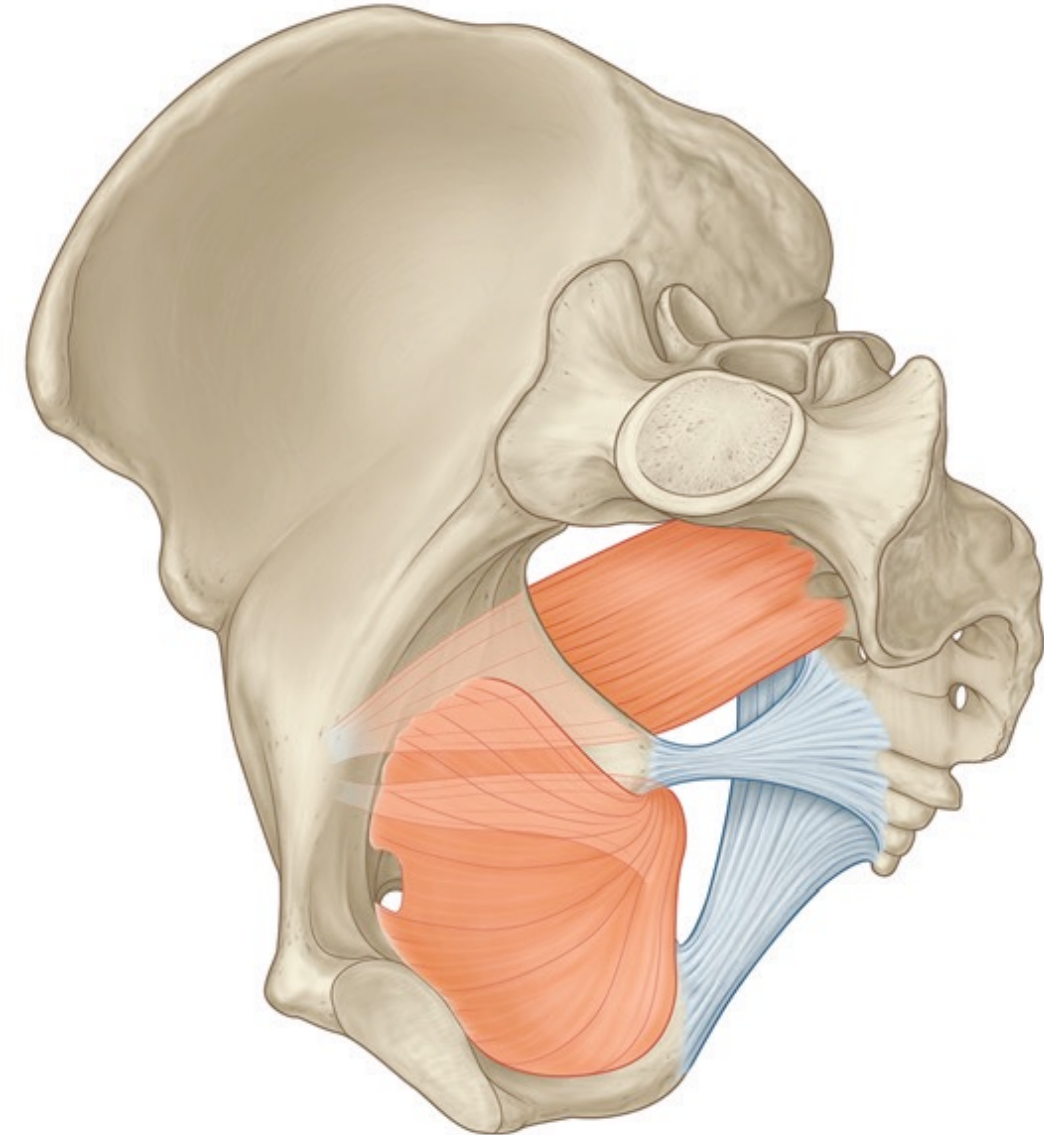
- ♦ **Foramen ischiadicum minus**

- ♦ m. obturatorius internus – between ligaments

- ♦ Ligamentum sacrospinale

- ♦ Ligamentum sacrotuberale

Foramina ischiadica



- ♦ **Foramen ischiadicum majus**

- ♦ **M. piriformis**

- ♦ **Foramen suprapiriforme**

- ♦ Vasa et nervus glutea superiores

- ♦ **Foramen infrapiriforme**

- ♦ Vasa et nervus glutea inferiores

- ♦ N. ischiadicus

- ♦ N. cutaneus femoris posterior

- ♦ Vasa et nervus pudendi interni

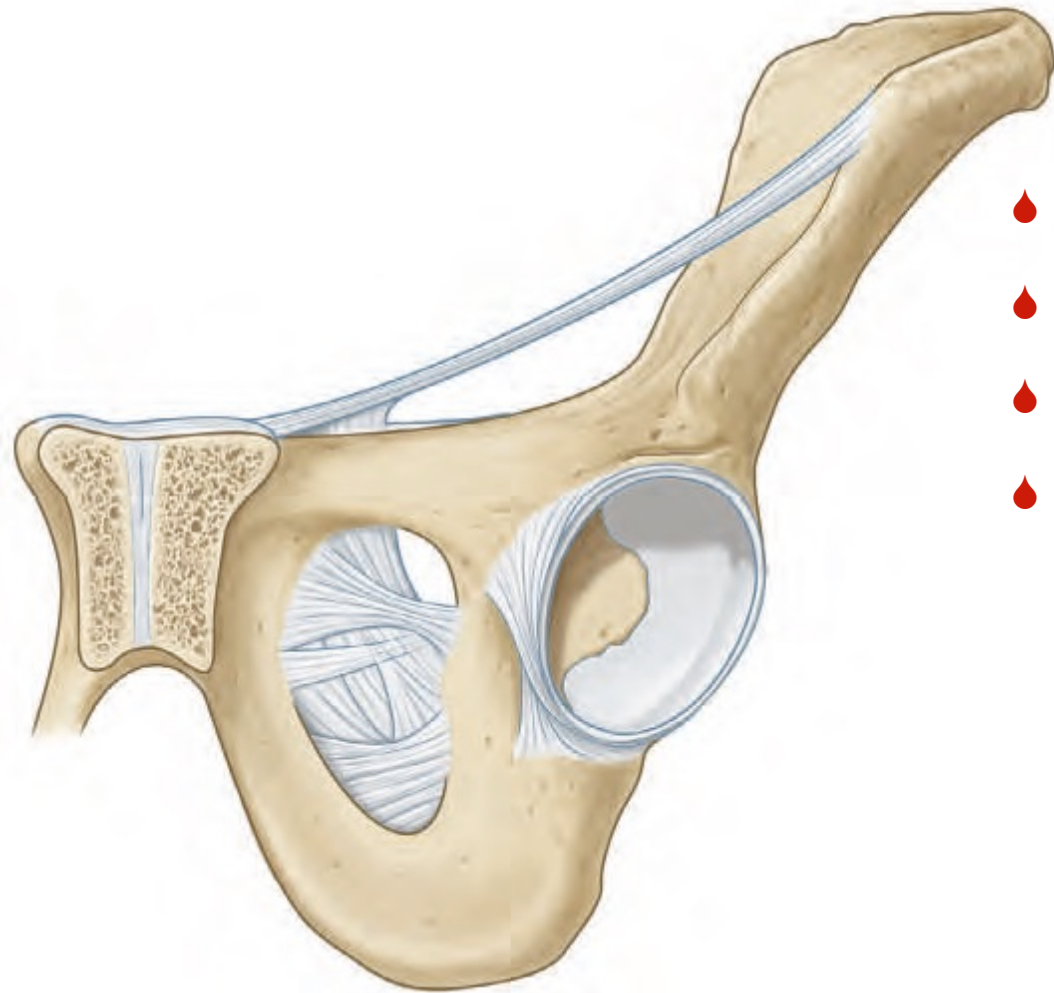
- ♦ **Foramen ischiadicum minus**

- ♦ m. obturatorius internus – between ligaments

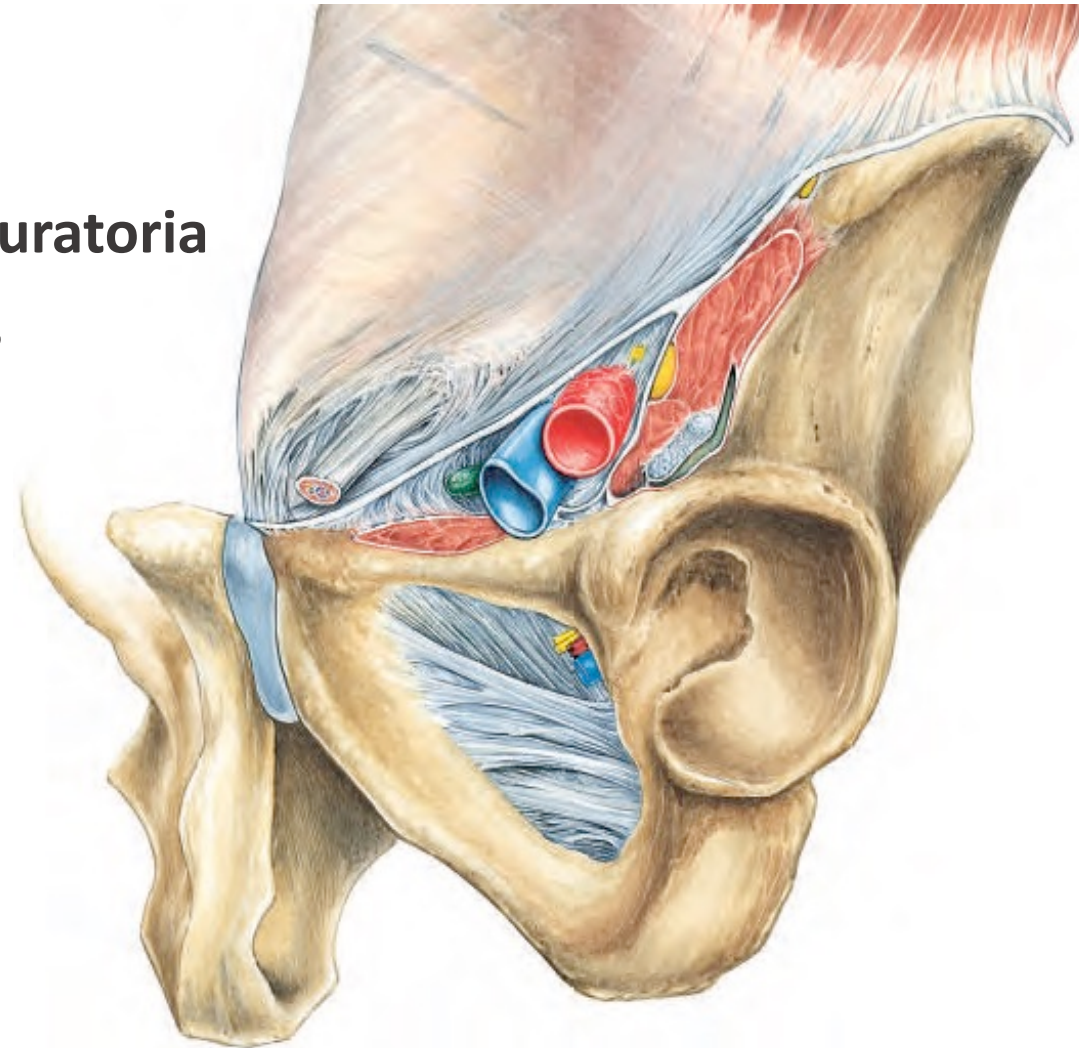
- ♦ Ligamentum sacrospinale

- ♦ Ligamentum sacrotuberale

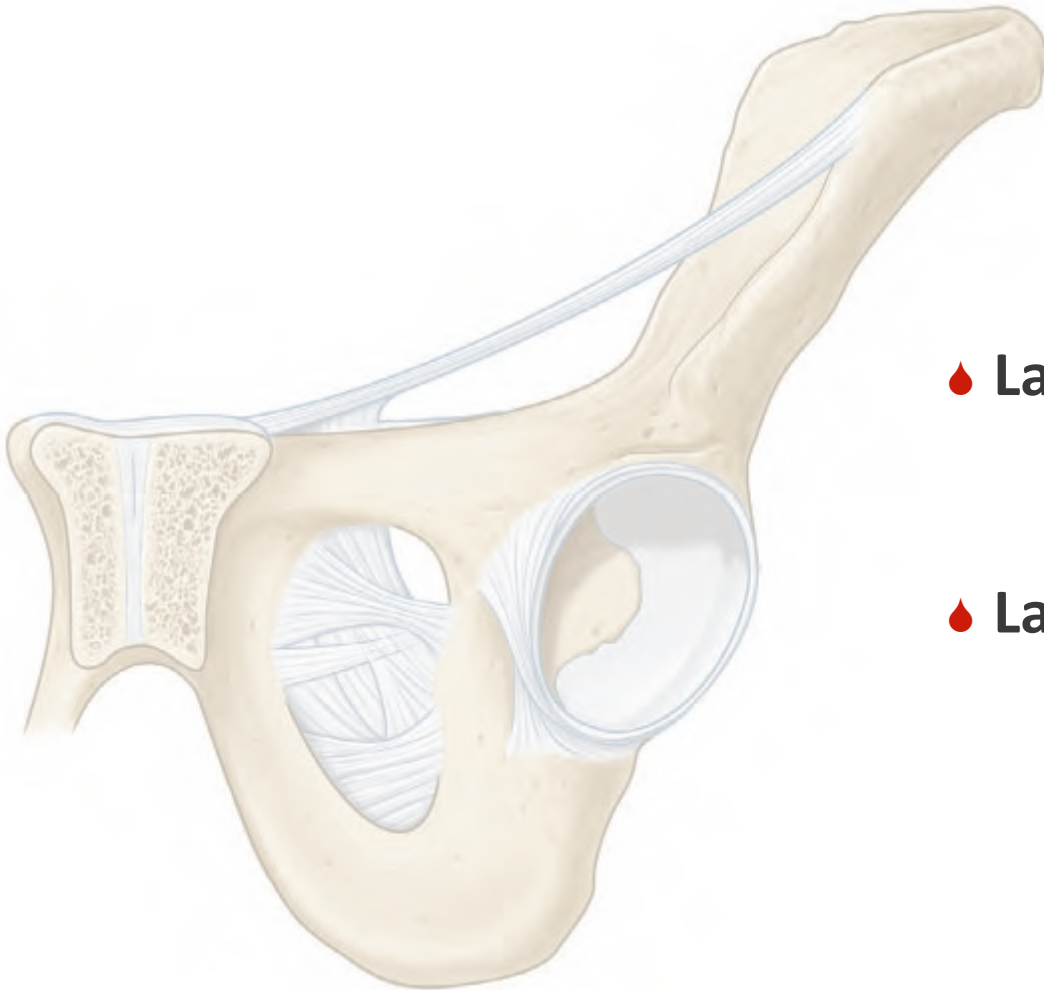
Foramen obturatum



- ♦ Membrana obturatoria
- ♦ N. obturatorius
- ♦ A. obturatoria
- ♦ V. obturatoria



Lacuna vasorum et musculorum



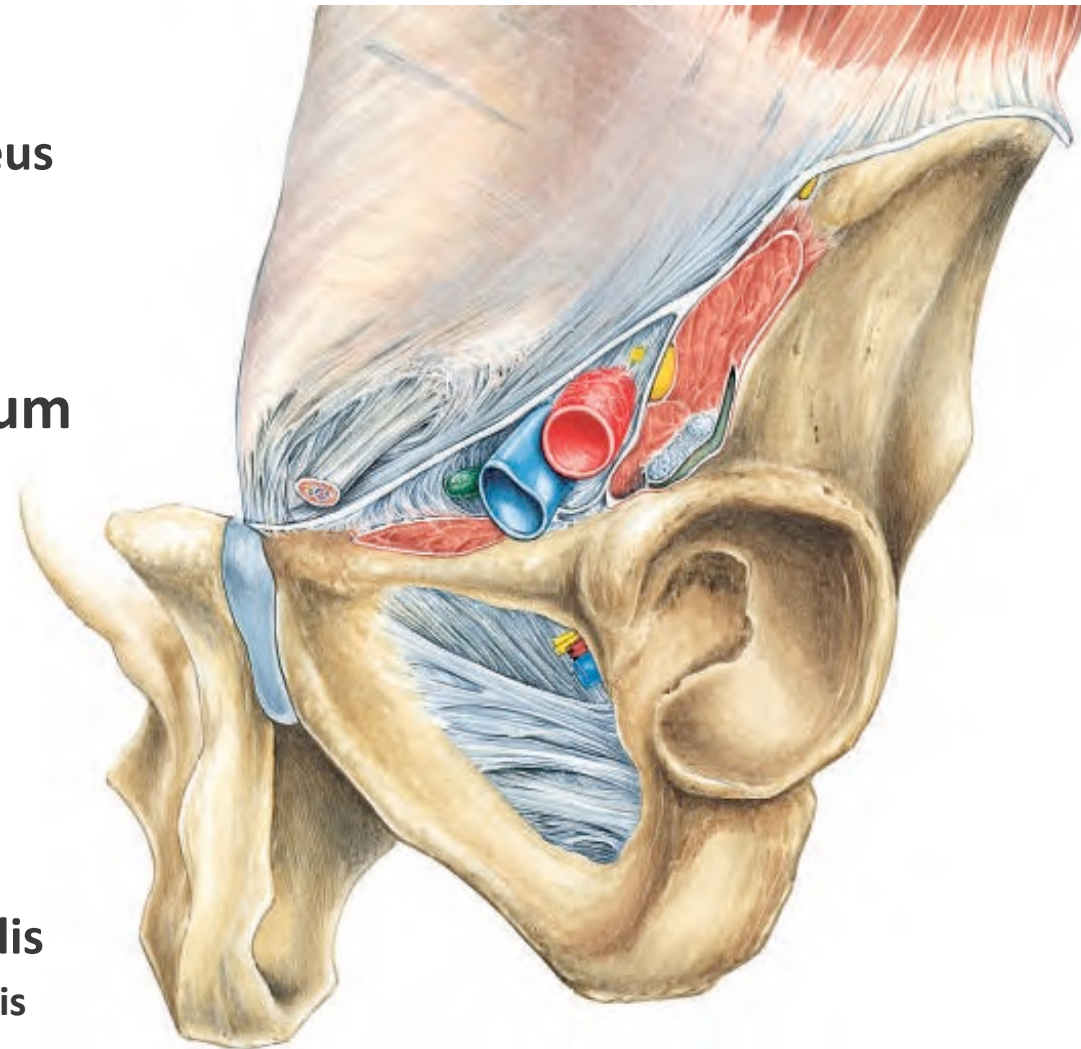
- ♦ Lig. inguinale
- ♦ Arcus iliopectineus
- ♦ Lig. lacunare

♦ Lacuna musculorum

- ♦ M. iliopsoas
- ♦ N. femoralis

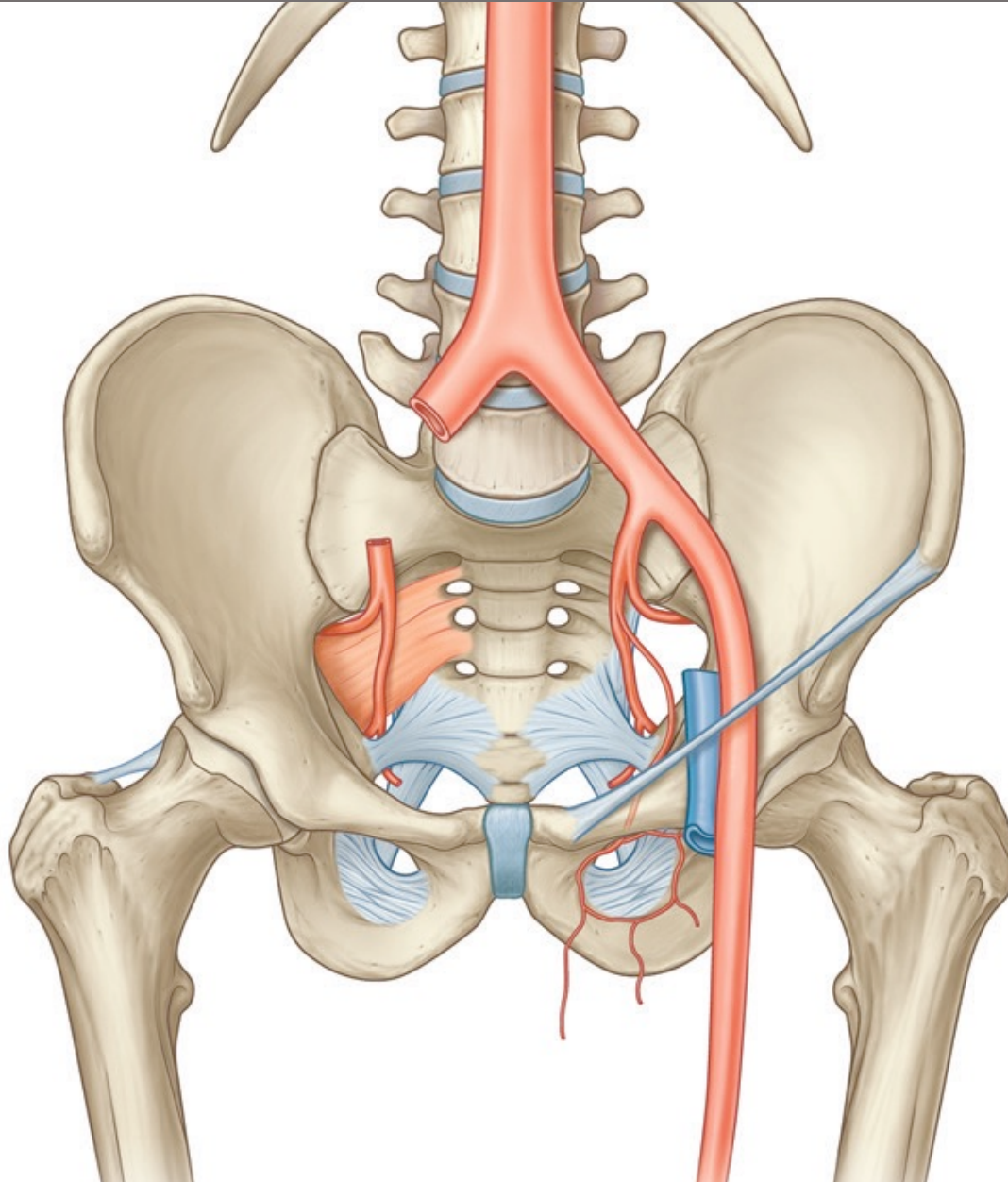
♦ Lacuna vasorum

- ♦ A. femoralis
- ♦ V. femoralis
- ♦ Nn. lymphatici
- ♦ N. genitofemoralis
 - ♦ Ramus femoralis



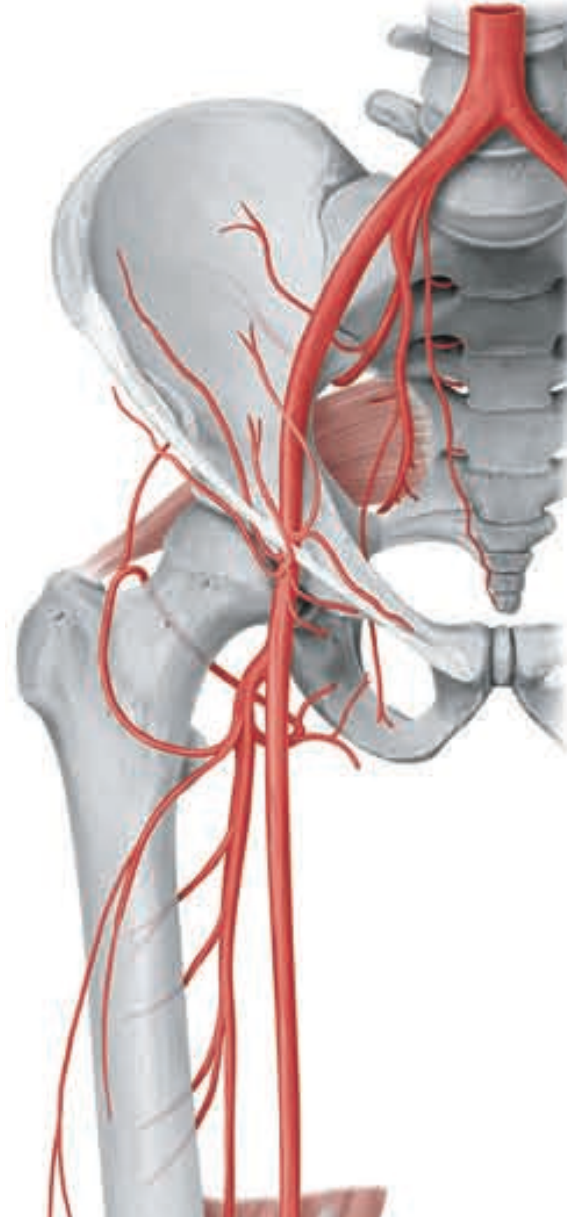
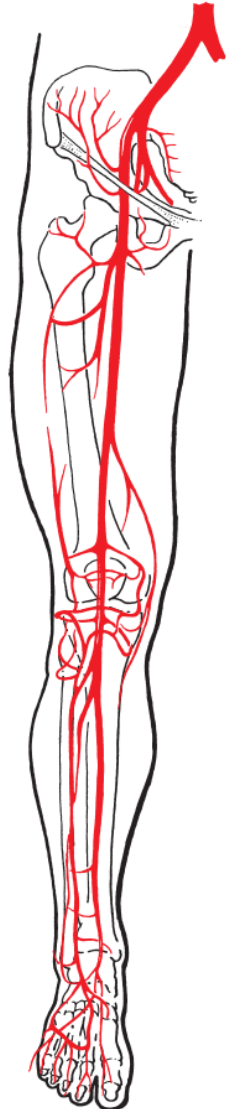
Arteries

- ♦ **A. iliaca communis**
- ♦ **A. iliaca interna**
 - ♦ *Dorsal branches*
 - ♦ **A. glutaesa superior**
 - ♦ **A. glutaesa inferior**
 - ♦ *Ventral branches*
 - ♦ **A. obturatoria**
 - ♦ *A. umbilicalis*
 - ♦ *A. rectalis media*
 - ♦ *A. pudenda interna*
- ♦ **A. iliaca externa**
 - ♦ **A. epigastrica inferior**
 - ♦ **A. femoralis**

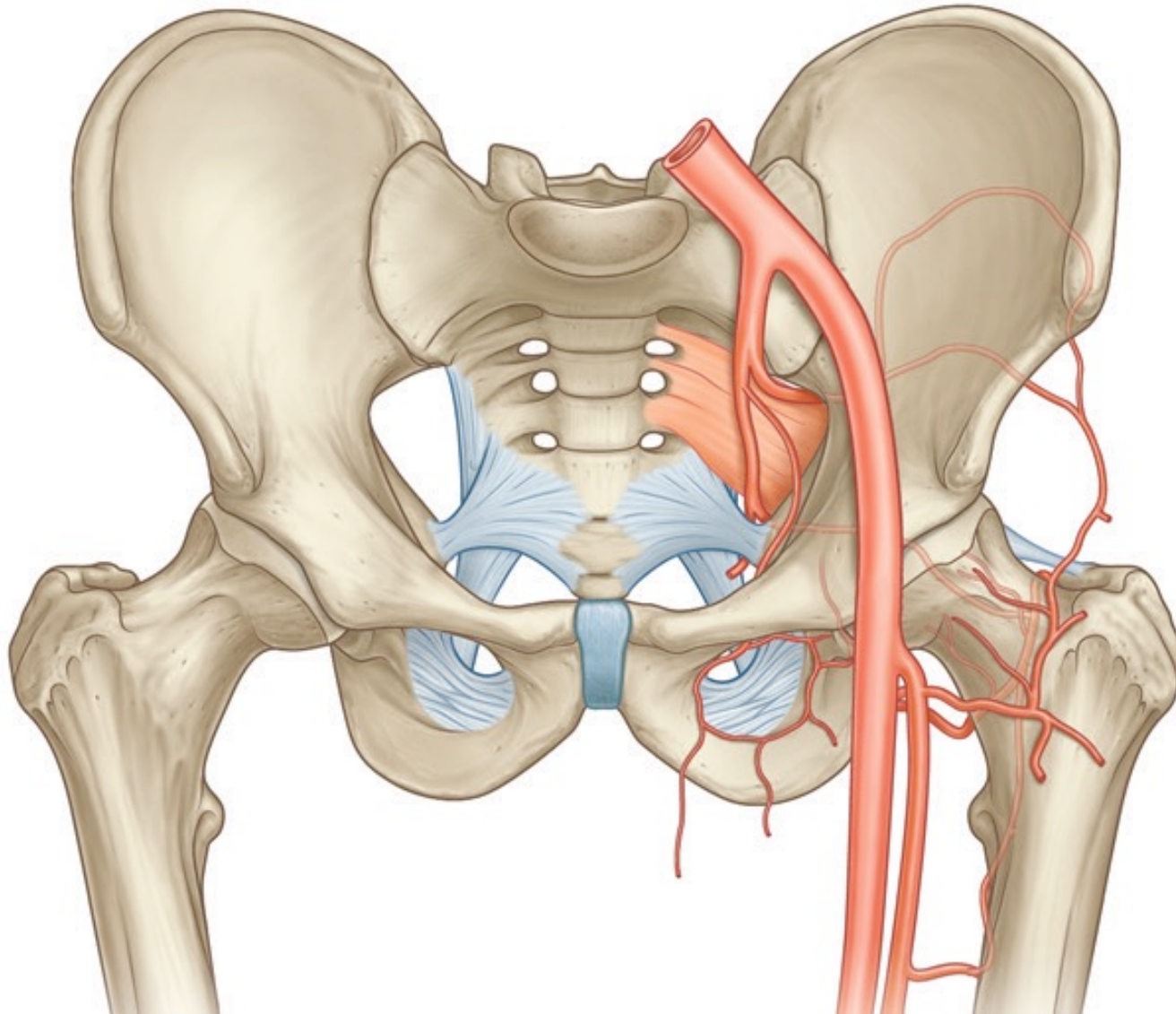


Arteries

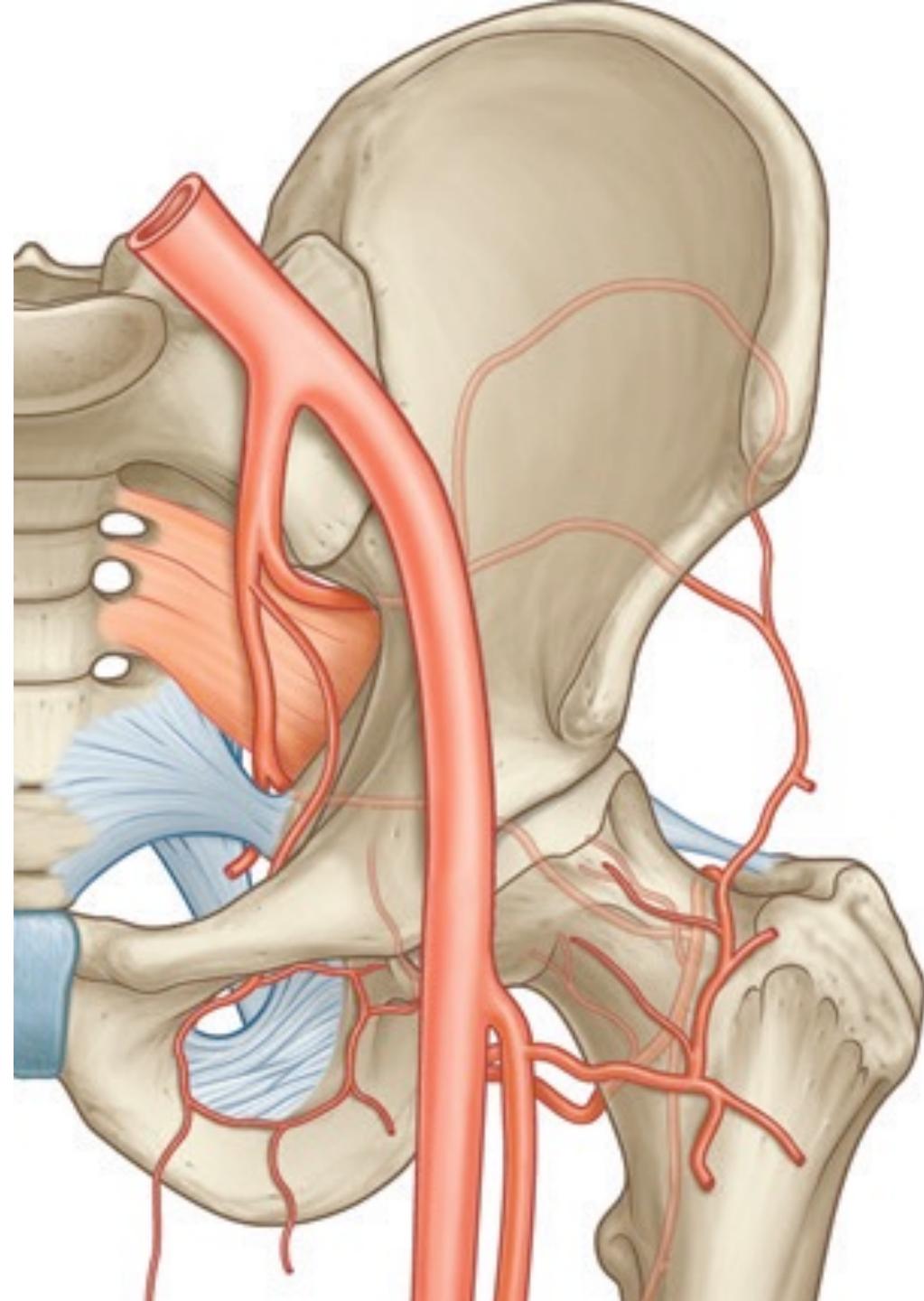
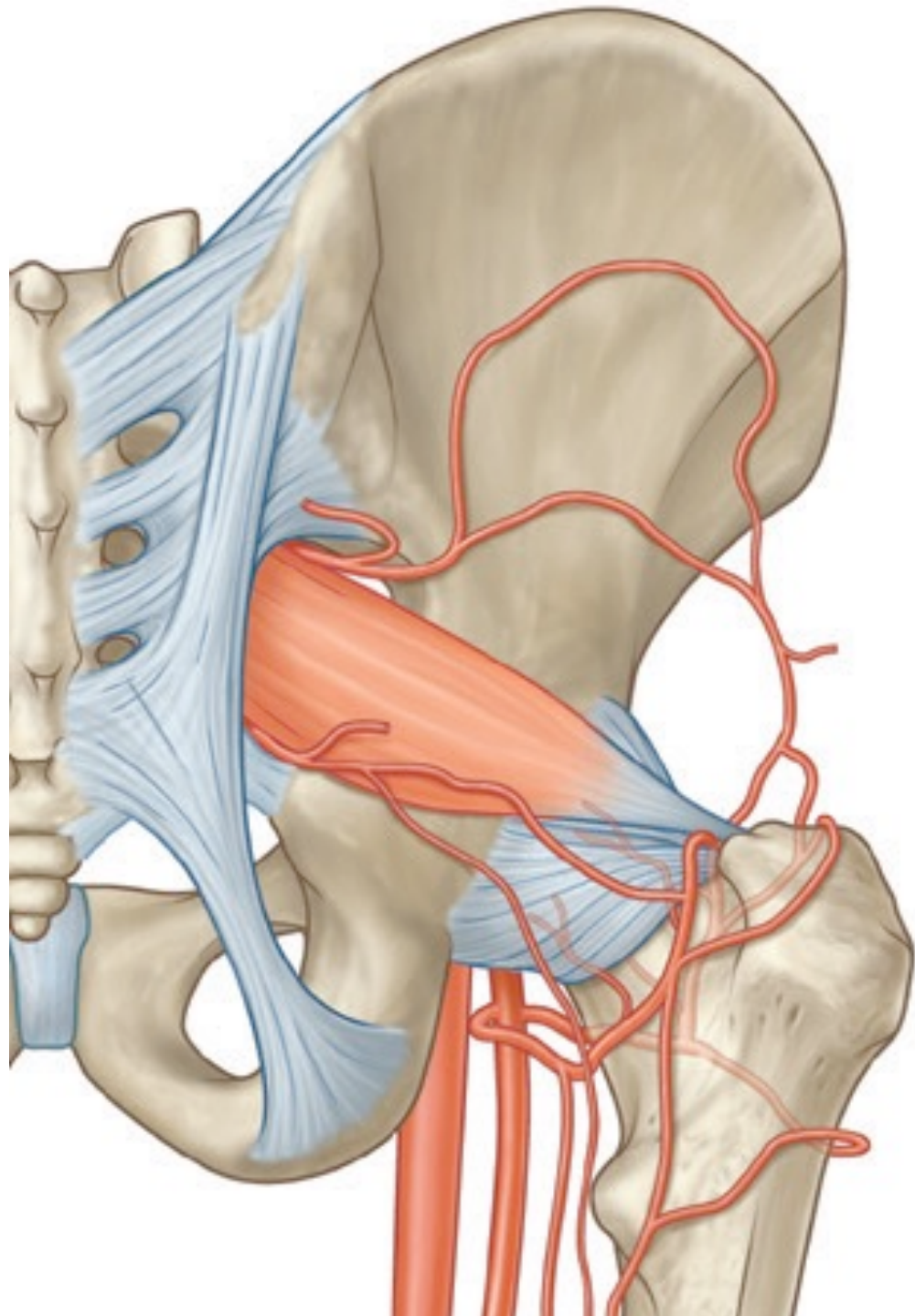
- ♦ **A. femoralis**
 - ♦ A. femoralis „communis“
 - ♦ A. femoralis „superficialis“
 - ♦ A. femoralis profunda
- ♦ **A. poplitea**
- ♦ **A. tibialis anterior**
 - ♦ A. dorsalis pedis
 - ♦ A. metatarsa dorsalis I.
- ♦ **Tr. tibiofibularis**
- ♦ **a. fibularis**
- ♦ **A. tibialis posterior**
 - ♦ A. plantaris medialis et lateralis



Arteriae coxae



- ♦ **A. femoralis (communis)**
 - ♦ A. circumflexa femoris lateralis
 - ♦ A. circumflexa femoris medialis
- ♦ **A. obturatoria**
 - ♦ A. capitis femoris
- ♦ **A. glutea superior**



Arteries

- ♦ **A. femoralis**

- ♦ A. femoralis „communis“
- ♦ A. femoralis „superficialis“
- ♦ A. femoralis profunda

- ♦ **A. poplitea**

- ♦ **A. tibialis anterior**

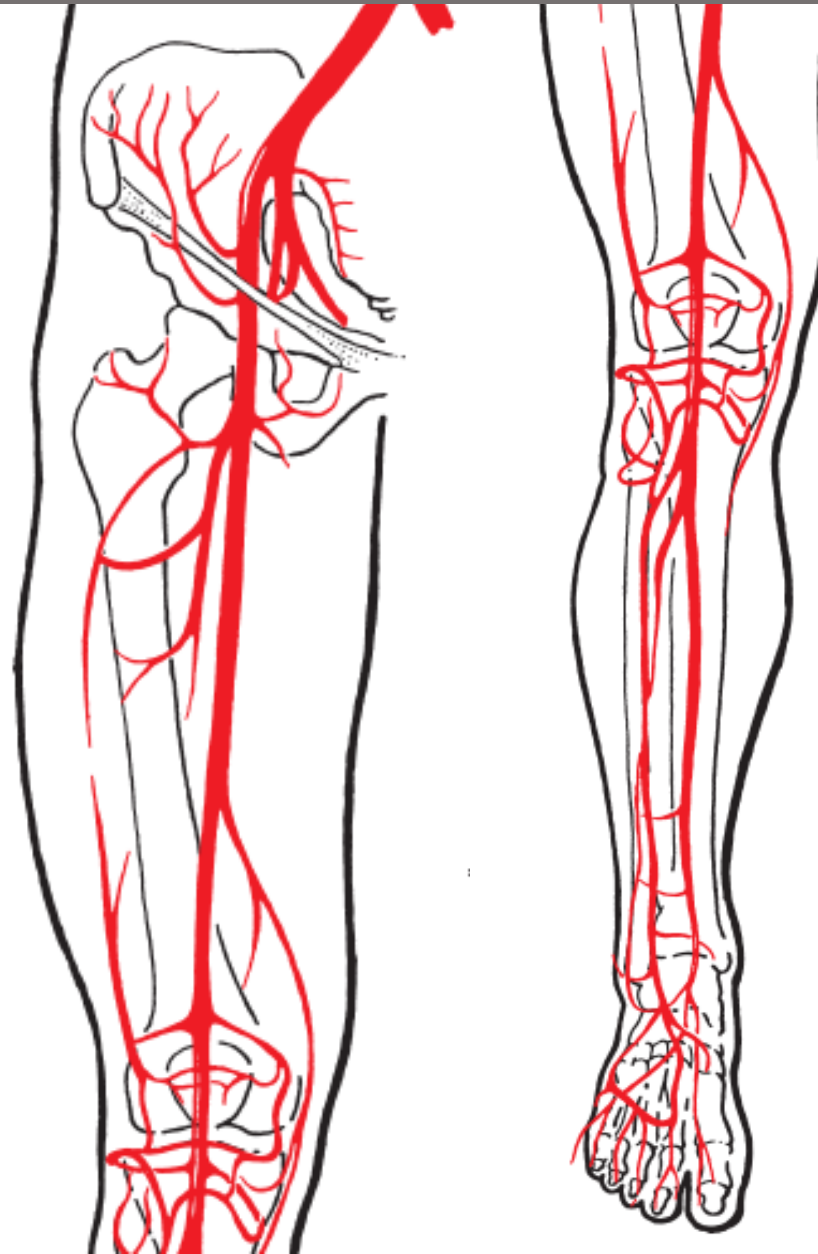
- ♦ A. dorsalis pedis
- ♦ A. metatarsae dorsalis I.

- ♦ **Truncus tibiofibularis**

- ♦ **A. fibularis**

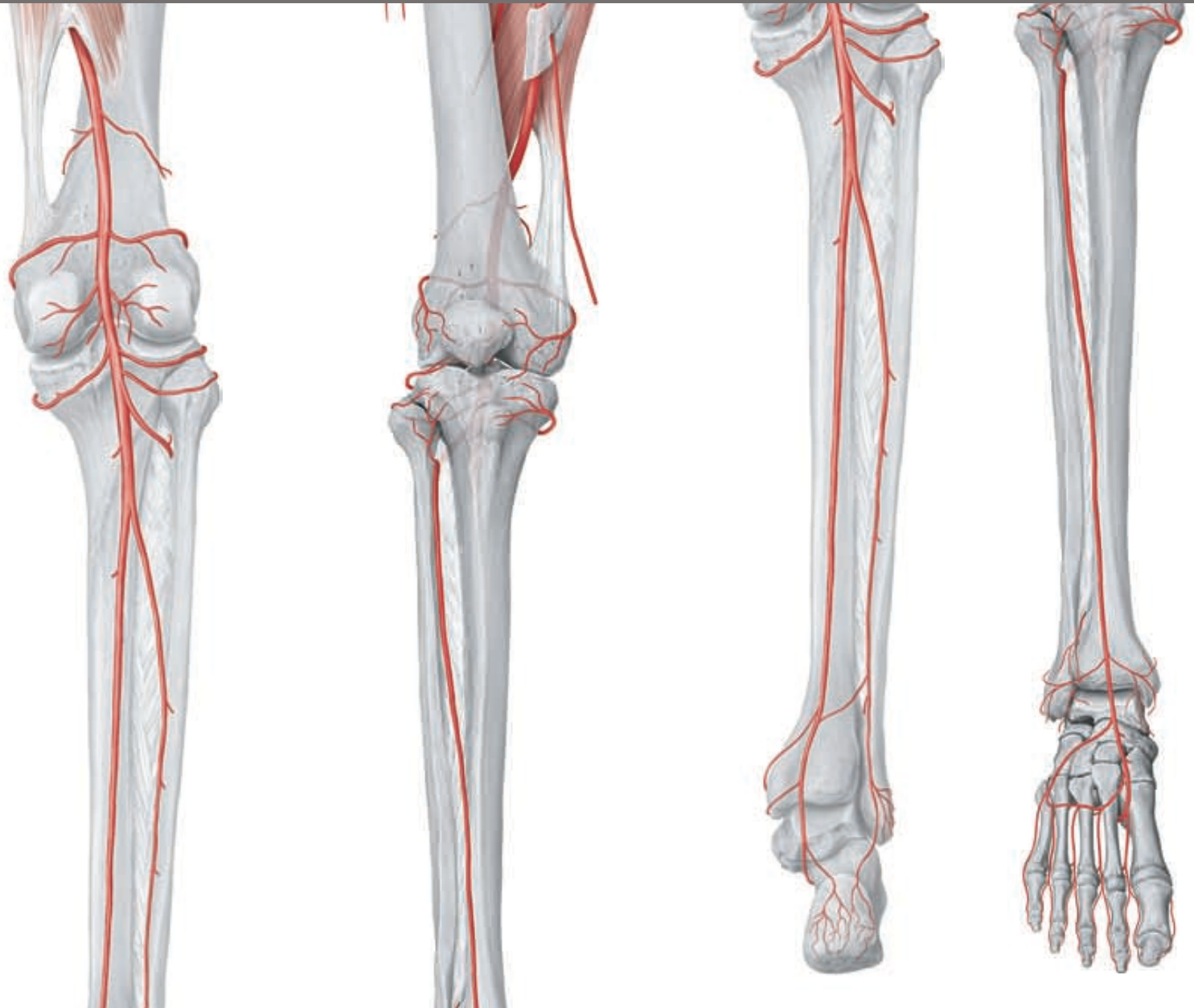
- ♦ **A. tibialis posterior**

- ♦ A. plantaris medialis et lateralis

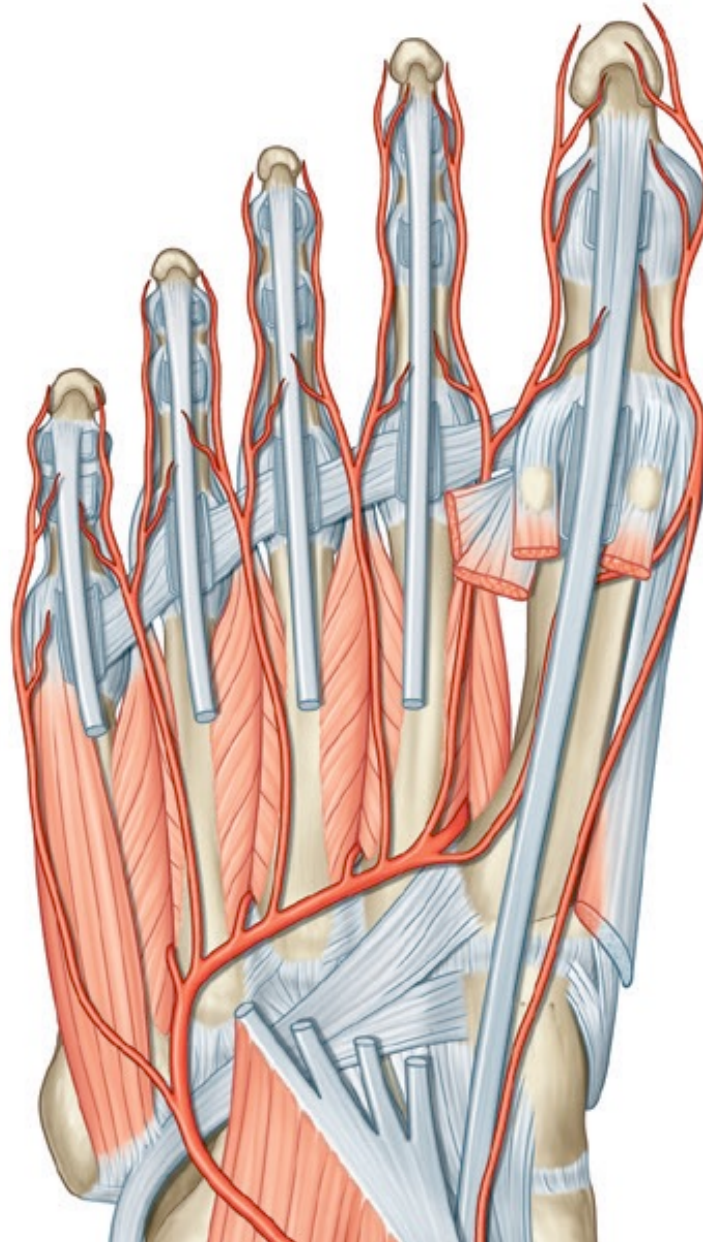
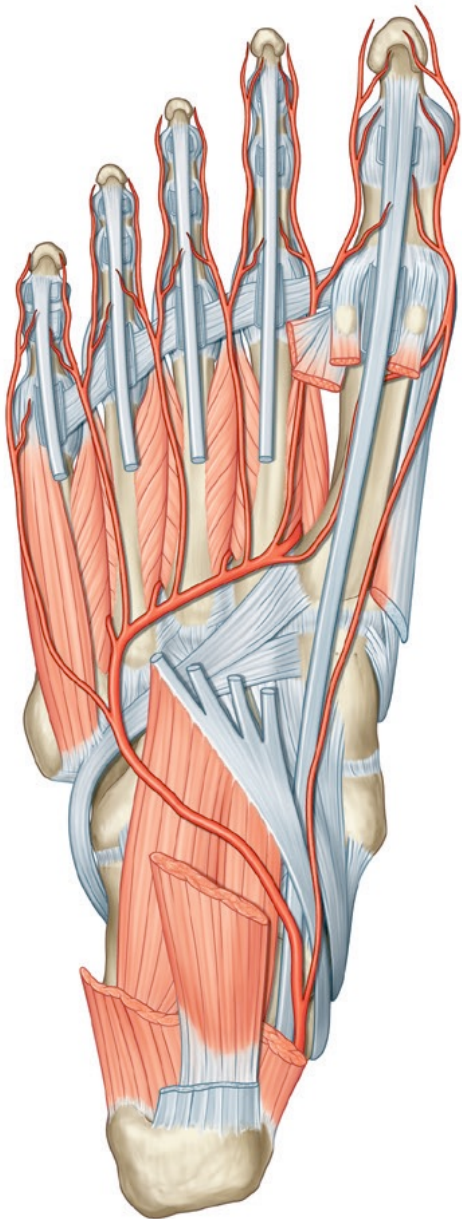


Arteries

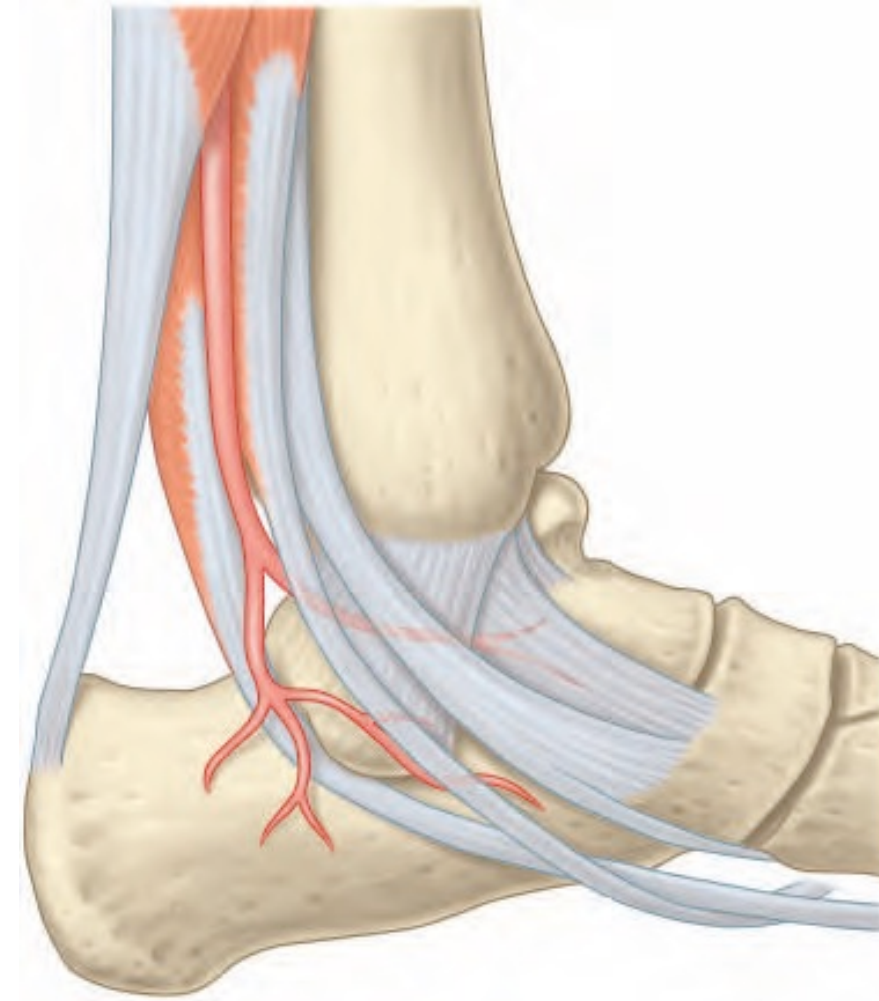
- ♦ **A. femoralis**
 - ♦ A. femoralis „communis“
 - ♦ A. femoralis „superficialis“
 - ♦ A. femoralis profunda
- ♦ **A. poplitea**
- ♦ **A. tibialis anterior**
 - ♦ A. dorsalis pedis
 - ♦ A. metatarsa dorsalis I.
- ♦ **Tr. tibiofibularis**
- ♦ **a. fibularis**
- ♦ **A. tibialis posterior**
 - ♦ A. plantaris medialis et lateralis



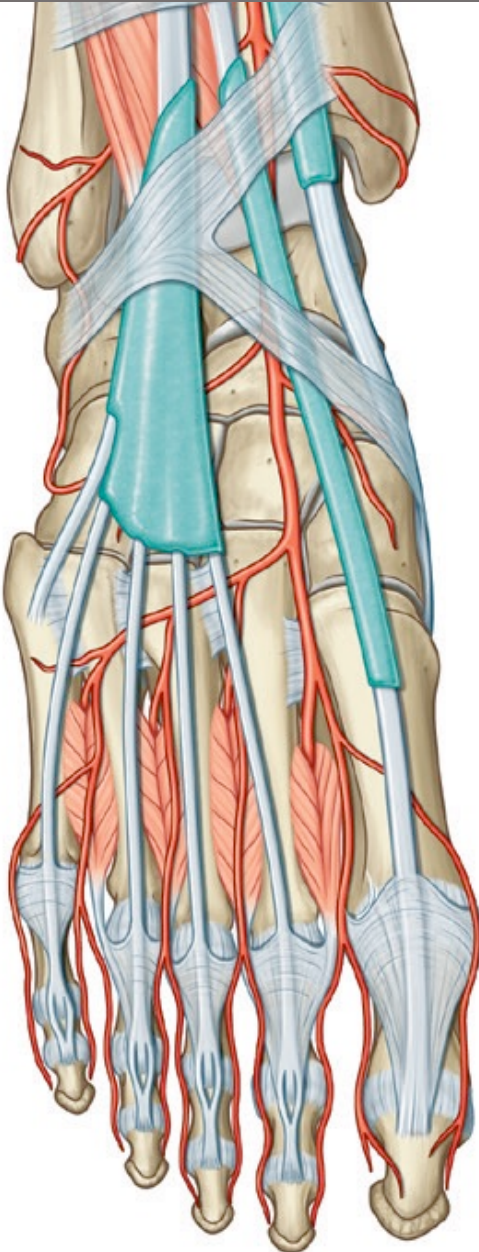
Plantar arteries



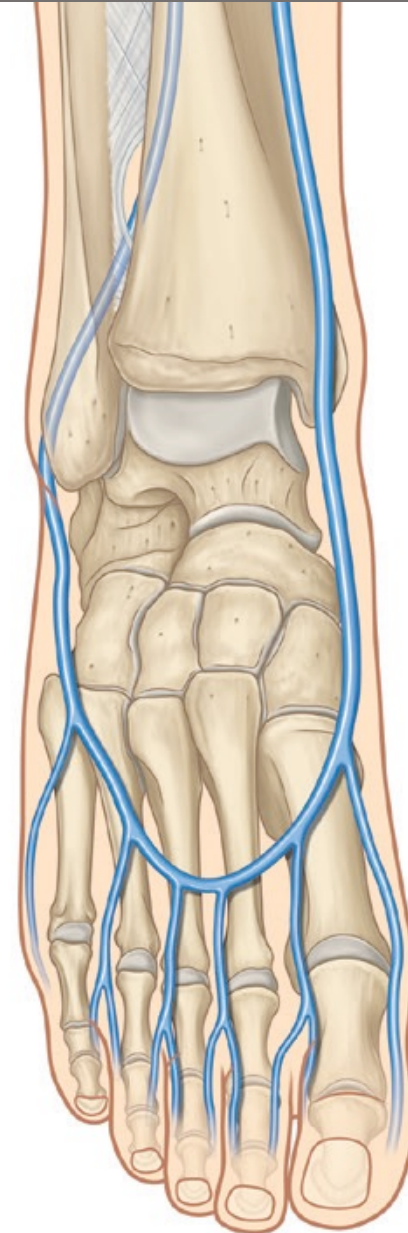
- ♦ **A. tibialis posterior**
- ♦ **A. plantaris medialis**
- ♦ **A. plantaris profunda**



Vasa dorsi pedis



- ♦ **Arteriae dorsi pedis**
- ♦ A. tibialis anterior
- ♦ A. dorsalis pedis
- ♦ **Venae dorsi pedis**
- ♦ V. saphena parva
 - ♦ Maleolus lateralis
- ♦ V. saphena magna
 - ♦ Maleolus medialis



Veins

♦ **Vv. profundae**

- ♦ V. femoralis
- ♦ V. poplitea
- ♦ Vv. fibulares
- ♦ Vv. tibiales posteriores
- ♦ Vv. tibiales anteriores

♦ **Vv. superficiales**

- ♦ V. circumflexa ilium
- ♦ V. epigastrica externa superficialis

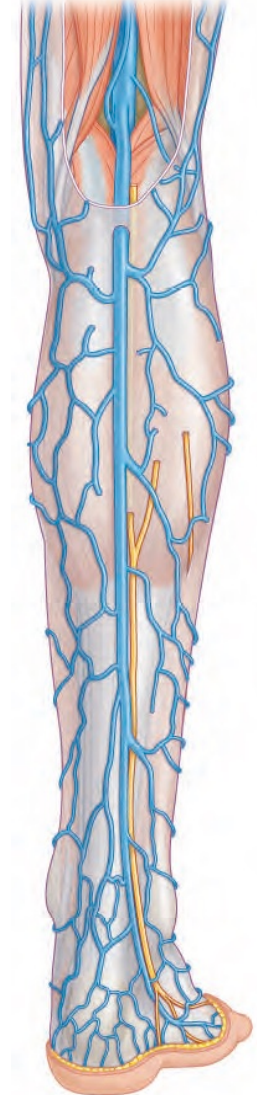
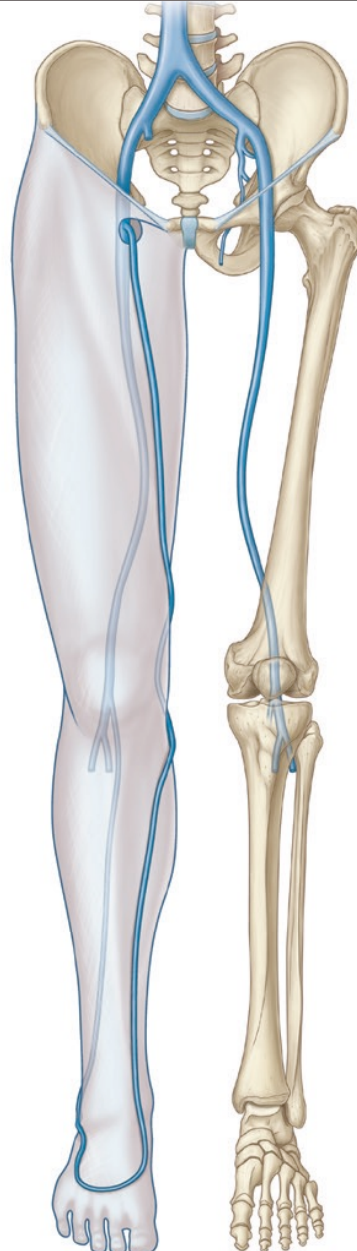
♦ **V. saphena magna**

- ♦ In the front of medial malleolus

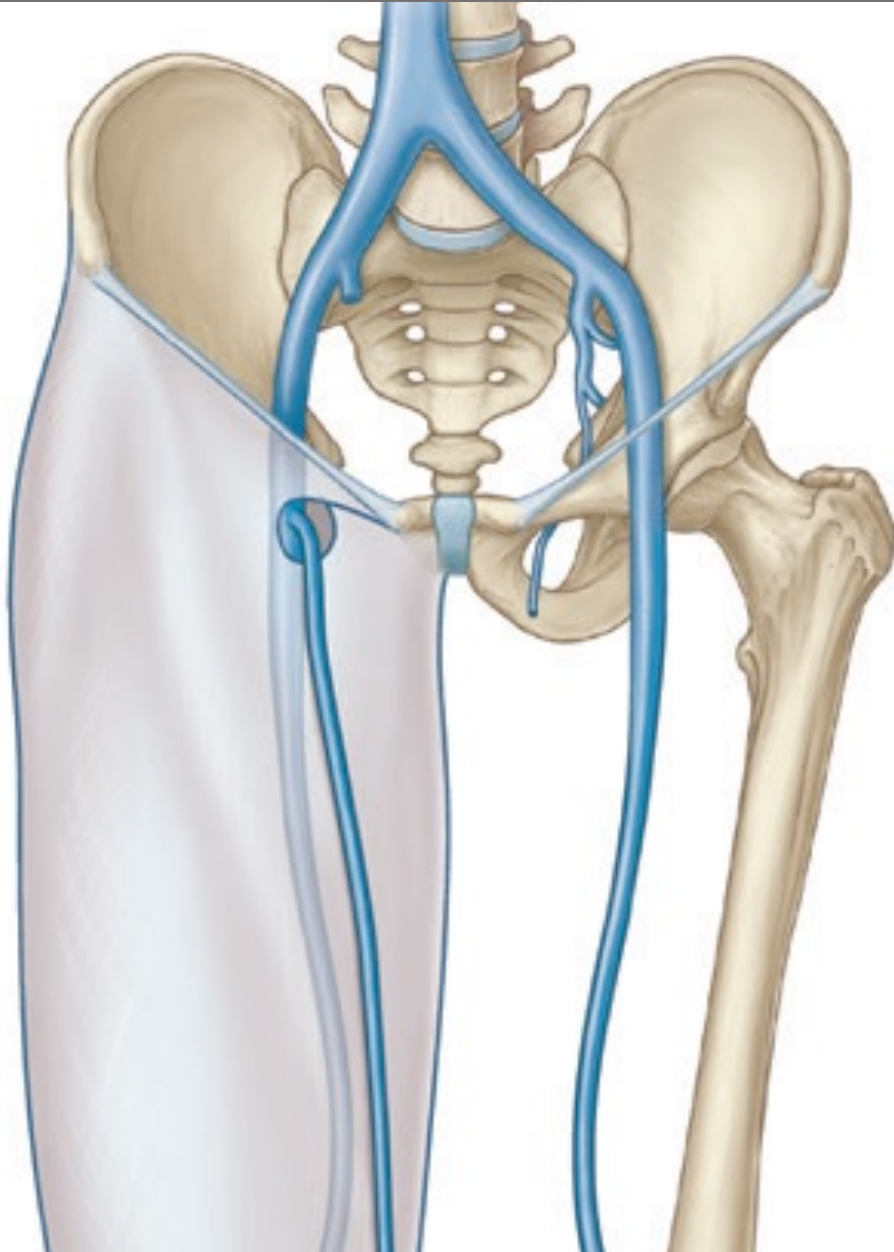
- ♦ V. femoropoplitea

♦ **V. saphena parva**

- ♦ Behind lateral malleolus

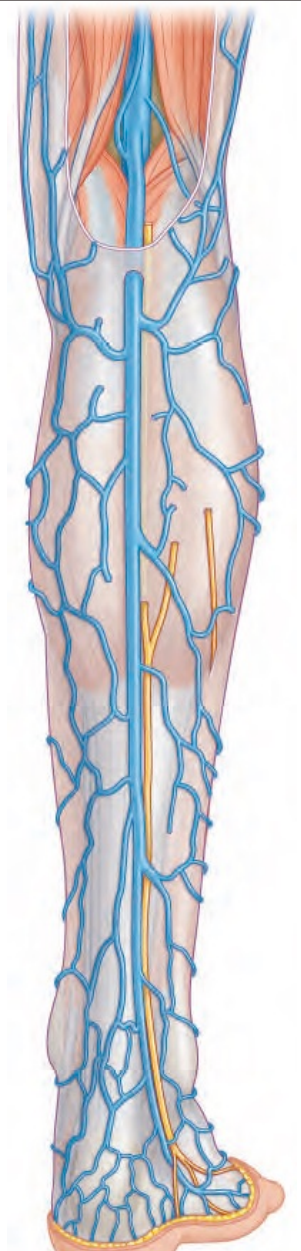
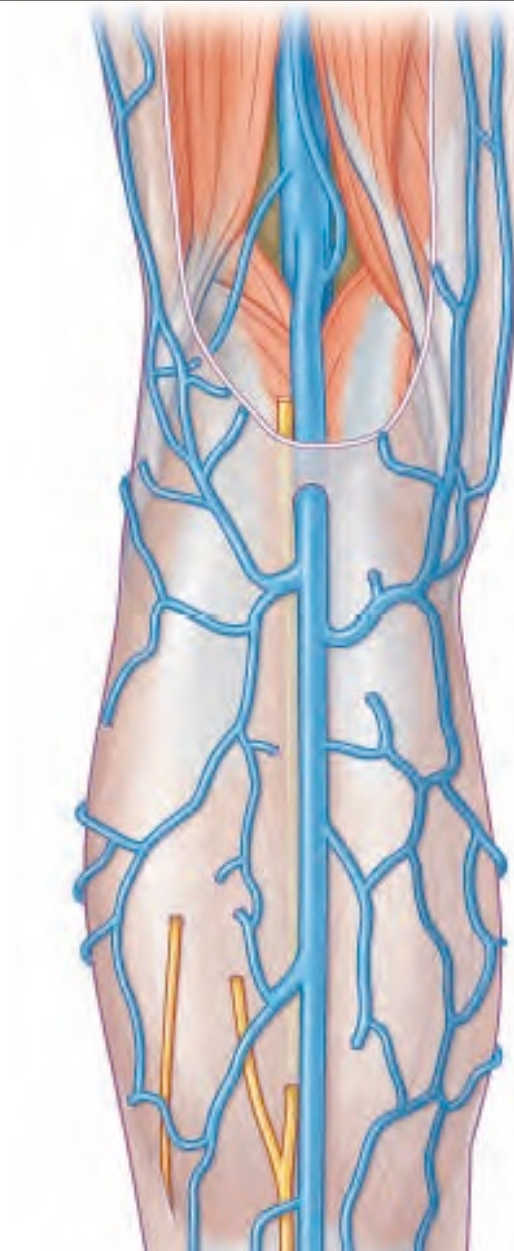
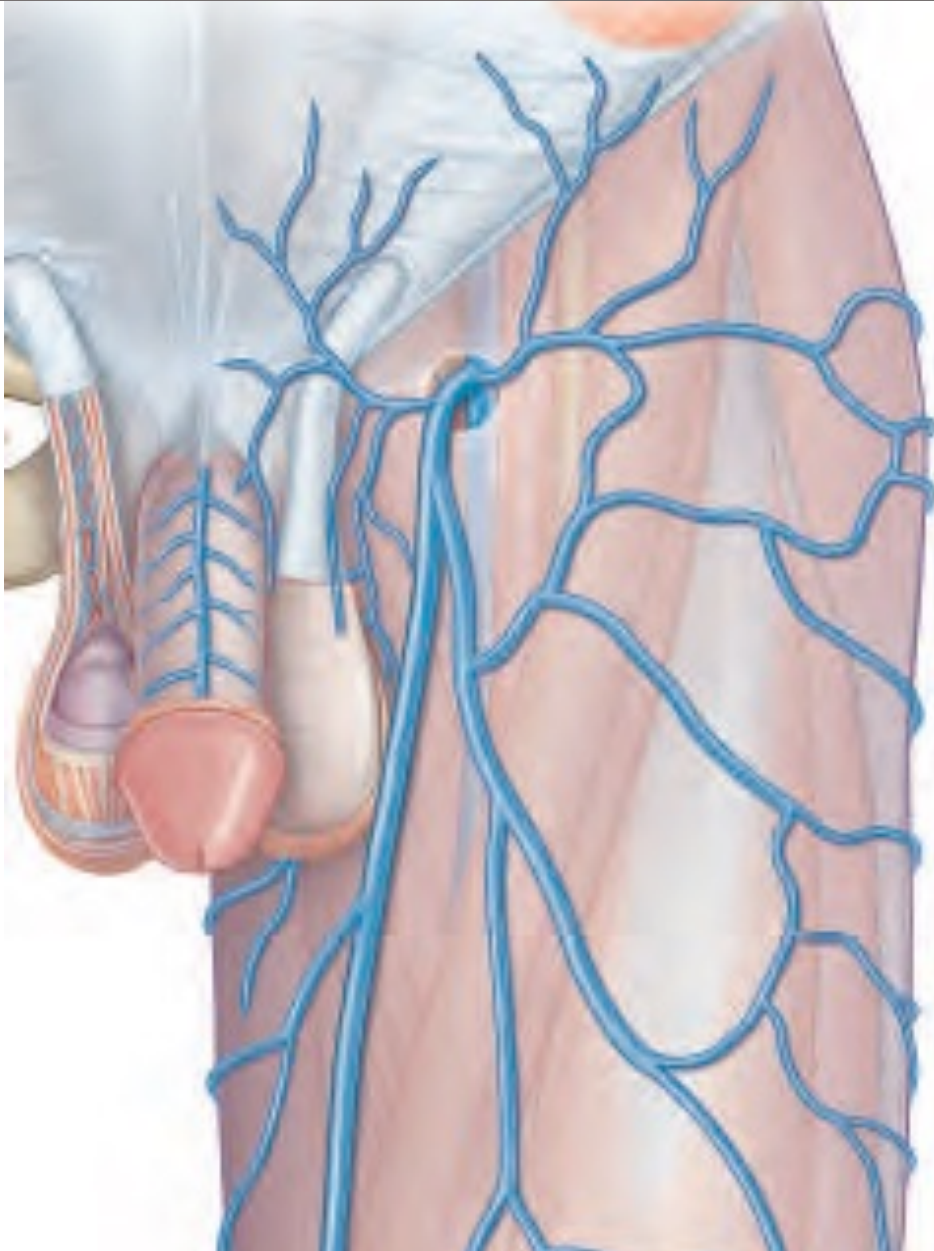


Veins



- ♦ **V. femoralis**
- ♦ **V. iliaca externa**
- ♦ **V. iliaca interna**
 - ♦ V. glutea superior
 - ♦ V. glutea inferior
 - ♦ V. obturatoria
 - ♦ V. pudenda interna

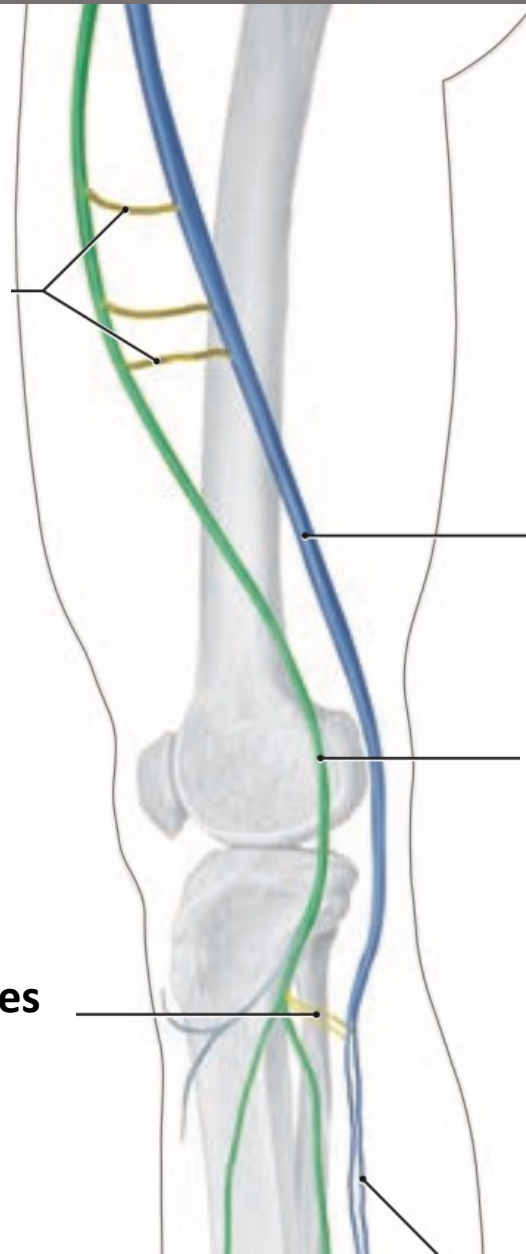
Greater and lesser saphenous veins



Venae perforantes



**Venae
perforantes
Doddi**

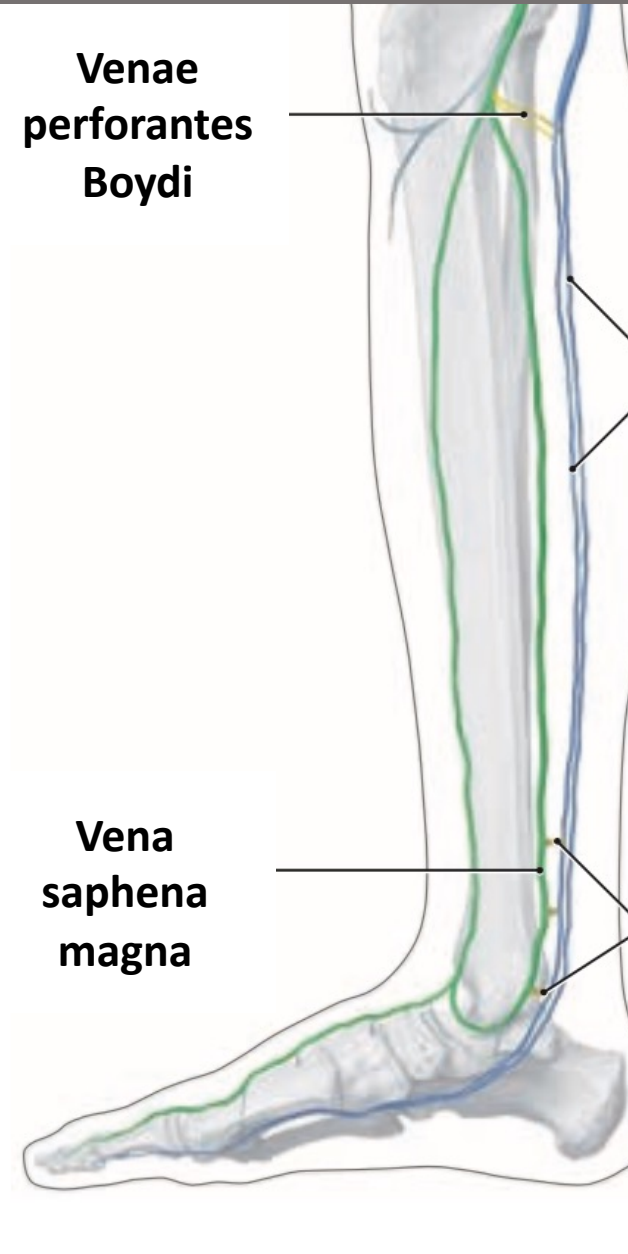


**Venae
perforantes
Boydi**

**Vena
femoralis**

**Vena
saphena
magna**

**Venae
perforantes
Boydi**



**Vena
saphena
magna**

**Vena
tibialis
posterior**

**Venae
perforantes
Cocketti**

Nerves

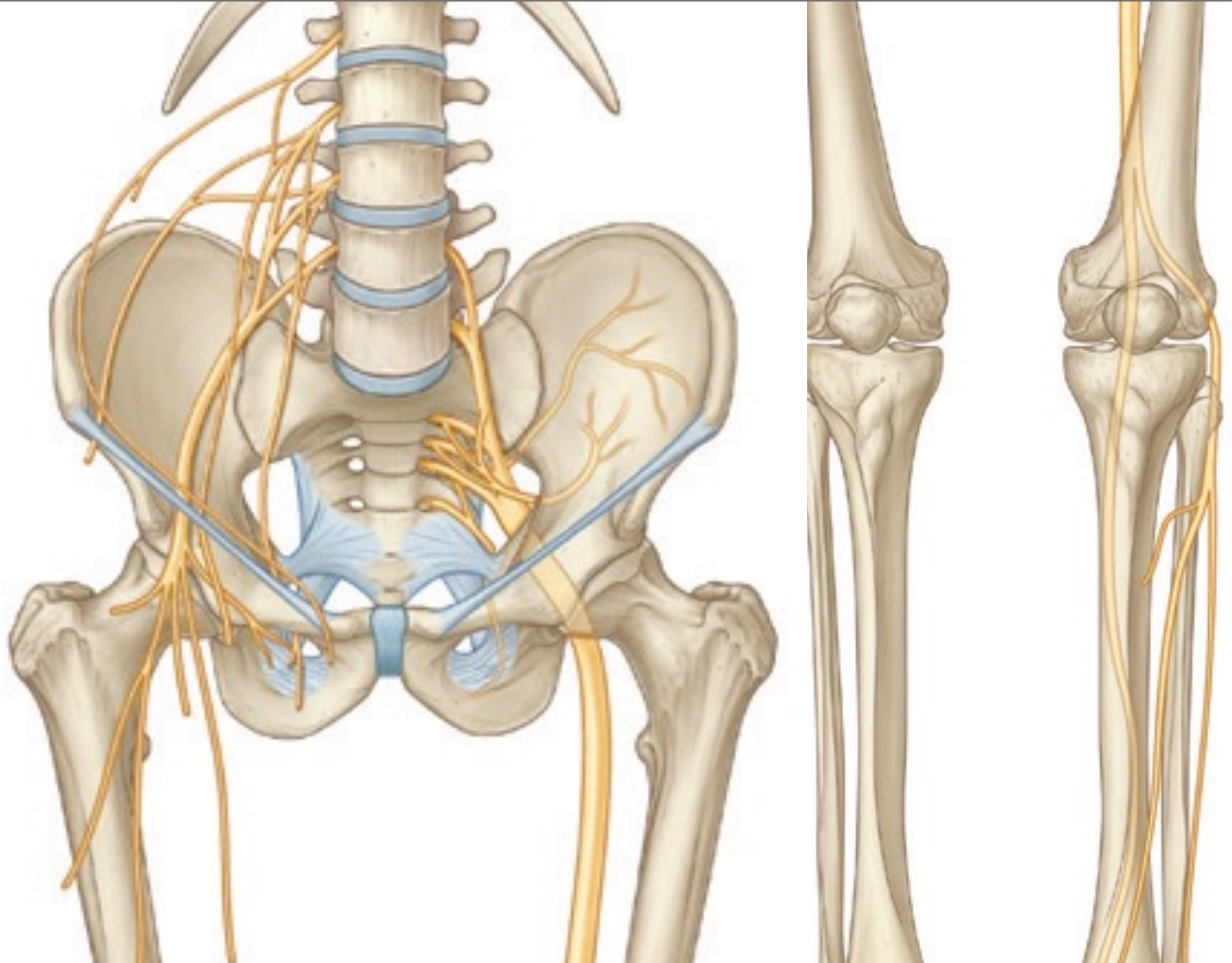
♦ **Nn. clunium**

♦ **Plexus lumbalis**

- ♦ **N. subcostalis**
- ♦ **N. ilioinguinalis**
- ♦ **N. iliohypogastricus**
- ♦ **N. genitofemoralis**
- ♦ **N. femoralis**
- ♦ **N. obturatorius**

♦ **Plexus sacralis**

- ♦ **N. gluteus superior**
- ♦ **N. ischiadicus**
 - ♦ **N. tibialis**
 - ♦ **N. fibularis (peroneus)**
- ♦ **N. gluteus inferior**
- ♦ **N. pudendus**



Nervi clunium

🔴 Nn. clunium superiores

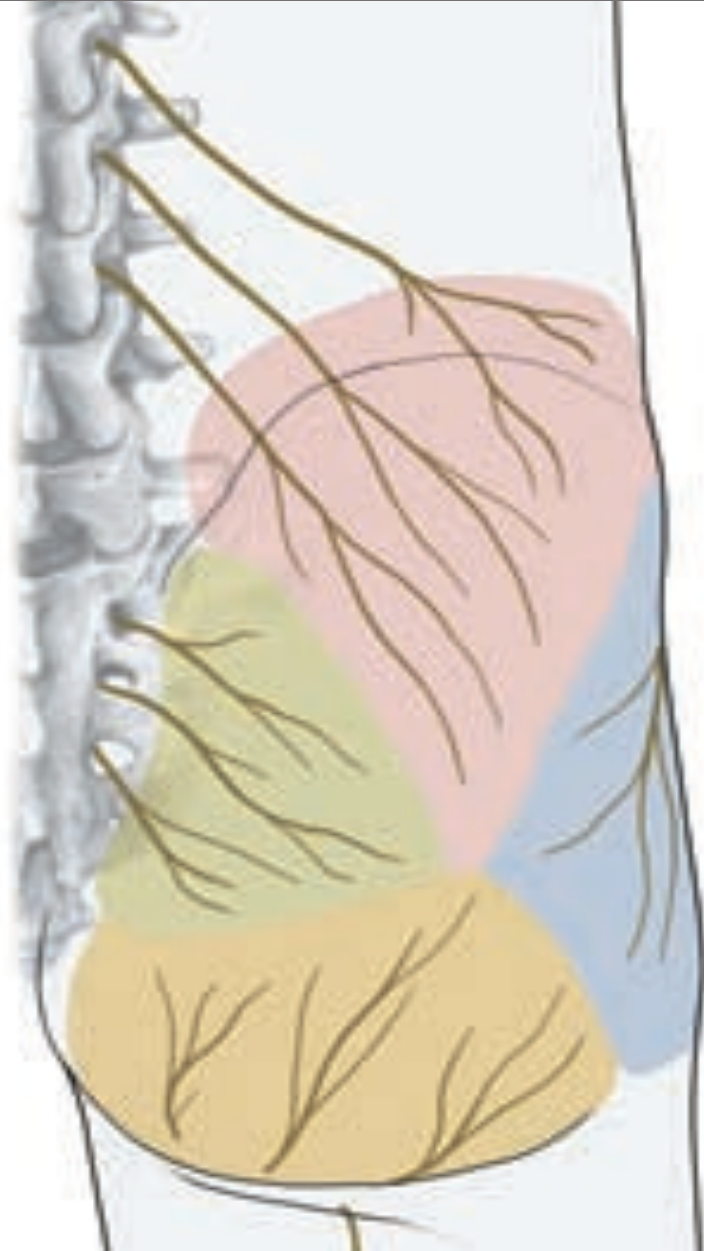
- 🔴 Rr. dorsales nn lumbalium L1- L3

🔴 Nn. clunium medii

- 🔴 Plexus sacralis – S1 – S3

🔴 Nn. clunium inferiores

- 🔴 Rami ventrales - plexus sacralis
- 🔴 **CAVE!**



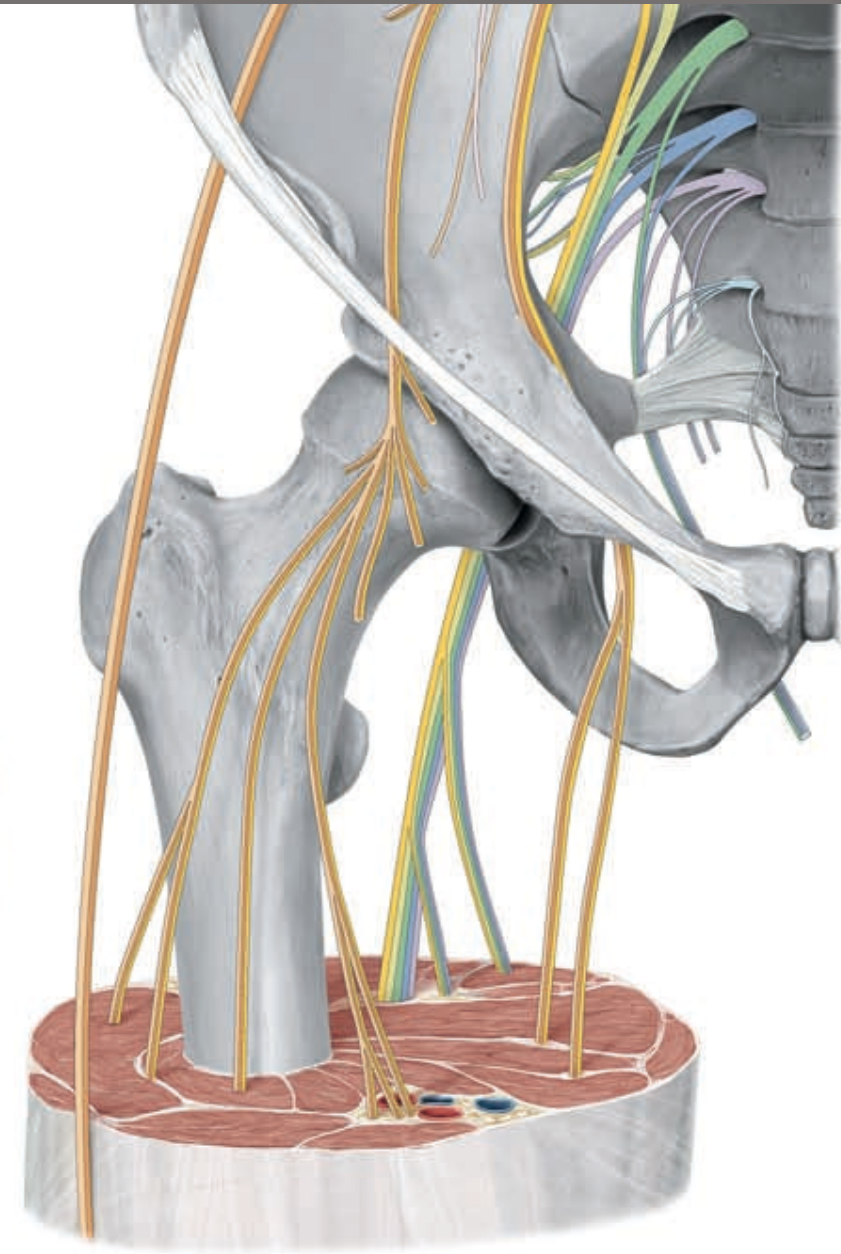
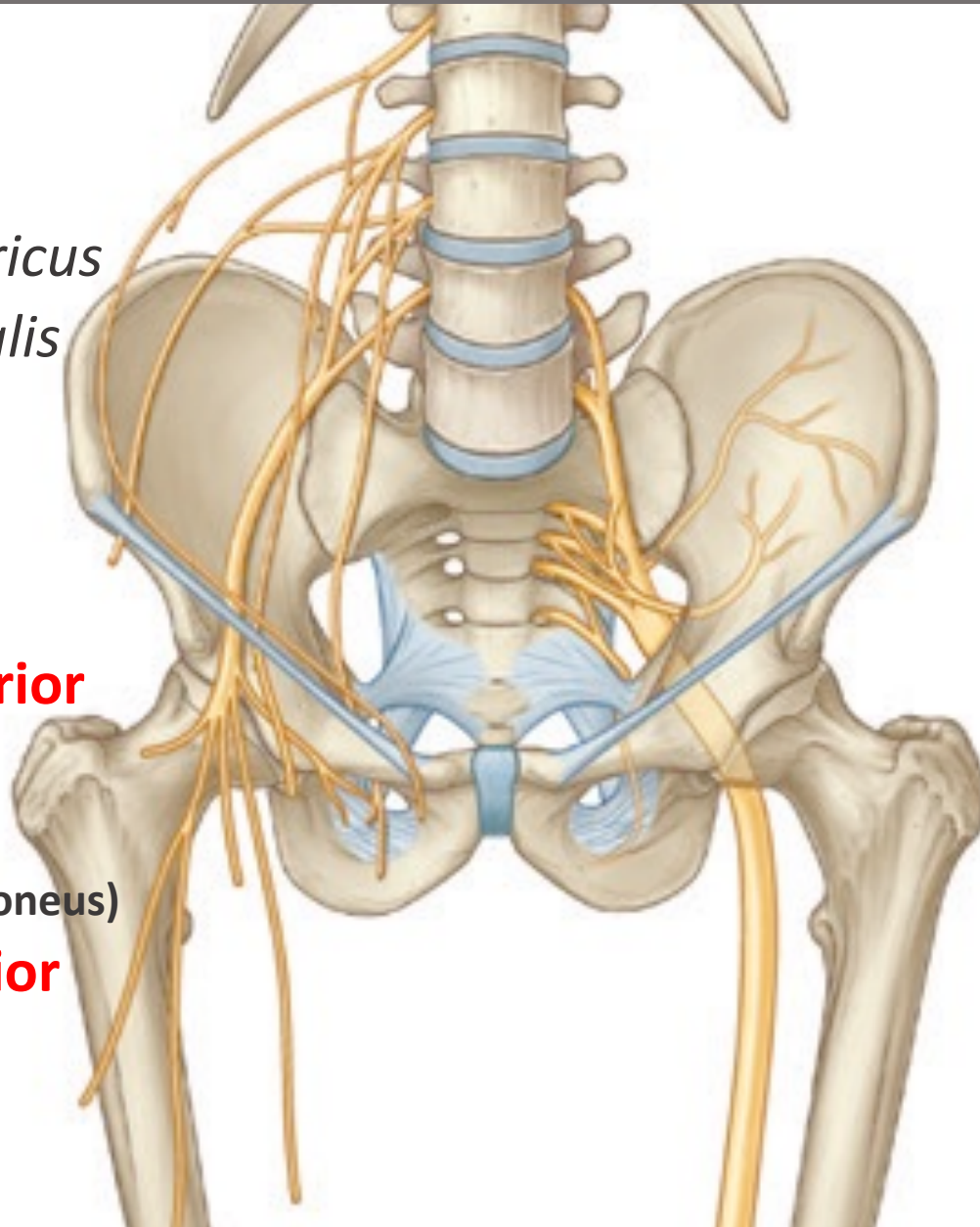
Nerves of lower extremity muscles

♦ Plexus lumbalis

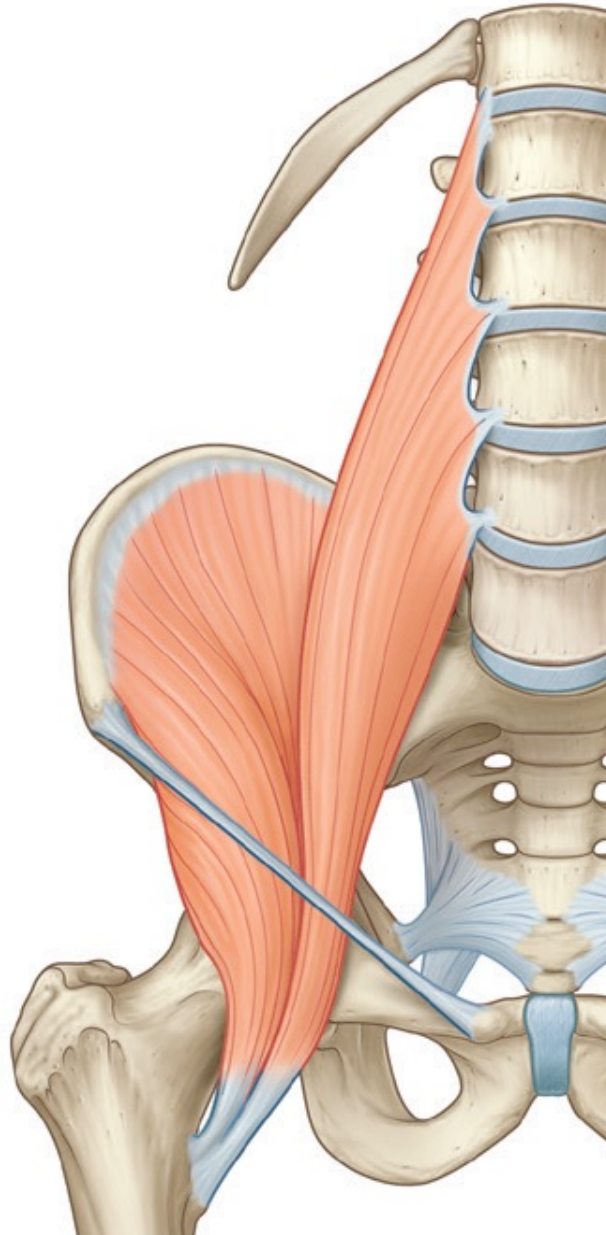
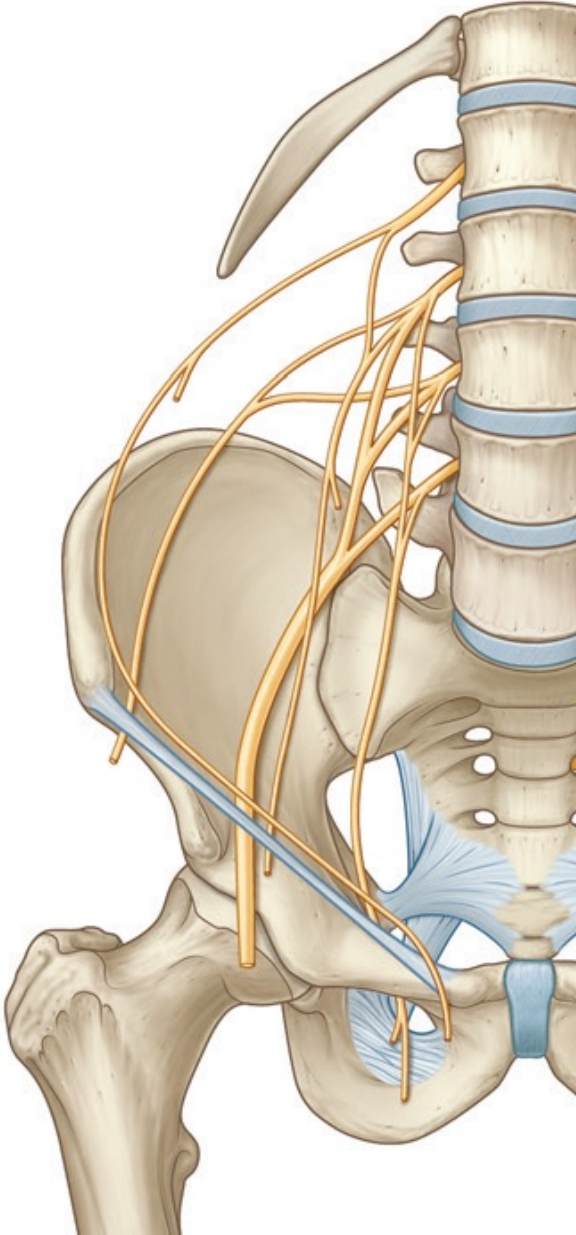
- ♦ *N. ilioinguinalis*
- ♦ *N. iliohypogastricus*
- ♦ *N. genitofemoralis*
- ♦ **N. femoralis**
- ♦ **N. obturatorius**

♦ Plexus sacralis

- ♦ **N. gluteus superior**
- ♦ **N. ischiadicus**
 - ♦ *N. tibialis*
 - ♦ *N. fibularis (peroneus)*
- ♦ **N. gluteus inferior**
- ♦ *N. pudendus*

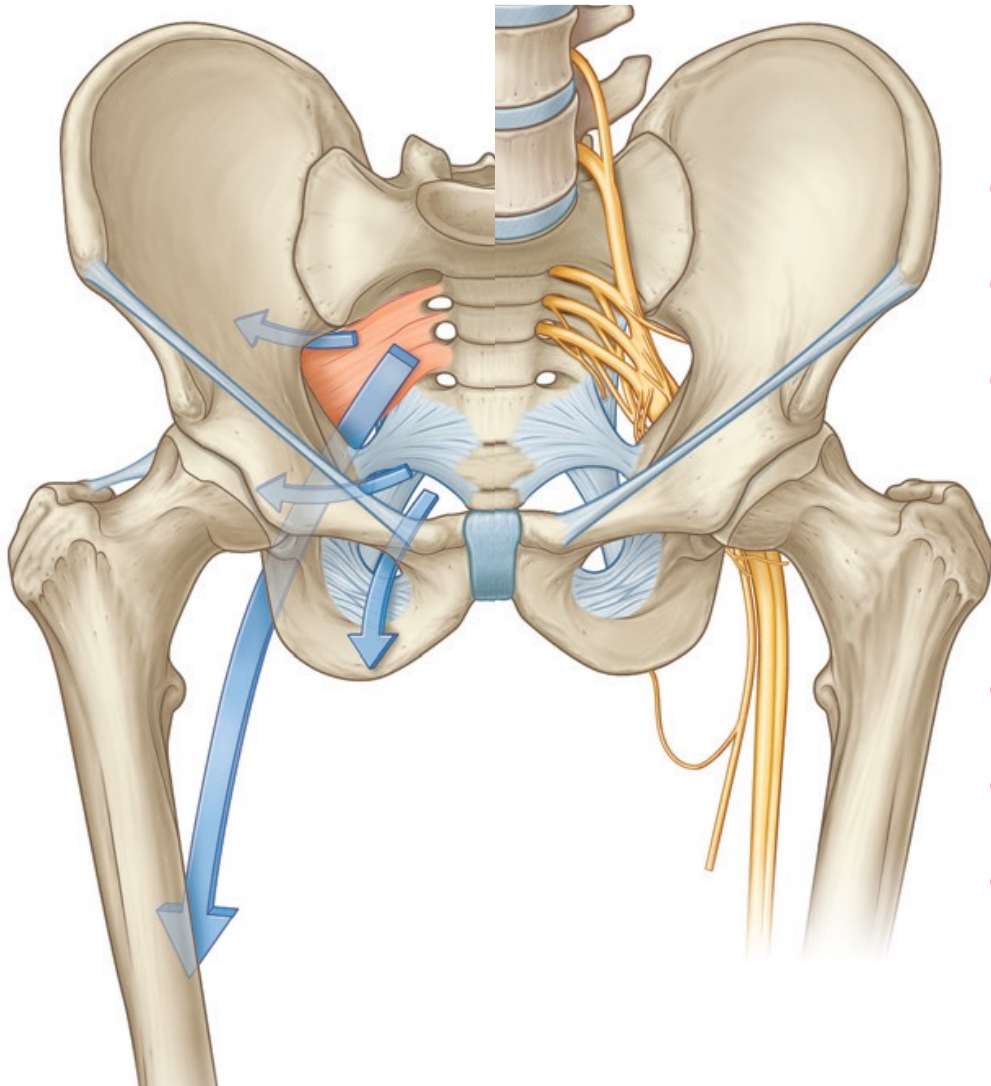


Plexus lumbalis



- ♦ **Plexus lumbalis**
- ♦ *relation to m. psoas major*
- ♦ **Lateral to m. psoas - majority**
 - ♦ N. subcostalis
 - ♦ N. iliohypogastricus
 - ♦ N. ilioinguinalis
 - ♦ N. cutaneus femoris
 - ♦ N. femoralis
- ♦ **Ventral to m. psoas**
 - ♦ N. genitofemoralis
- ♦ **Medial to m. psoas**
 - ♦ N. obturatorius

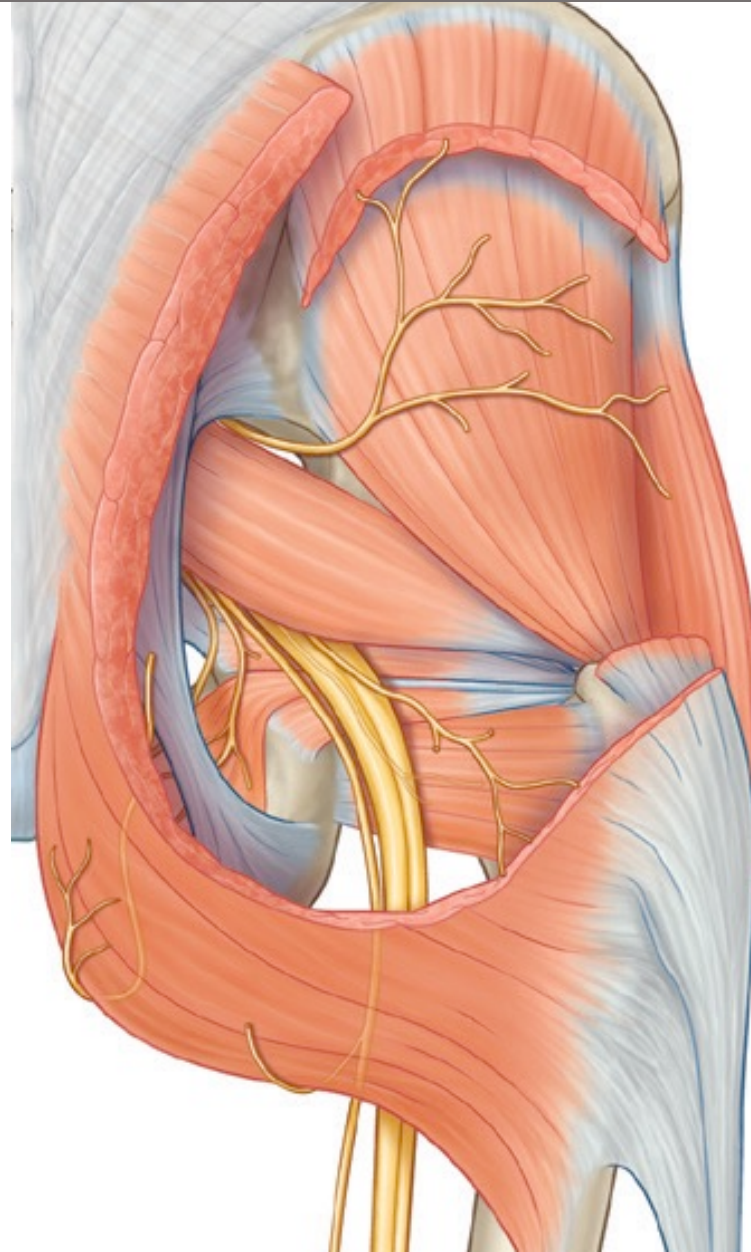
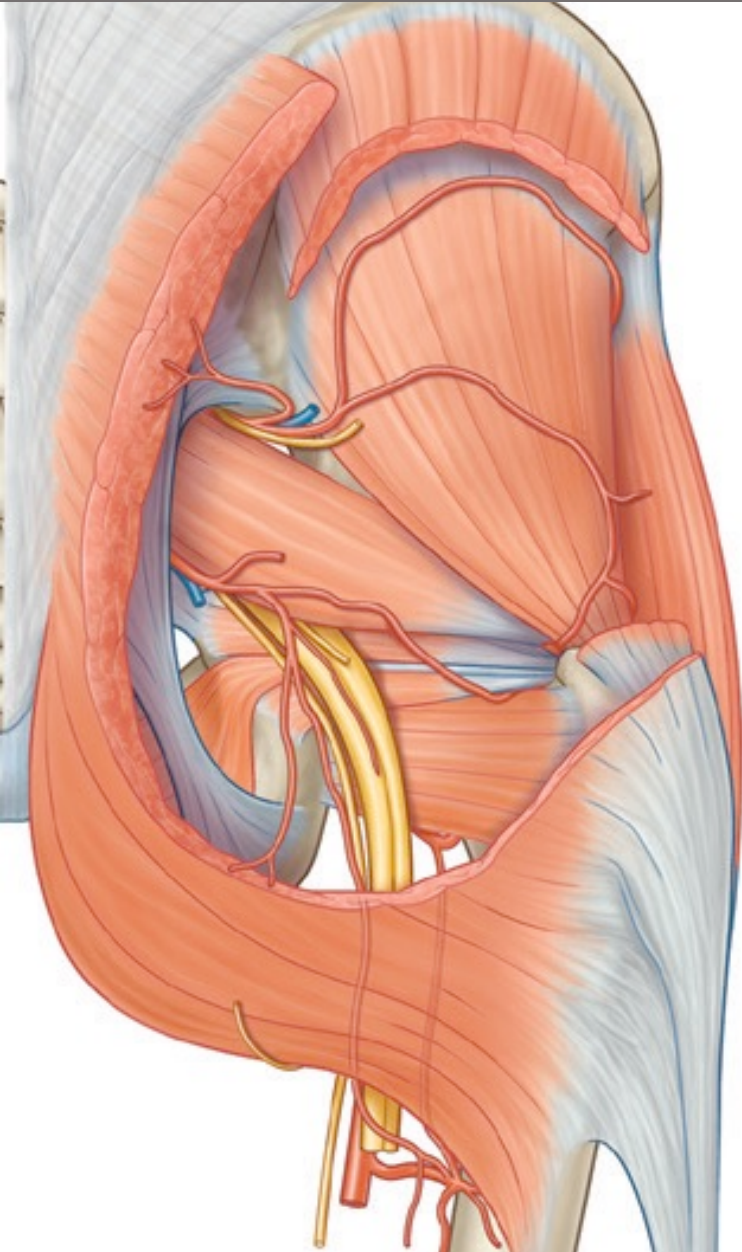
Plexus sacralis



♦ Plexus sacralis

- ♦ Plexus ischiadicus
- ♦ Plexus pudens
- ♦ Plexus coccygeus
- ♦ N. gluteus superior L4-S1 - foramen suprapiriforme
- ♦ N. gluteus inferior L5-S2 - foramen infrapiriforme
- ♦ N. ischiadicus = sciatic nerve L4-S3 - for. infrapiriforme
 - ♦ Fossa poplitea
 - ♦ N. peroneus communis (superifcialis et profundus)
 - ♦ N. tibialis
- ♦ N. cutaneus femoris post. S1-3 - for. infrapiriforme
- ♦ N. pudens S4-5
- ♦ N. cocygeus S4-Co

Gluteal nerves and arteries



♦ **A. glutea superior**

♦ **N. gluteus sup.**

♦ M. gluteus medius

♦ M. gluteus minimus

♦ M. tensor fasciae latae

♦ **A. glutea inferior**

♦ **N. gluteus inf.**

♦ M. gluteus maximus

♦ **N. ischiadicus**

♦ **N. cutaneus femoris post.**

♦ **N. pudendus**

Areae radicales

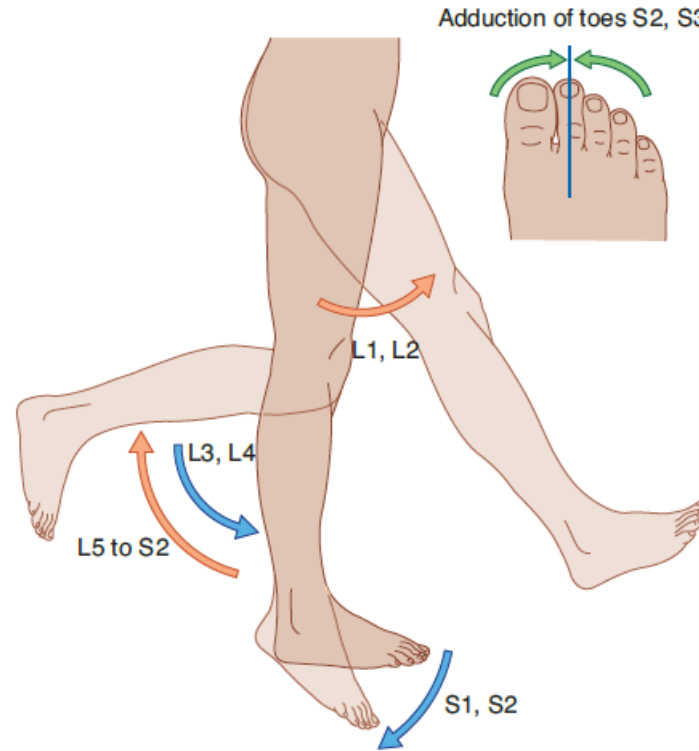
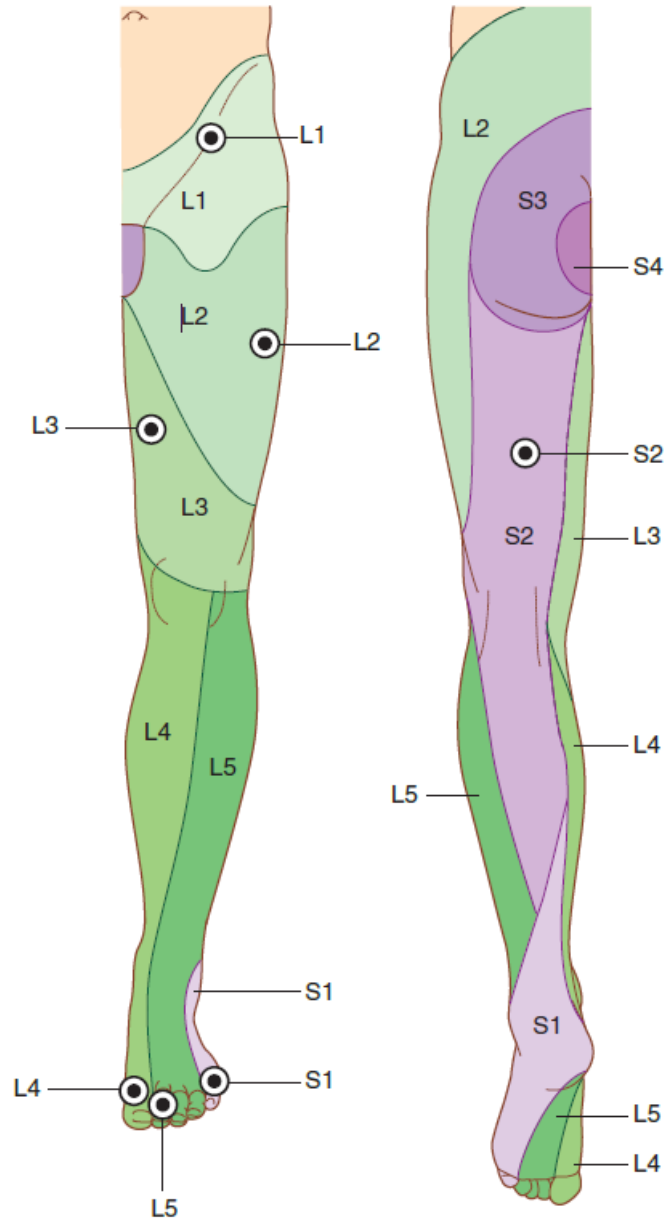
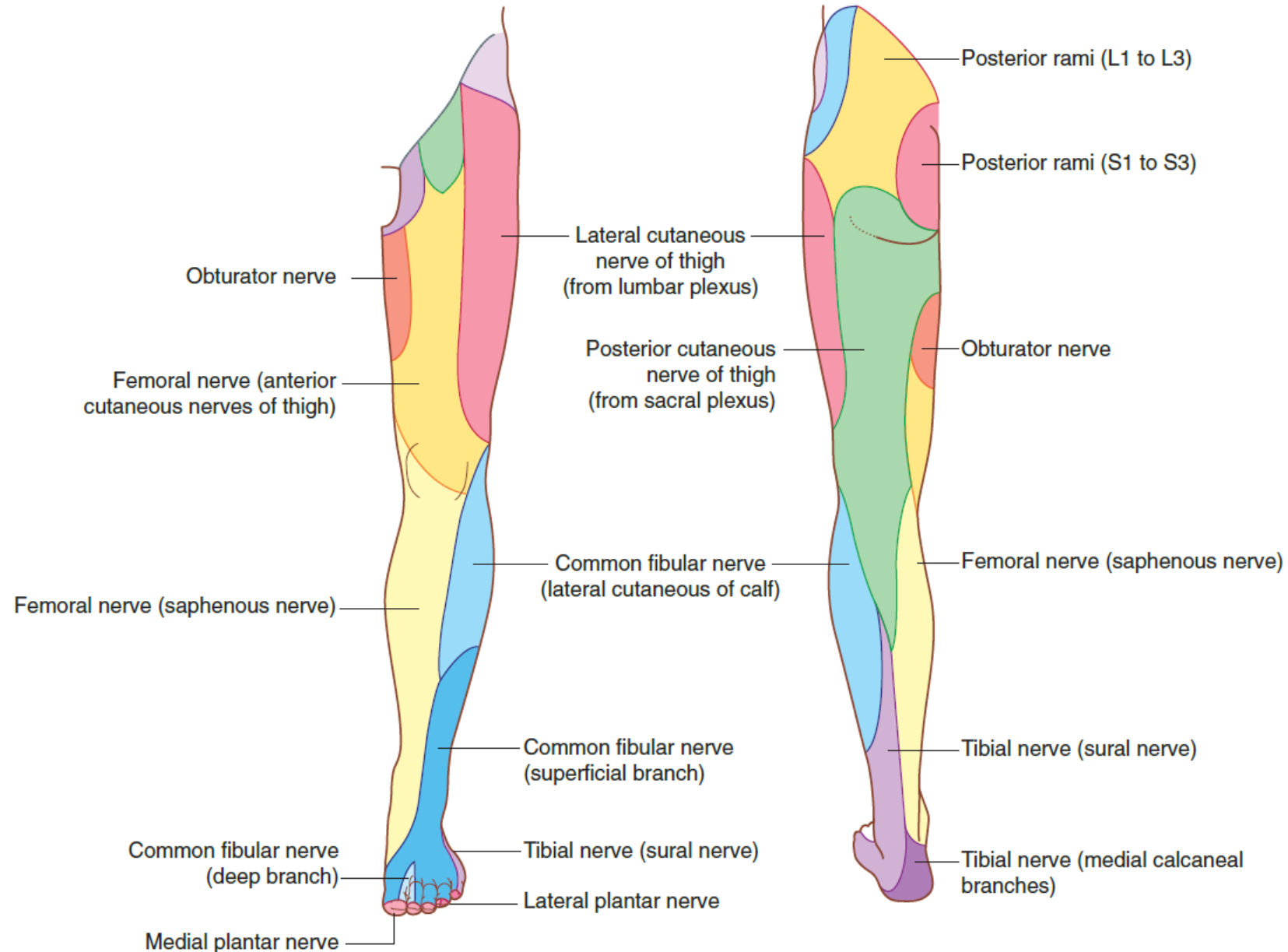
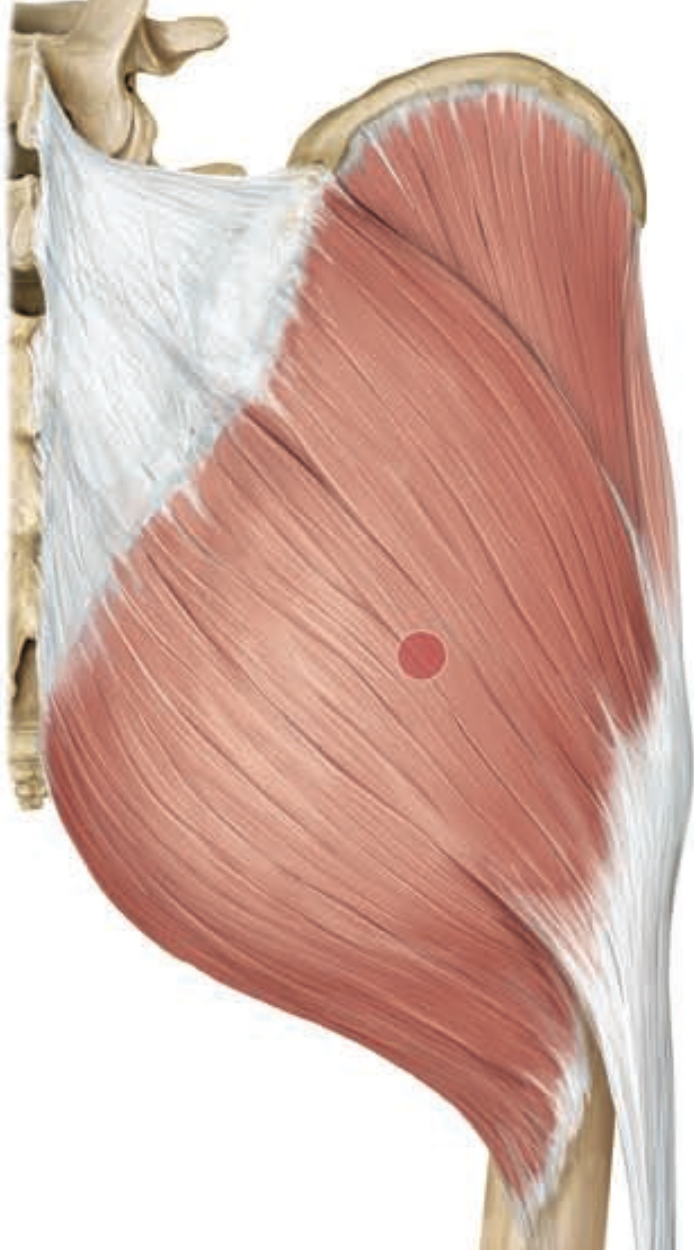


Fig. 6.17 Movements generated by myotomes.

Areae nervinae

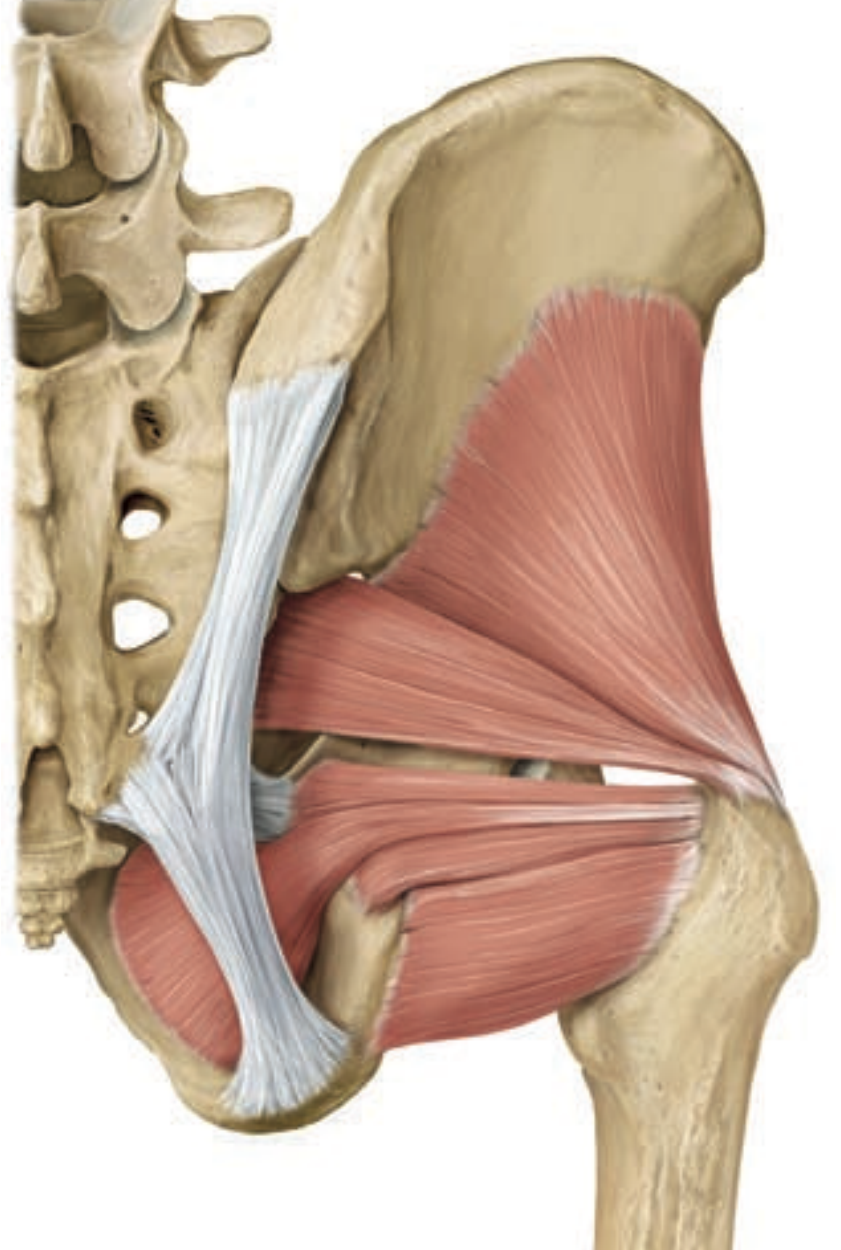
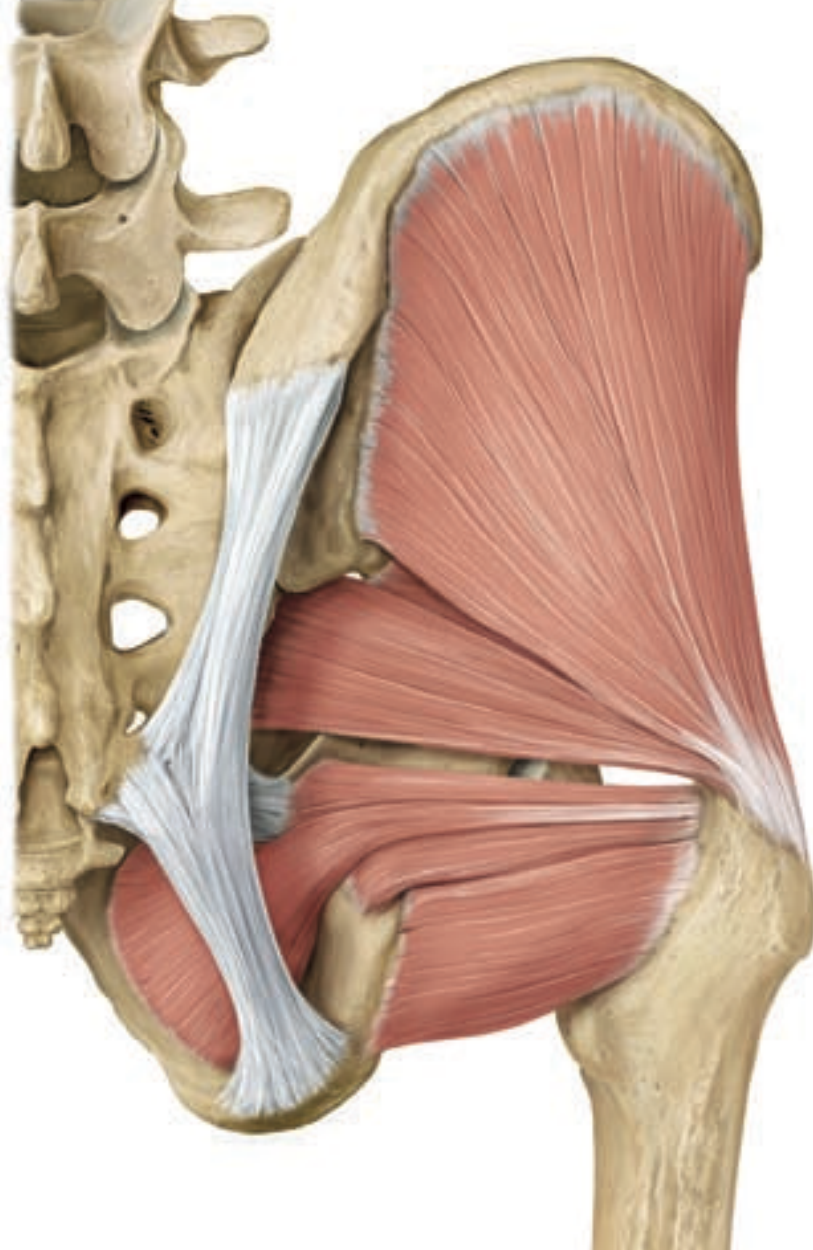
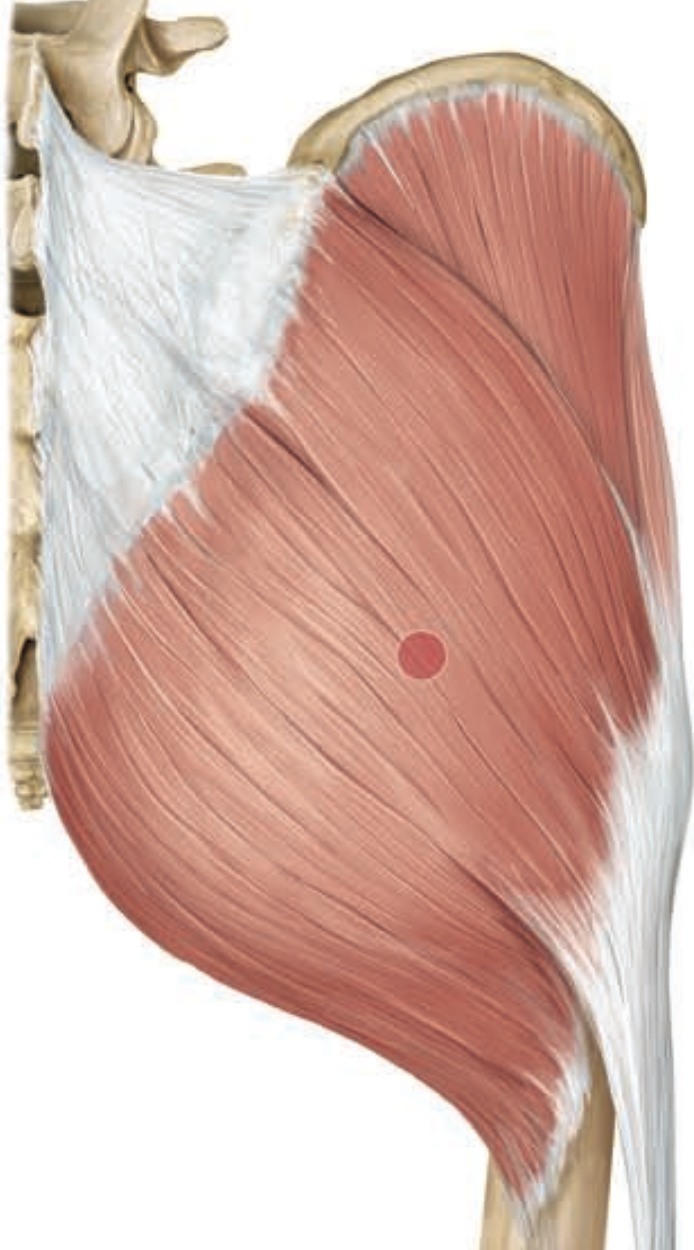


Musculi glutei

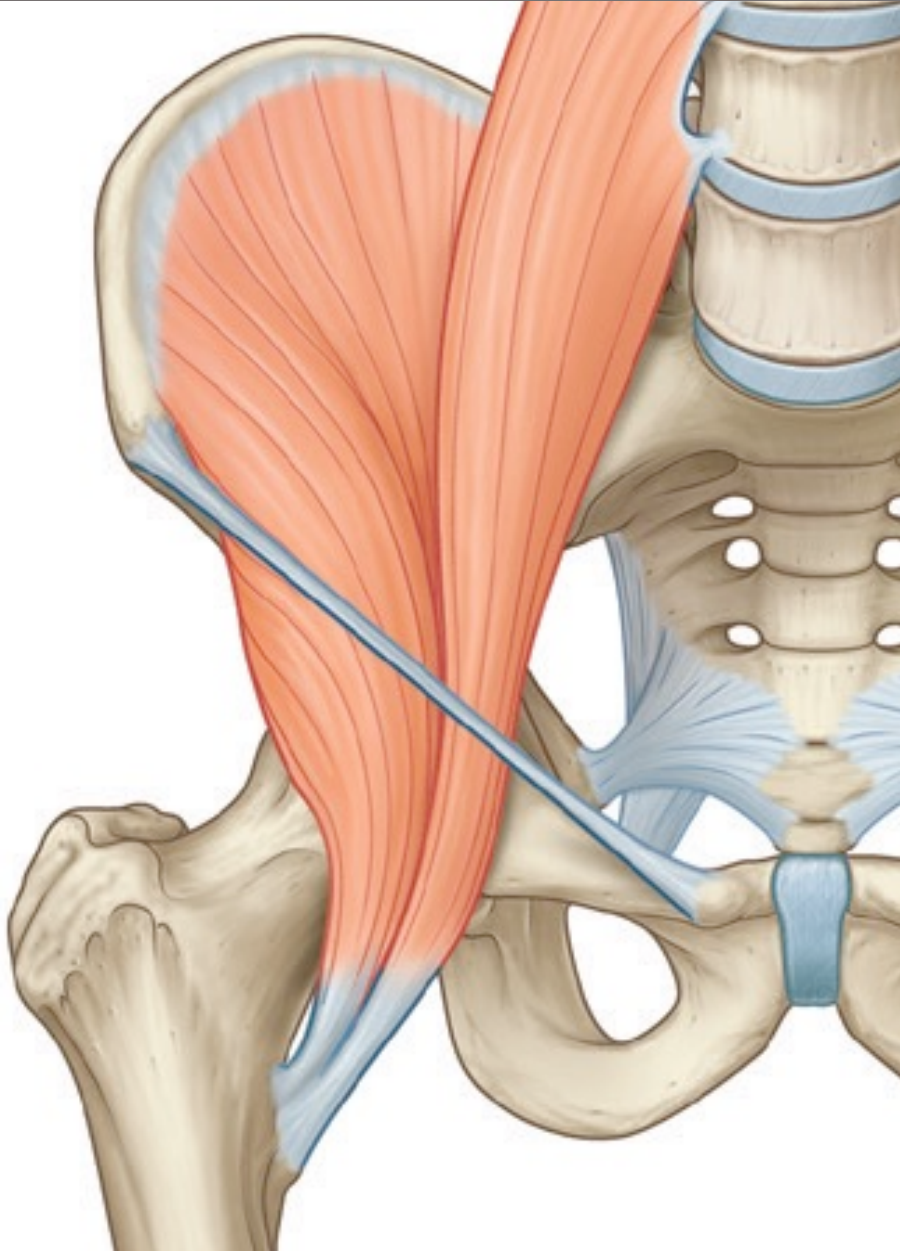


- ♦ *N. gluteus inferior*
- ♦ M. gluteus maximus
- ♦ *N. gluteus superior*
- ♦ M. tensor fasciae latae
- ♦ M. gluteus medius
- ♦ M. gluteus minimus
- ♦ *Rami e plexus sacralis*
- ♦ M. piriformis
- ♦ M. gemellus superior
- ♦ M. obturatorius intenus
- ♦ M. gemellus inferior
- ♦ M. quadratus femoris

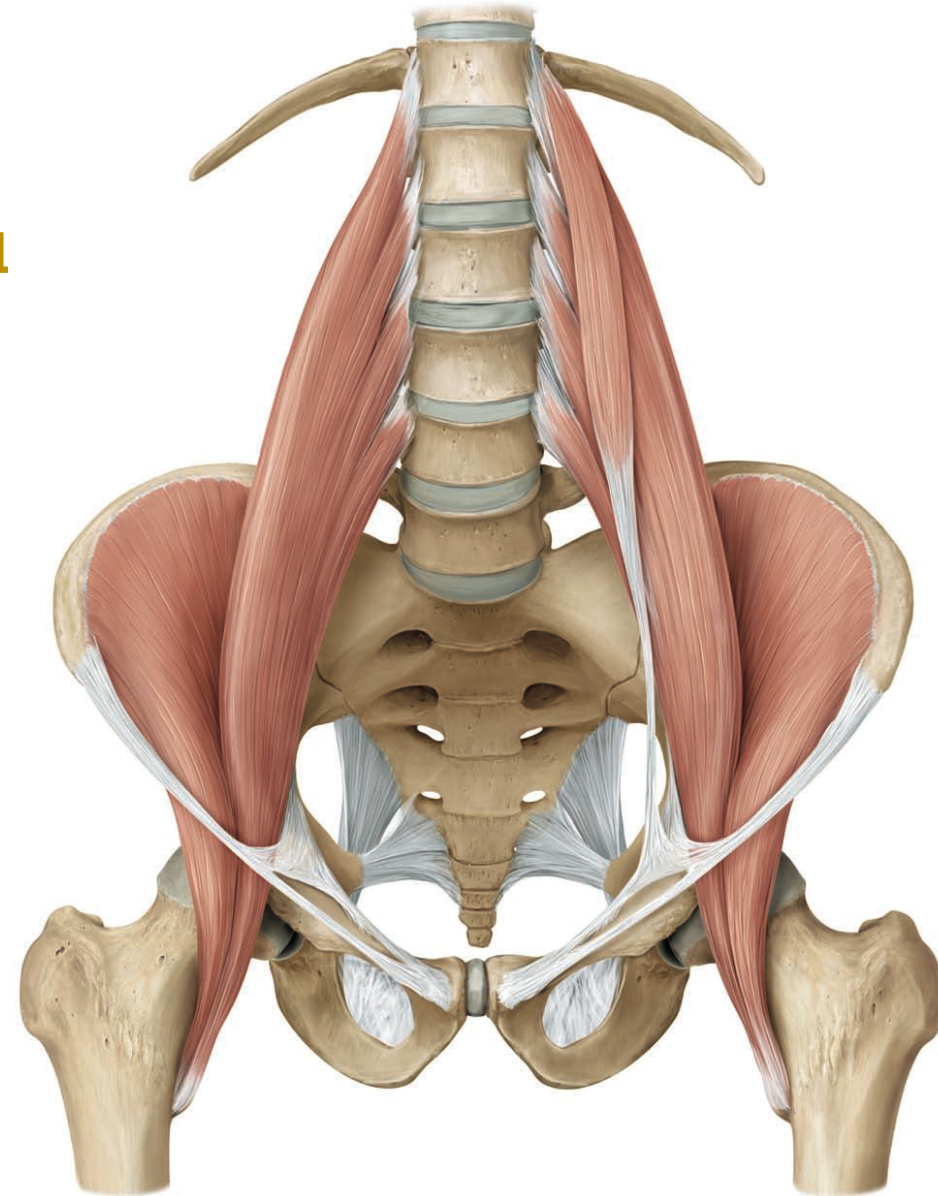
Musculi glutei



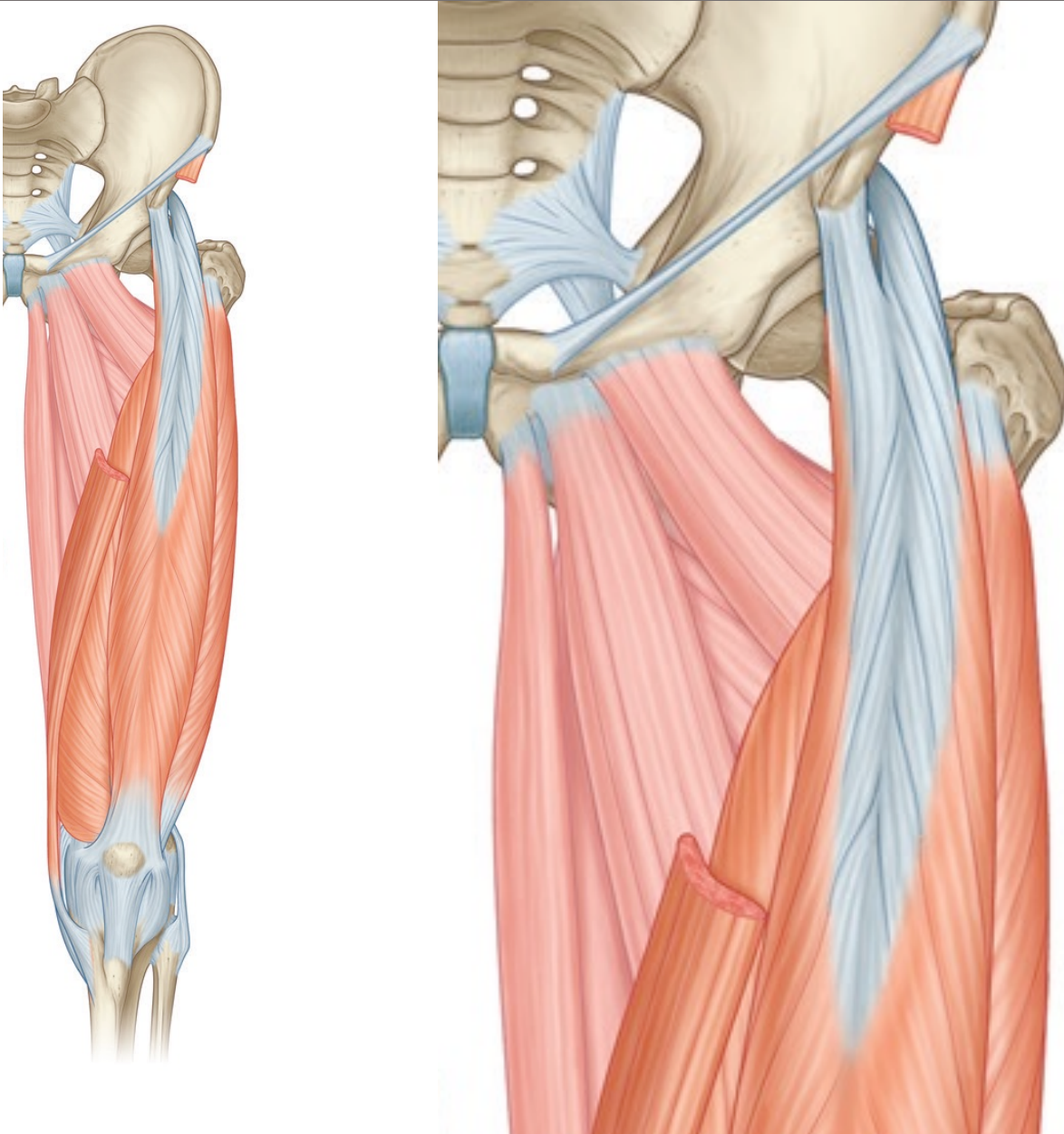
Flexores coxae



- 💧 **Hip flexion**
- 💧 **M. psoas major**
 - 💧 **Rami ventrales L1**
- 💧 **M. iliacus**
 - 💧 **N. femoralis L2-3**
- 💧 *M. quadriceps femoris*

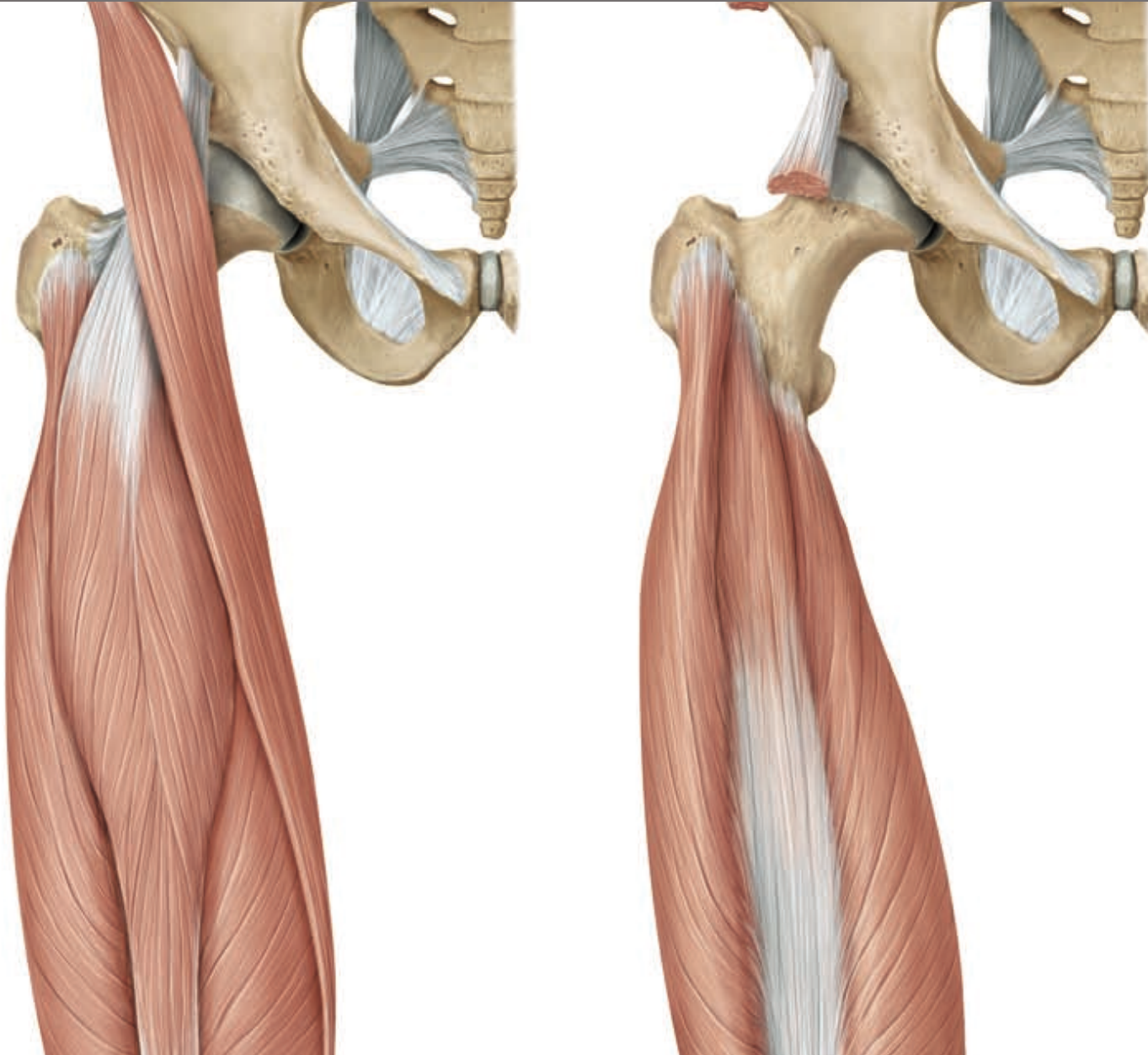


M. quadriceps femoris



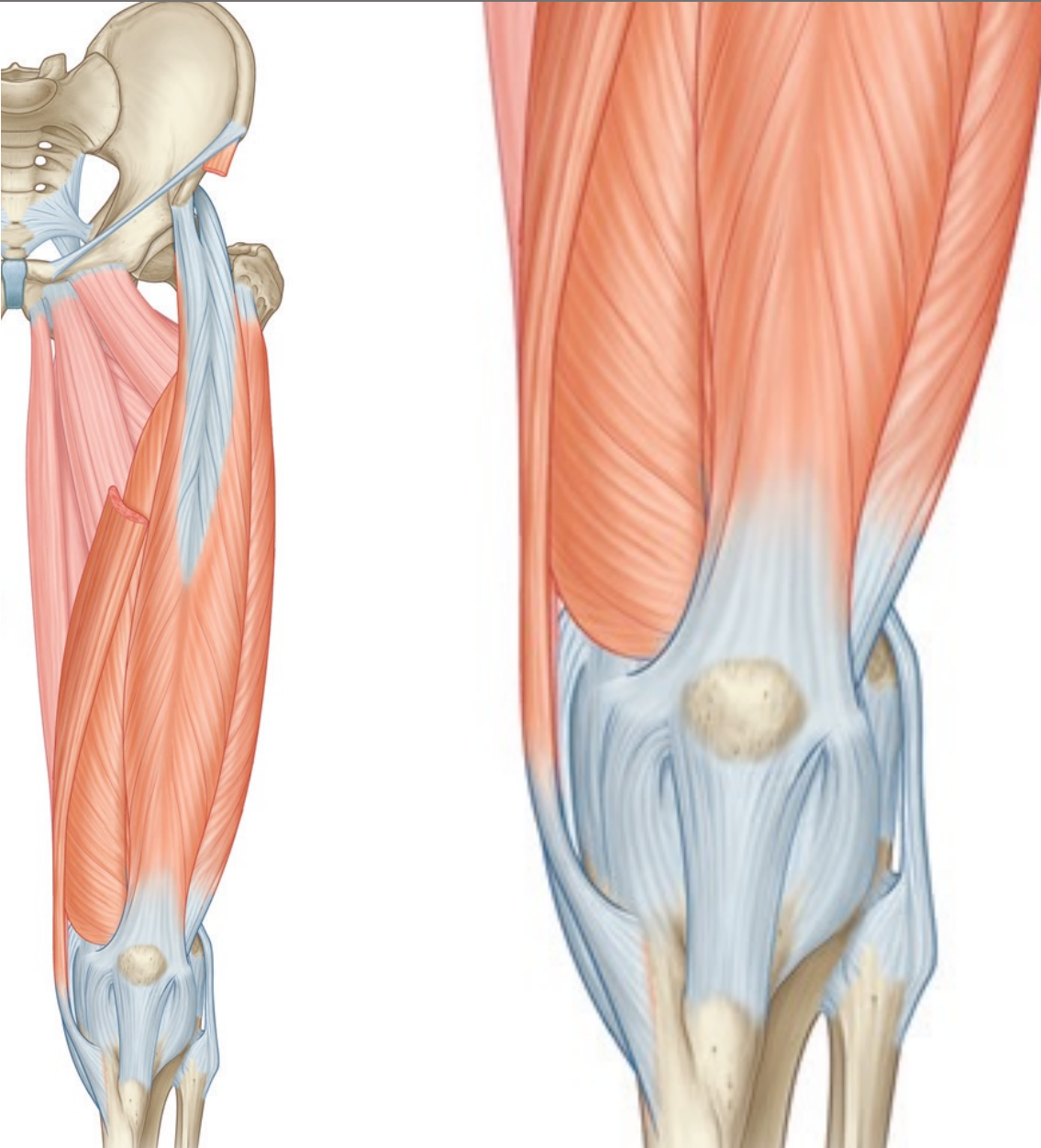
- ♦ **M. vastus medialis**
- ♦ **M. vastus intermedius**
- ♦ **M. vastus lateralis**
 - ♦ **Crista intertrochanterica**
 - ♦ *N. femoralis L2-4*
- ♦ **M. rectus femoris**
 - ♦ **Spina iliaca ant. inf.**
 - ♦ **Above upper edge of acetabulum**
 - ♦ **Patella**
 - ♦ *N. femoralis L2,3*

M. quadriceps femoris



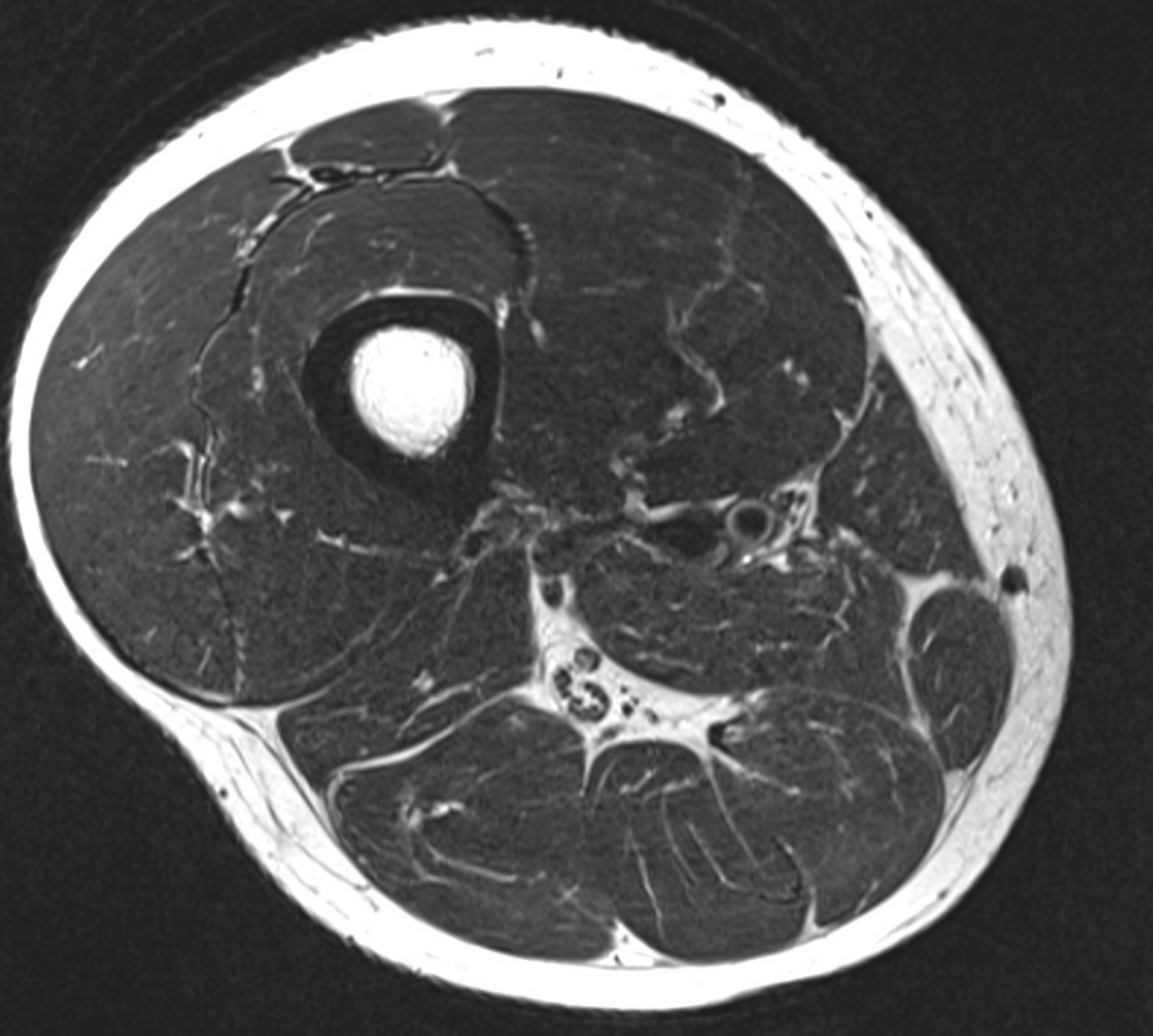
- ♦ **M. vastus medialis**
- ♦ **M. vastus intermedius**
- ♦ **M. vastus lateralis**
 - ♦ Crista intertrochanterica
 - ♦ *N. femoralis L2-4*
- ♦ **M. rectus femoris**
 - ♦ Spina iliaca ant. inf.
 - ♦ Above upper edge of acetabulum
 - ♦ Patella
 - ♦ *N. femoralis L2,3*

M. quadriceps femoris



- ♦ **M. vastus medialis**
- ♦ **M. vastus intermedius**
- ♦ **M. vastus lateralis**
 - ♦ **Crista intertrochanterica**
 - ♦ *N. femoralis L2-4*
- ♦ **M. rectus femoris**
 - ♦ **Spina iliaca ant. inf.**
 - ♦ **Above upper edge of acetabulum**
 - ♦ **Patella**
 - ♦ *N. femoralis L2,3*

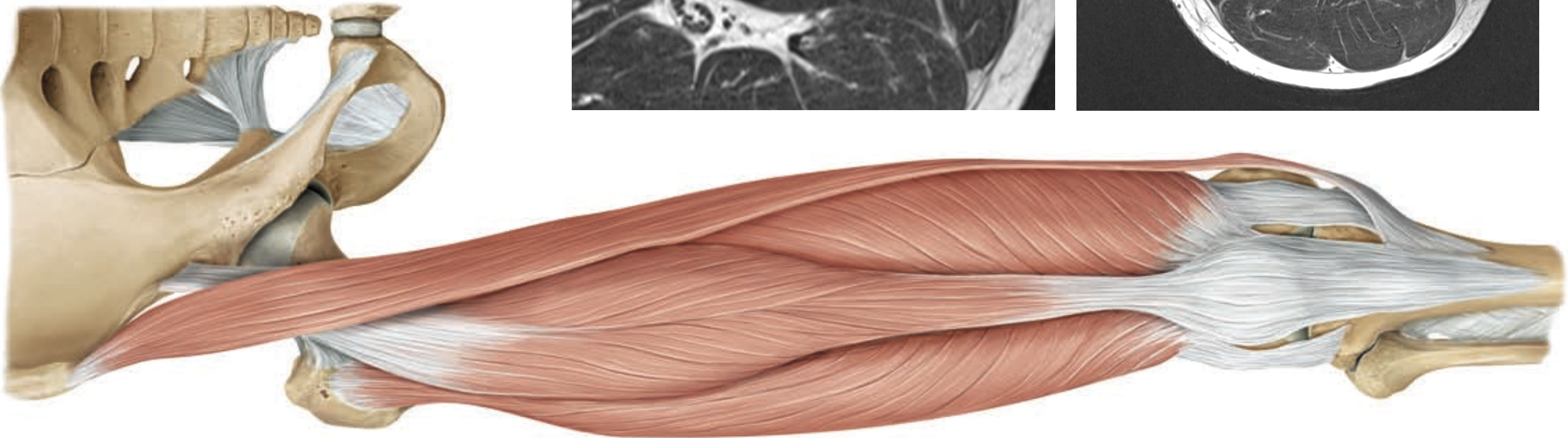
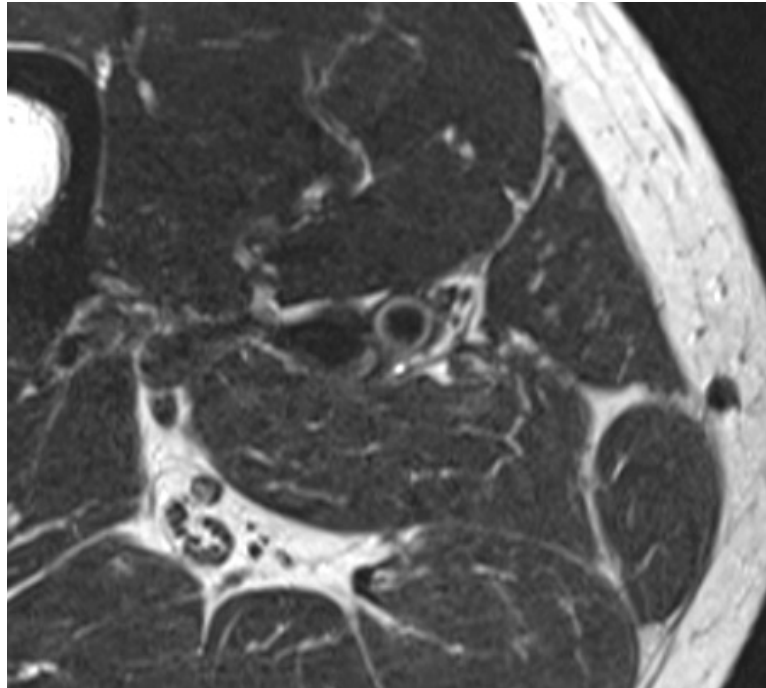
M. quadriceps femoris



- ♦ M. vastus medialis
- ♦ M. vastus intermedius
- ♦ M. vastus lateralis
 - ♦ Crista intertrochanterica
 - ♦ *N. femoralis L2-4*
- ♦ M. rectus femoris
 - ♦ Spina iliaca ant. inf.
 - ♦ Above upper edge of acetabulum
 - ♦ Patella
 - ♦ *N. femoralis L2,3*

M. sartorius

- Spina iliaca anterior superior
- Pes anserinus
- Canalis adductorius
 - Vasa femoralia
 - N. femoralis, n. saphenus
- Fascia lata



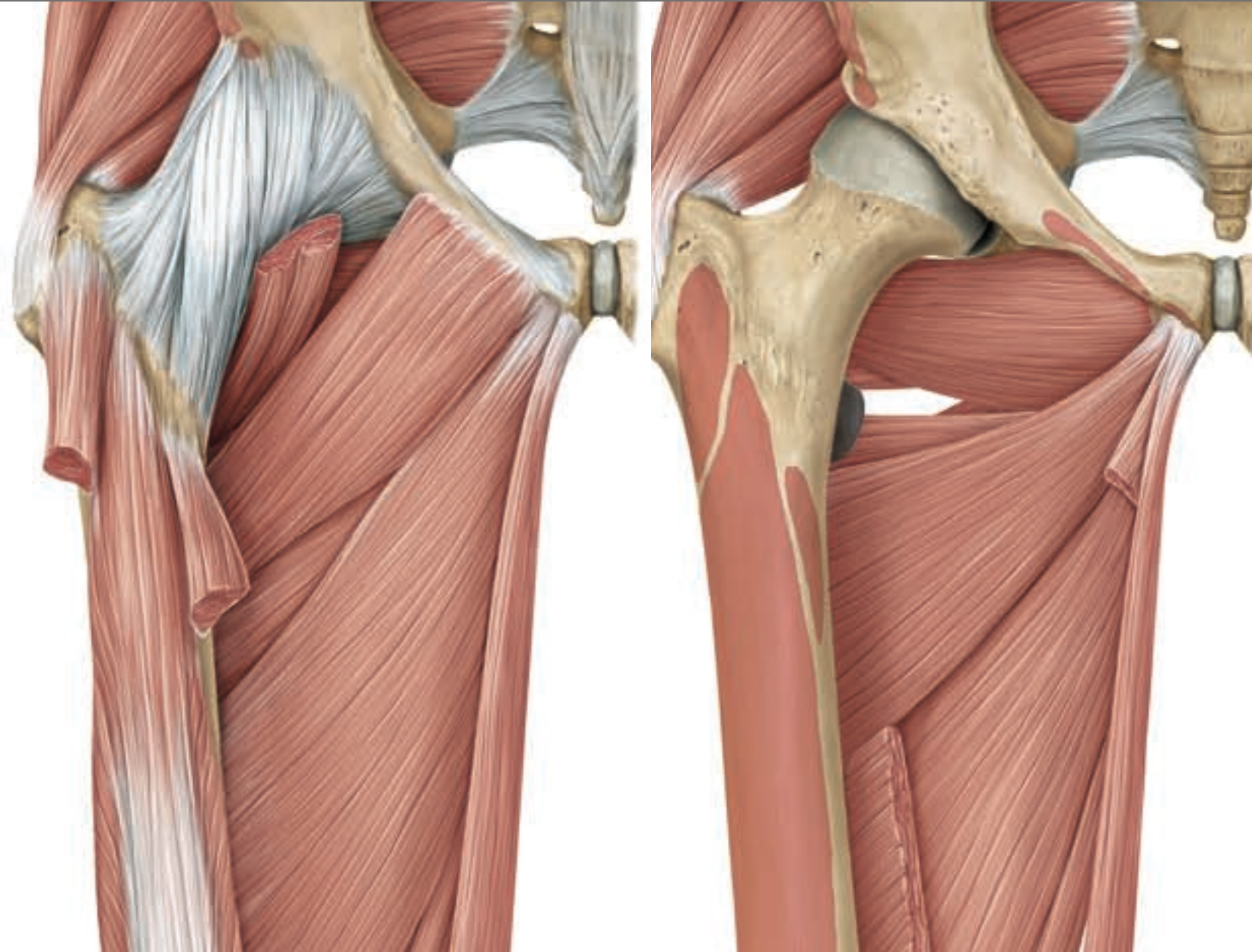
Pes anserinus



- Tendines
- M. sartorius
- M. gracilis
- M. semitendinosus

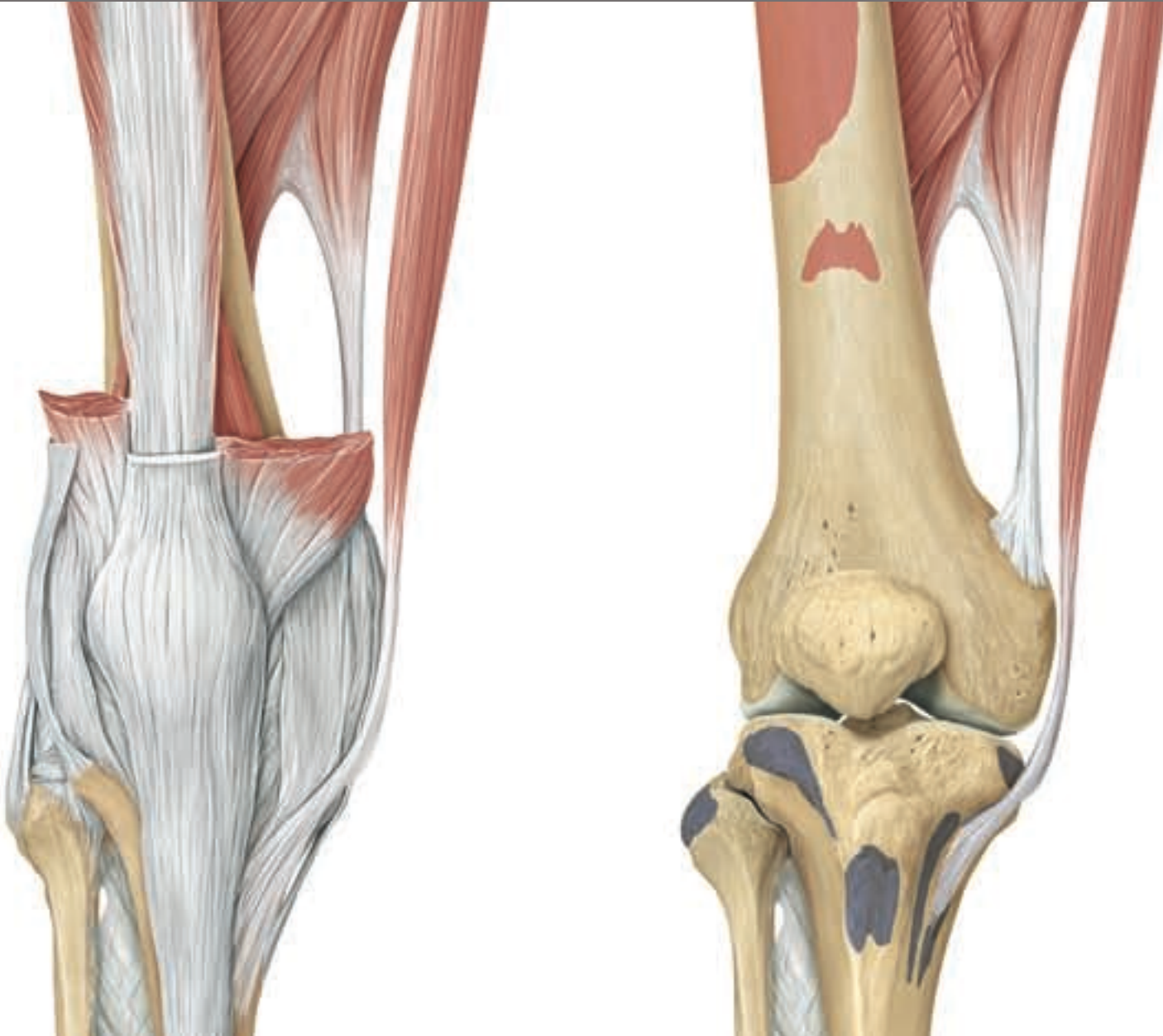


Mm. adductores



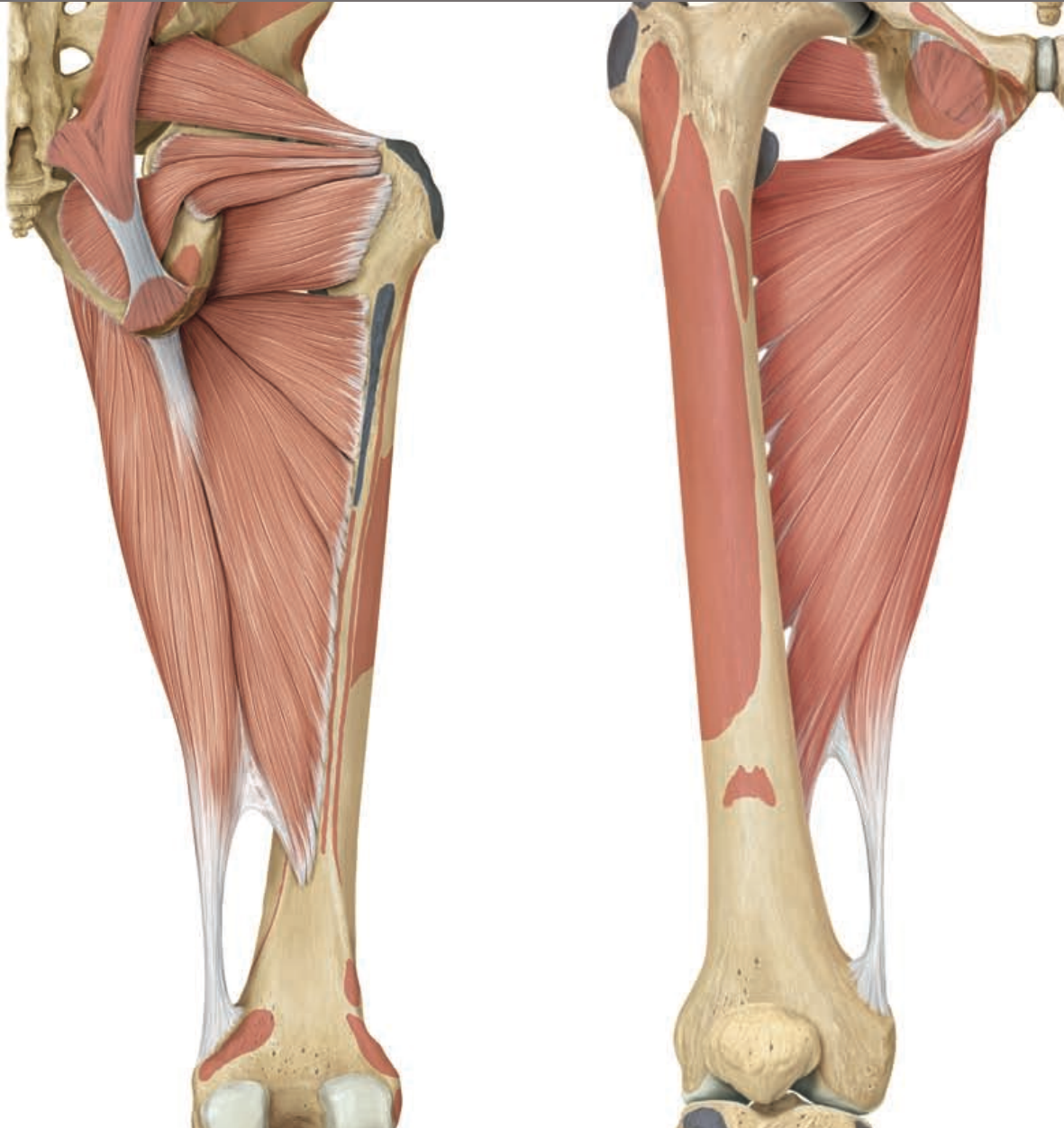
- ♦ **M. pectineus**
 - ♦ **N. femoralis**
- ♦ **M. obturator externus**
 - ♦ **N. obturatorius**
- ♦ **M. gracilis**
 - ♦ **N. obturatorius**
- ♦ **M. adductor brevis**
 - ♦ **N. obturatorius**
- ♦ **M. adductor longus**
 - ♦ **N. obturatorius**
- ♦ **M. adductor magnus**
 - ♦ **N. obturatorius**
 - ♦ **N. ischiadicus (pars ischiadicum)**

Mm. adductores

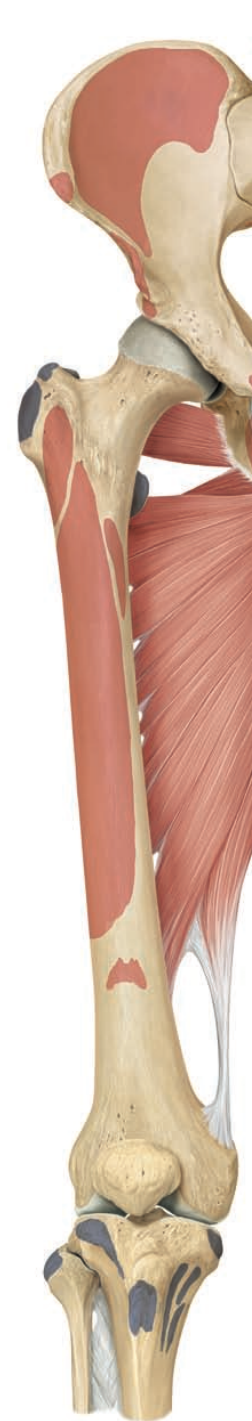
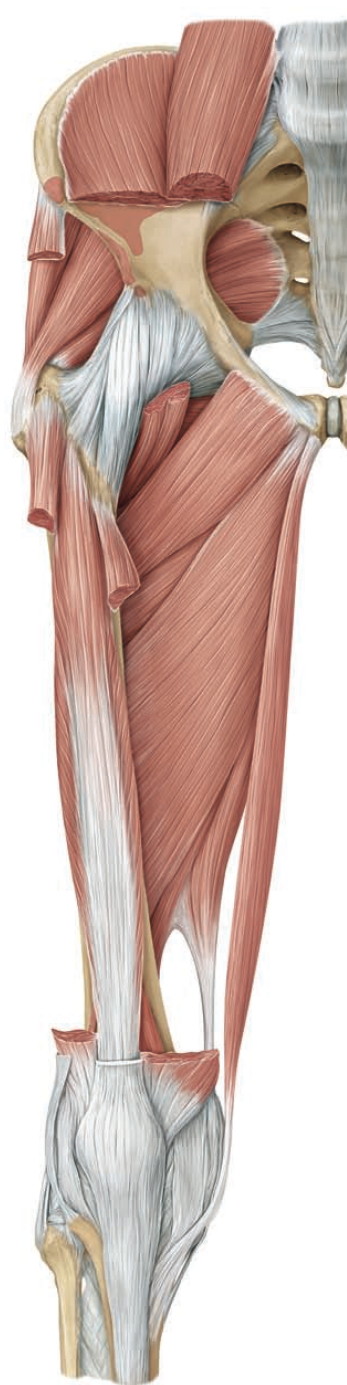
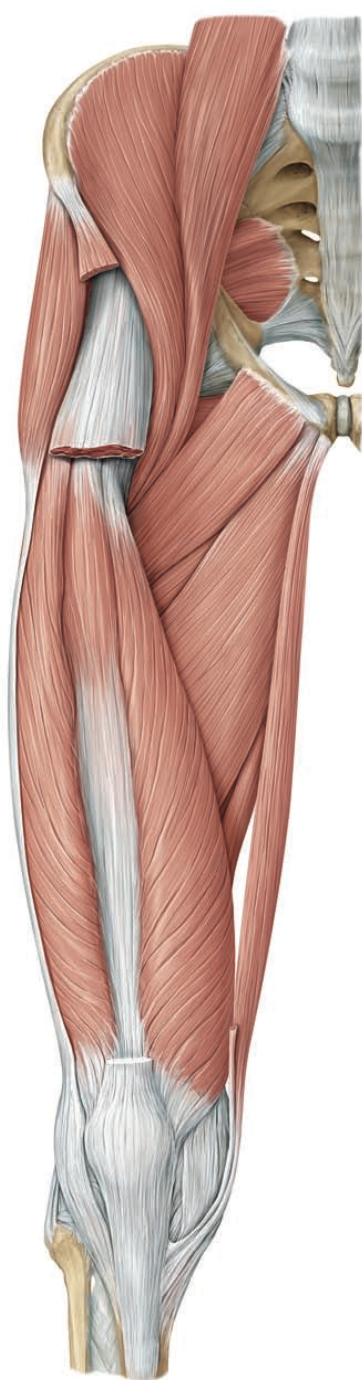
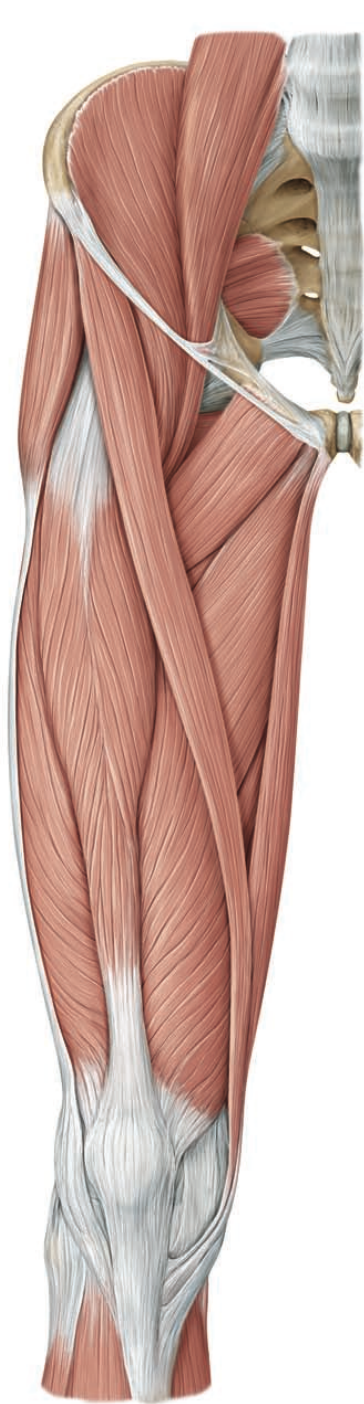
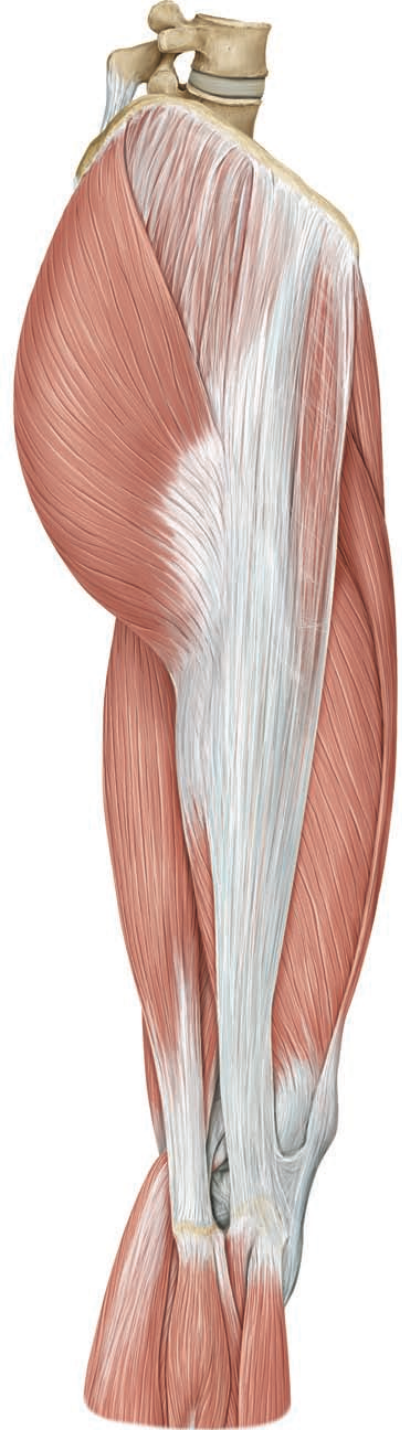


- ♦ **M. pectineus**
 - ♦ **N. femoralis**
- ♦ **M. obturator externus**
 - ♦ **N. obturatorius**
- ♦ **M. gracilis**
 - ♦ **N. obturatorius**
- ♦ **M. adductor brevis**
 - ♦ **N. obturatorius**
- ♦ **M. adductor longus**
 - ♦ **N. obturatorius**
- ♦ **M. adductor magnus**
 - ♦ **N. obturatorius**
 - ♦ **N. ischiadicus (pars ischiadicum)**

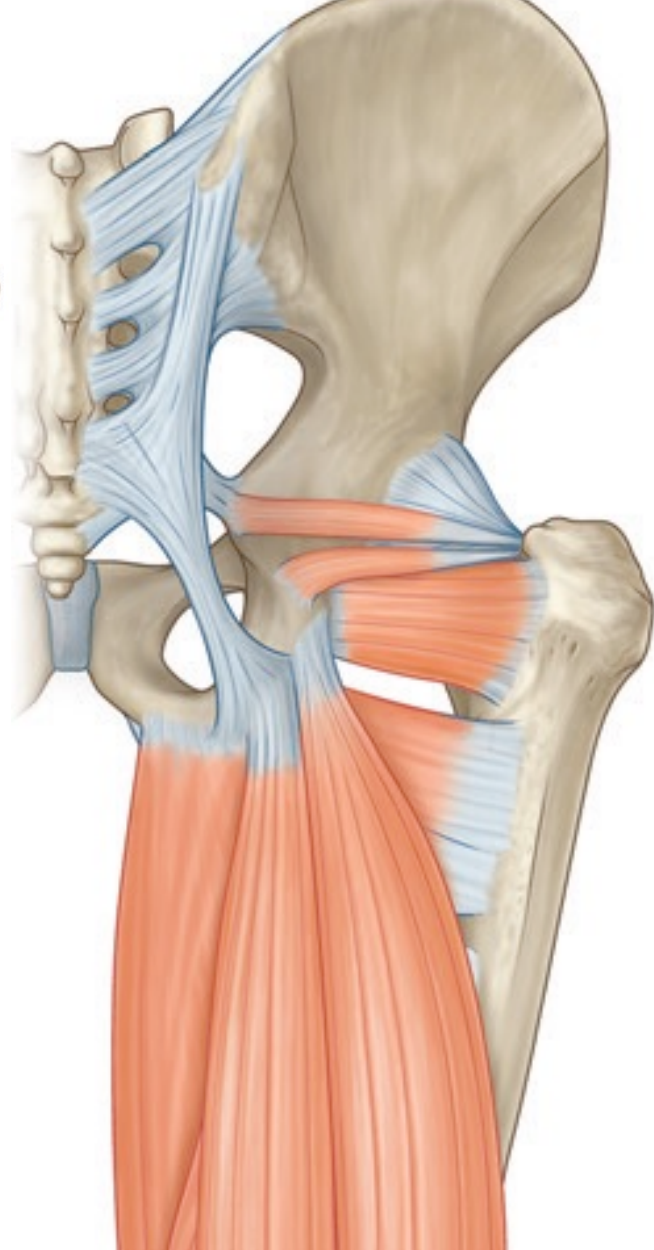
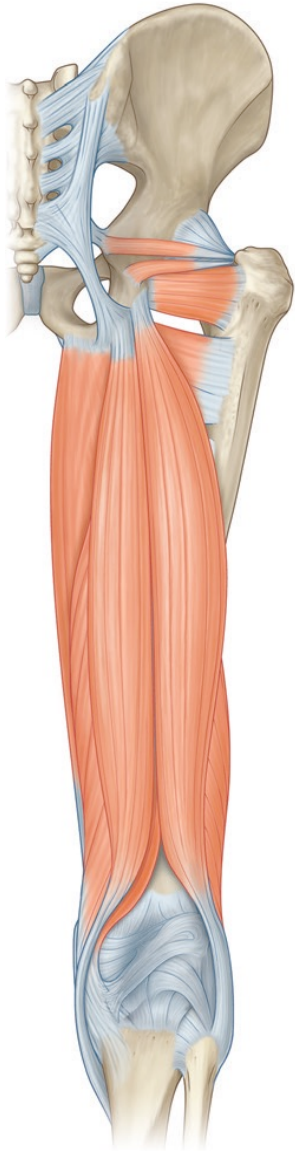
Mm. adductores – m. adductor magnus



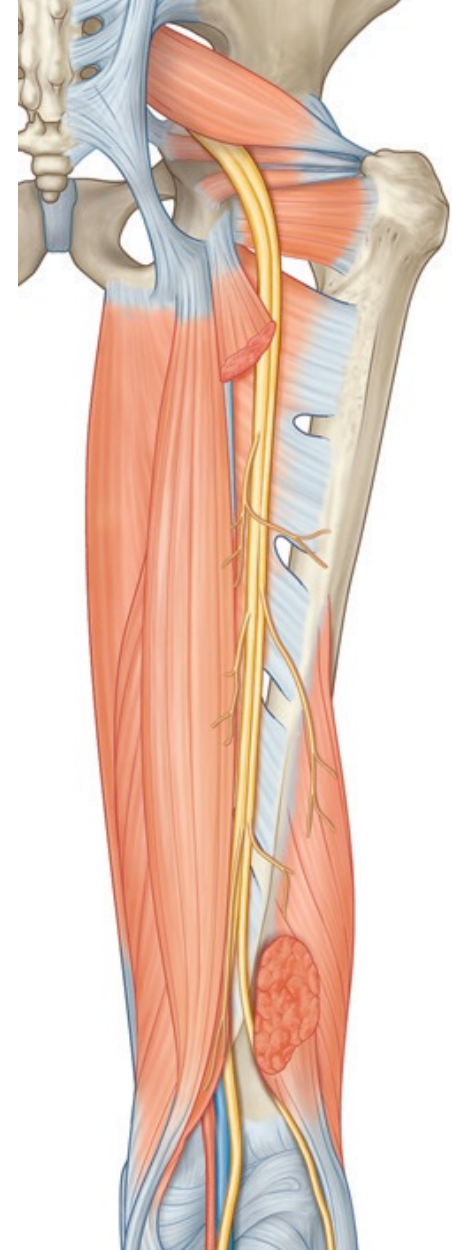
- ♦ M. pectineus
 - ♦ N. femoralis
- ♦ M. obturator externus
 - ♦ N. obturatorius
- ♦ M. gracilis
 - ♦ N. obturatorius
- ♦ M. adductor brevis
 - ♦ N. obturatorius
- ♦ M. adductor longus
 - ♦ N. obturatorius
- ♦ **M. adductor magnus**
 - ♦ N. obturatorius
 - ♦ N. ischiadicus (pars ischiadica)



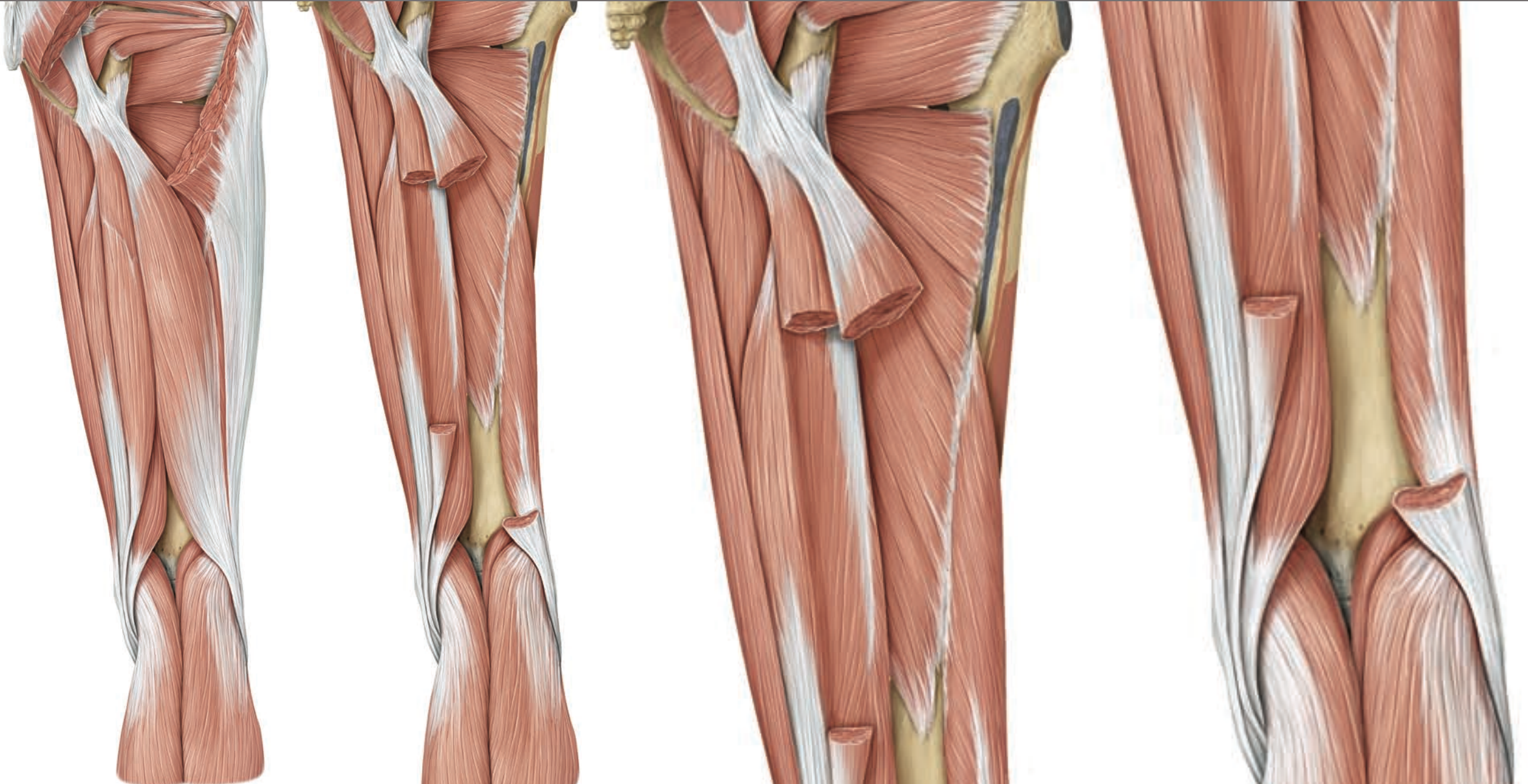
Mm. flexores

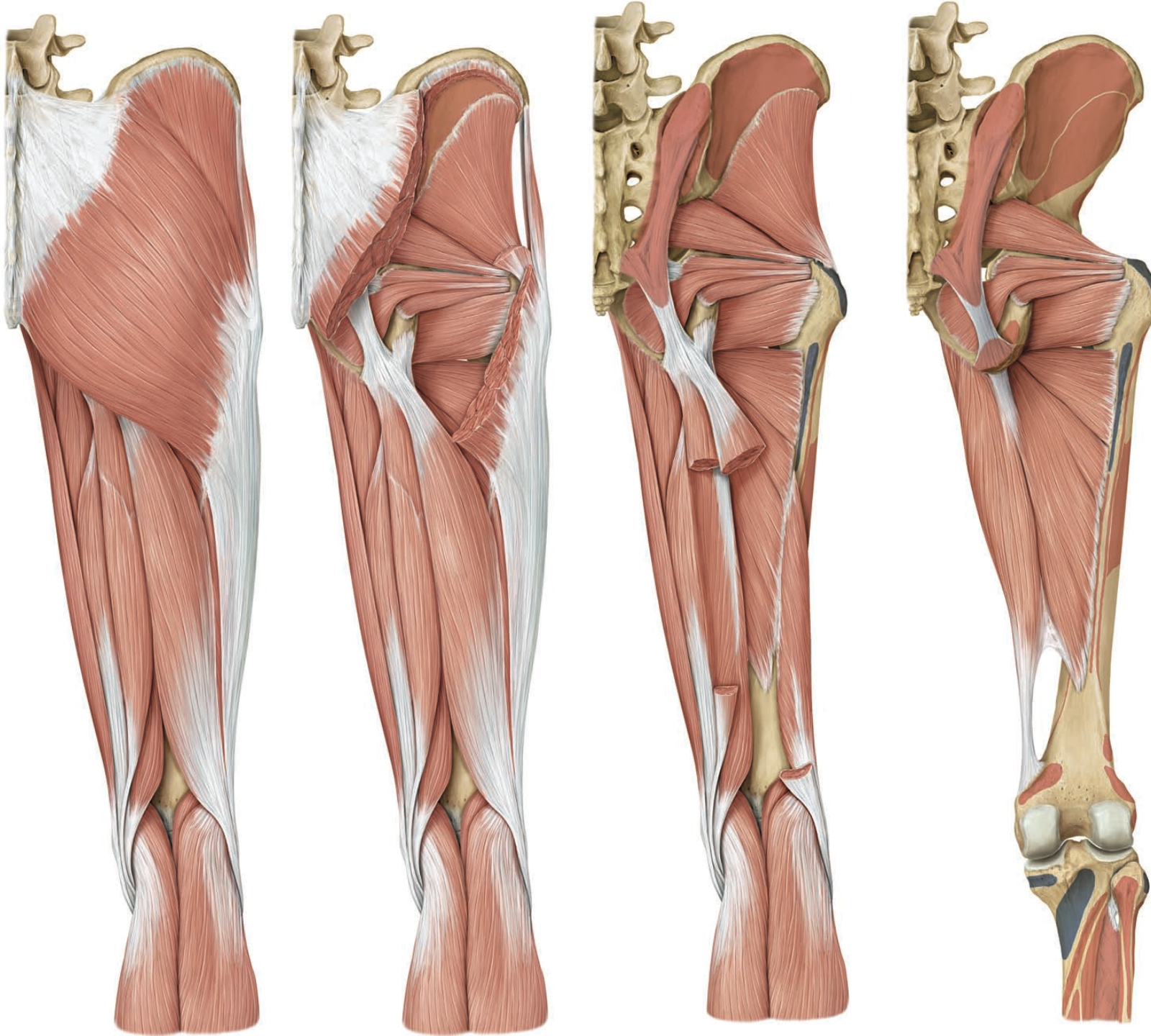


- ♦ *M. gemellus superior*
- ♦ *M. gemellus inferior*
- ♦ **M. quadratus femoris**
- ♦ **M. biceps femoris**
 - ♦ *Caput longum*
 - ♦ *Caput breve*
- ♦ **M. semitendinosus**
- ♦ **M. semimembranosus**
- ♦ *M. adductor magnus*
- ♦ **N. ischiadicus**
- ♦ **HAMSTRING INJURY**



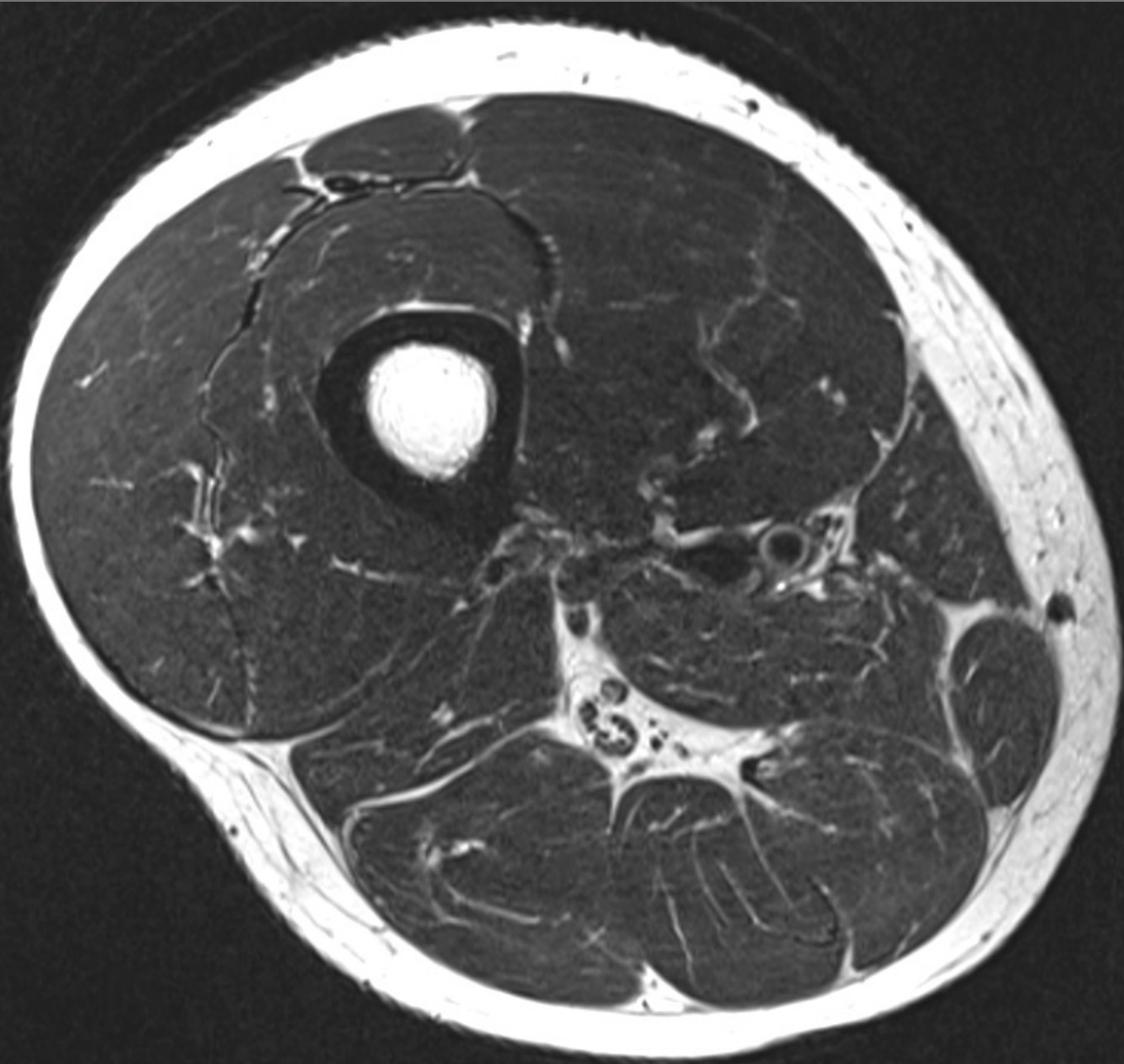
m. semimembranosus / m. semitendinosus





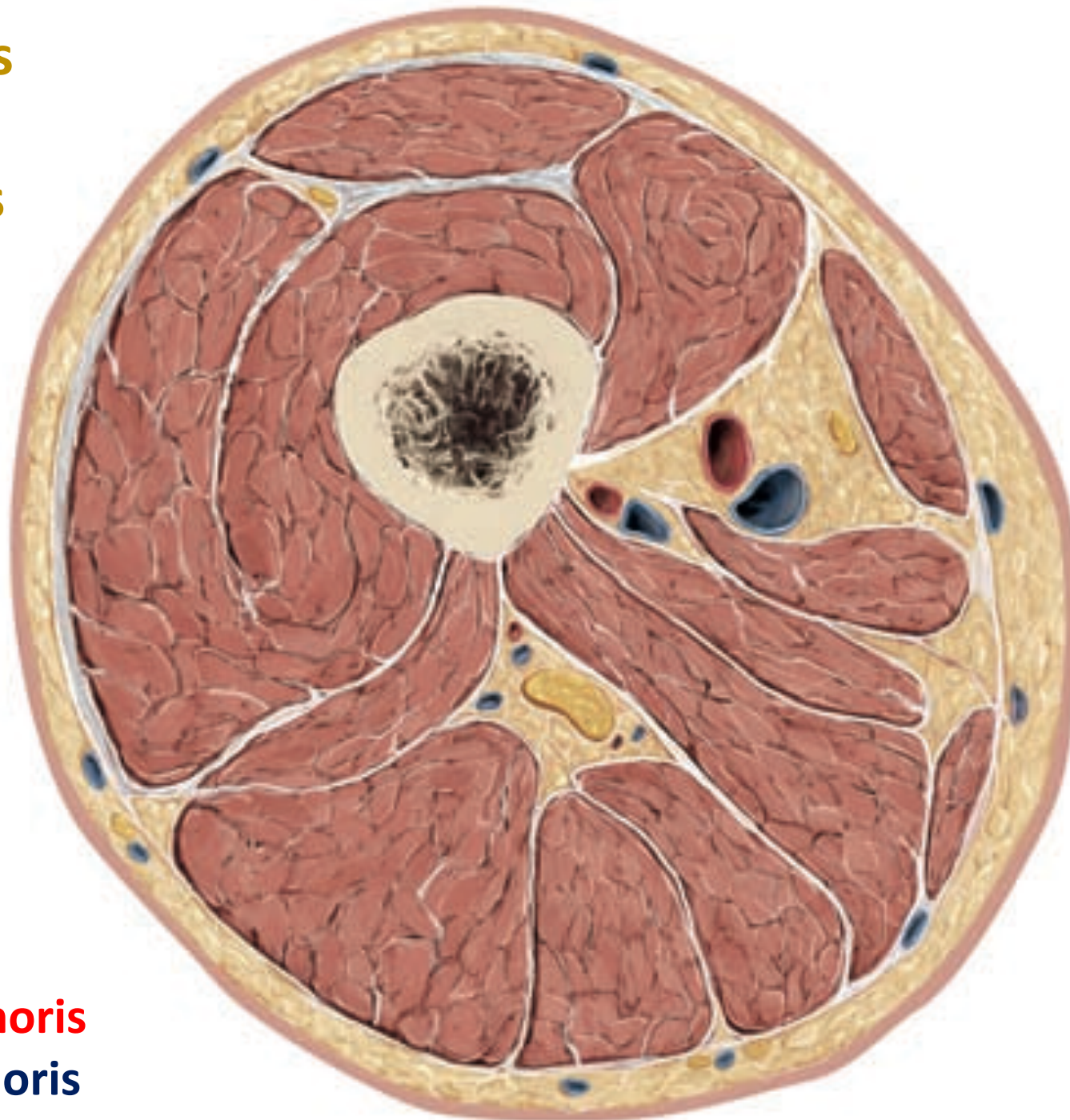
- **M. gemellus superior**
- **M. gemellus inferior**
- **M. quadratus femoris**
- **M. biceps femoris**
 - Caput longum
 - Caput breve
- **M. semitendinosus**
- **M. semimembranosus**
- **M. adductor magnus**

mm. flexores, mm. adductores



- ♣ M. biceps femoris
 - ♣ Caput longum
 - ♣ Caput breve
- ♣ M. semitendinosus
- ♣ M. semimembranosus
- ♣ M. adductor magnus
- ♣ **N. ischiadicus**

- ♦ **N. ichiadicus**
- ♦ **N. femoralis**
- ♦ **N. saphenus**



- ♦ **M. rectus femoris**
- ♦ **M. vastus medialis**
- ♦ **M. vastus intermedius**
- ♦ **M. vastus lateralis**
- ♦ **M. sartorius**
- ♦ **M. adductor longus**
- ♦ **M. adductor brevis**
- ♦ **M. gracilis**
- ♦ **M. adductor magnus**
- ♦ **M. semimembranosus**
- ♦ **M. semitendinosus**
- ♦ **M. biceps femoris**
 - ♦ *Caput longum*
 - ♦ *Caput breve*

- ♦ **A. femoralis**
- ♦ **V. femoralis**
- ♦ **A. profunda femoris**
- ♦ **V. profunda femoris**

mm. cruris posteriores

♦ Superficiales

♦ M. triceps surae

♦ M. gastrocnemius

♦ Caput mediale

♦ Caput laterale

♦ M. soleus

♦ Profundi

♦ M. plantaris

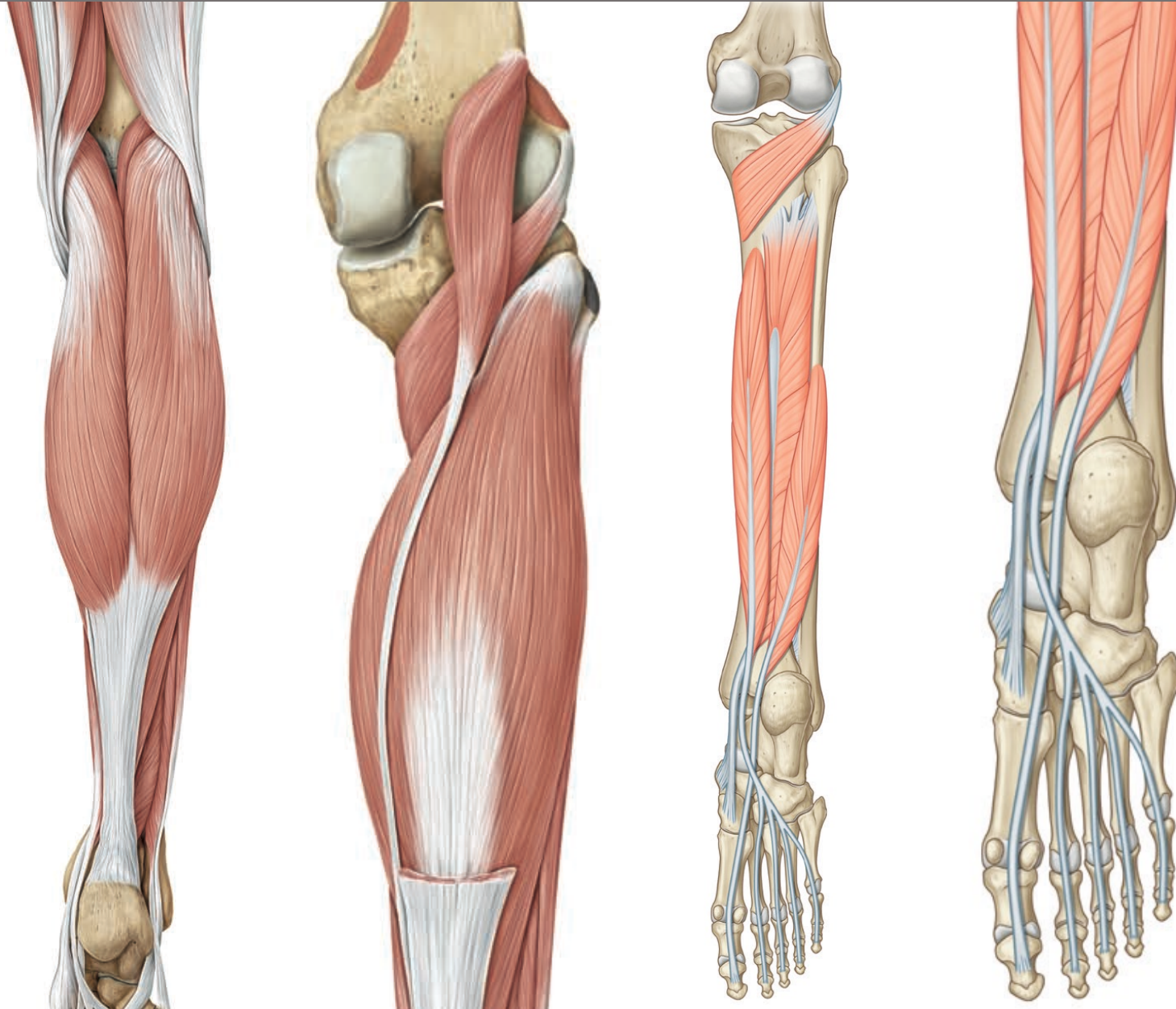
♦ M. popliteus

♦ M. tibialis posterius

♦ M. flexor digitorum longus

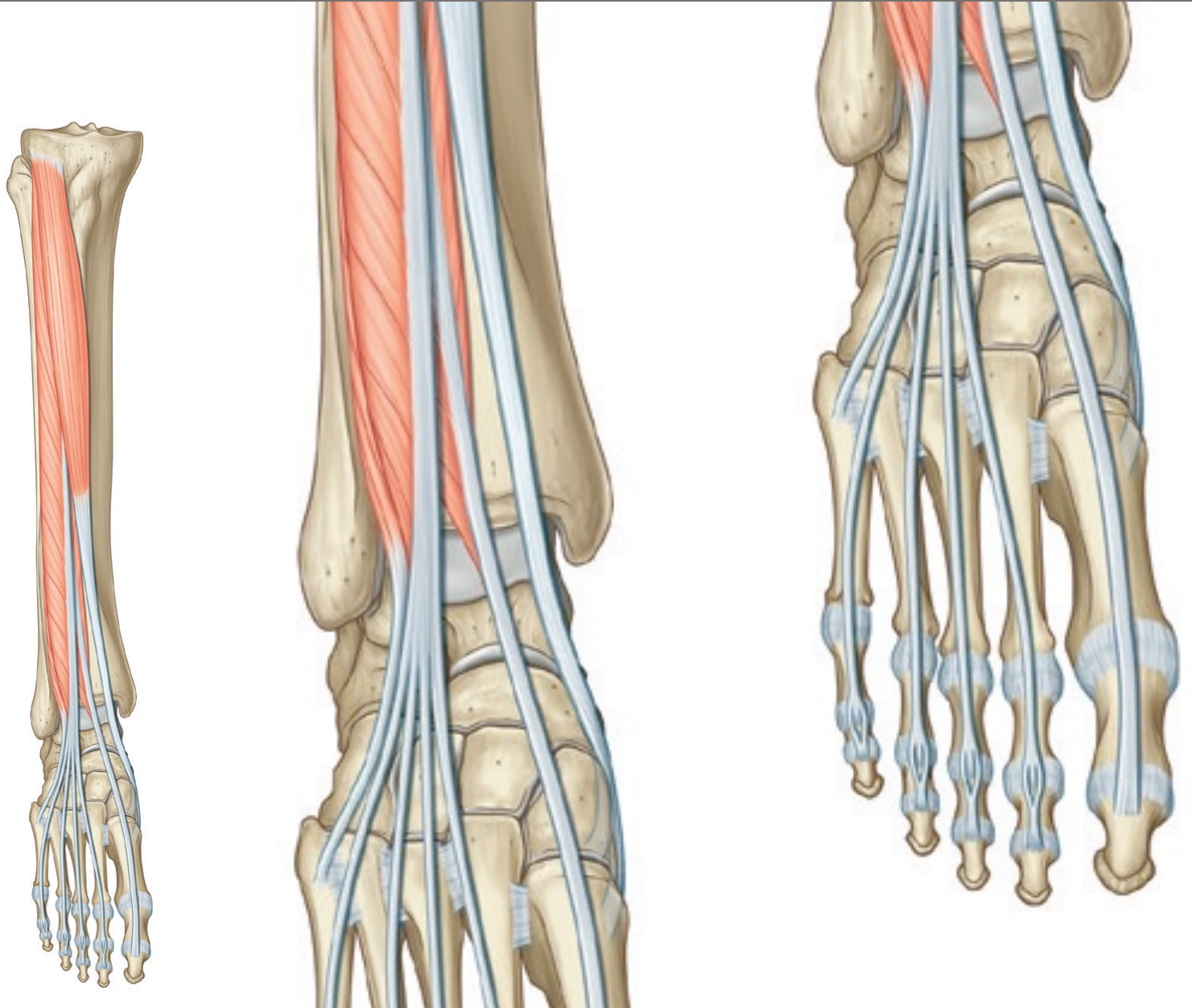
♦ M. flexor hallucis longus

♦ N. tibialis



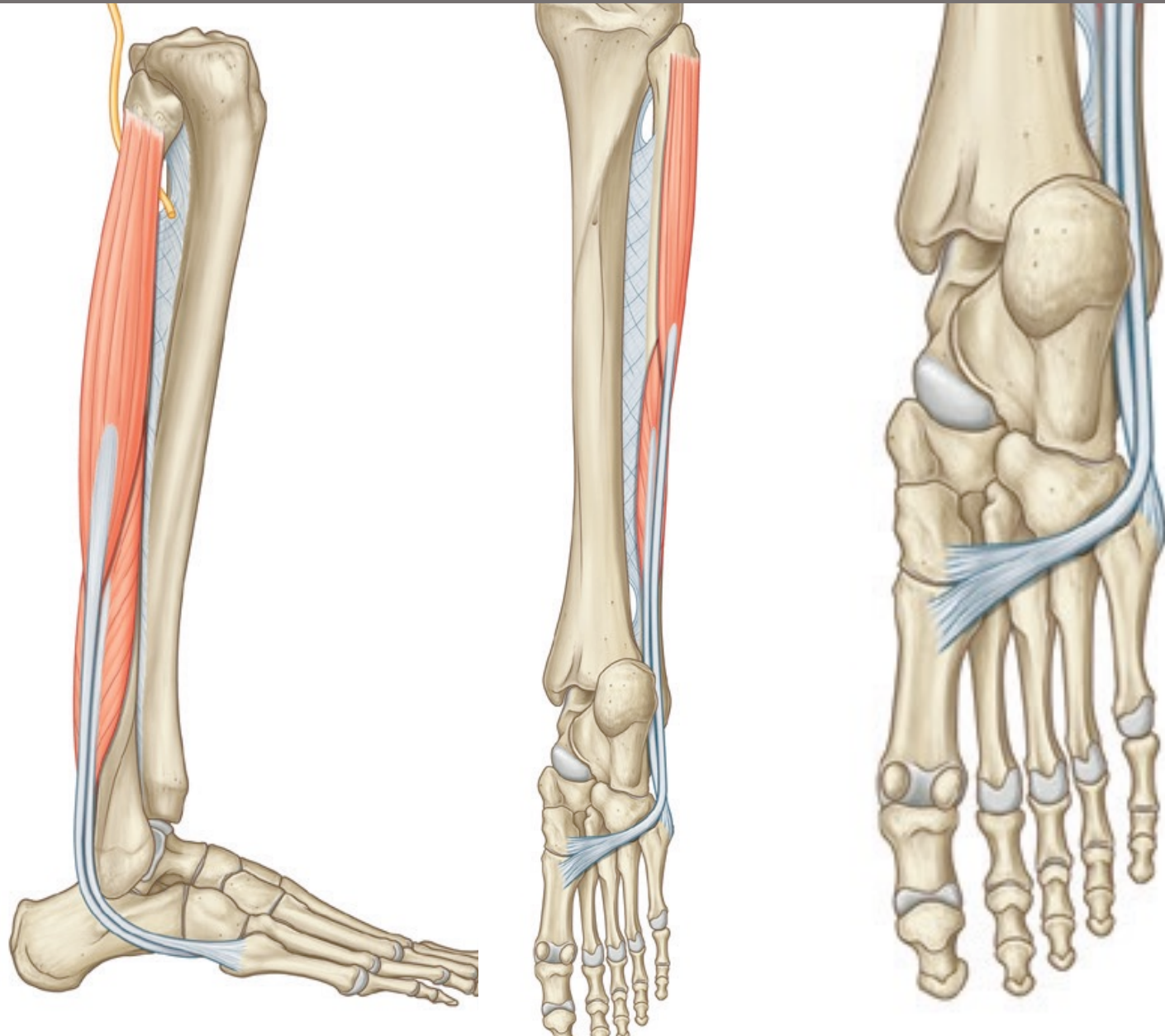
mm. cruris anteriores

- ♦ M. tibialis
- ♦ M. extensor hallucis longus
- ♦ M. extensor digitorum longus
- ♦ M. fibularis tertius
- ♦ N. fibularis profundus



mm. cruris - fibulares

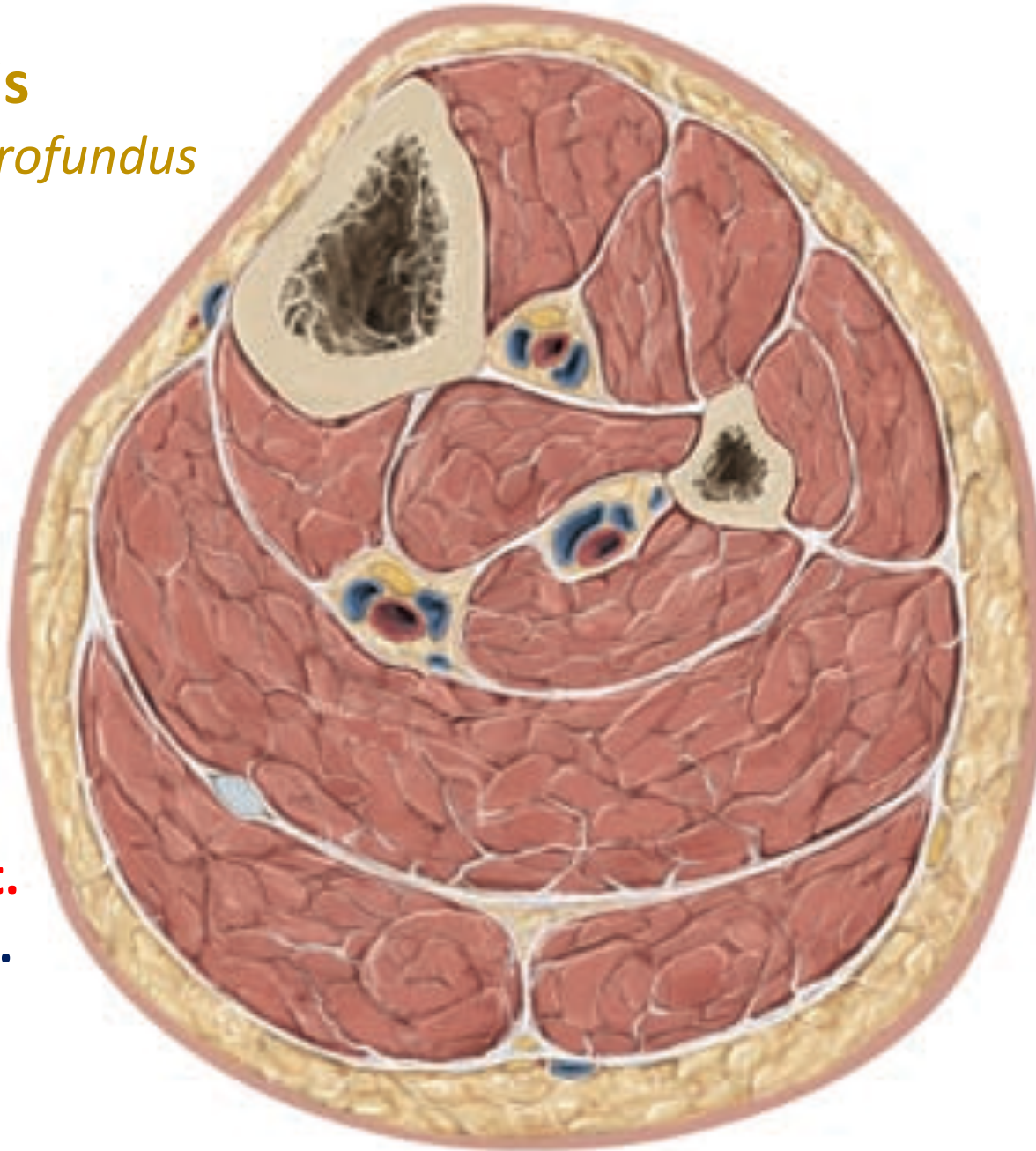
- ♦ M. fibulares (peronei)
- ♦ M. fibularis longus
- ♦ M. fibularis brevis
- ♦ N. fibularis superficialis



♦ **N. tibialis**

♦ **N. fibularis**

♦ *Ramus profundus*



♦ **M. tibialis anterior**

♦ **M. extensor hallucis longus**

♦ **M. extensor digitorum longus**

♦ **M. fibularis brevis**

♦ **M. fibularis longus**

♦ **M. flexor hallucis longus**

♦ **M. tibialis posterior**

♦ **M. flexor digitorum longus**

♦ **M. soleus**

♦ **M. gastrocnemius**

♦ **A. tibialis ant.**

♦ **V. tibialis ant.**

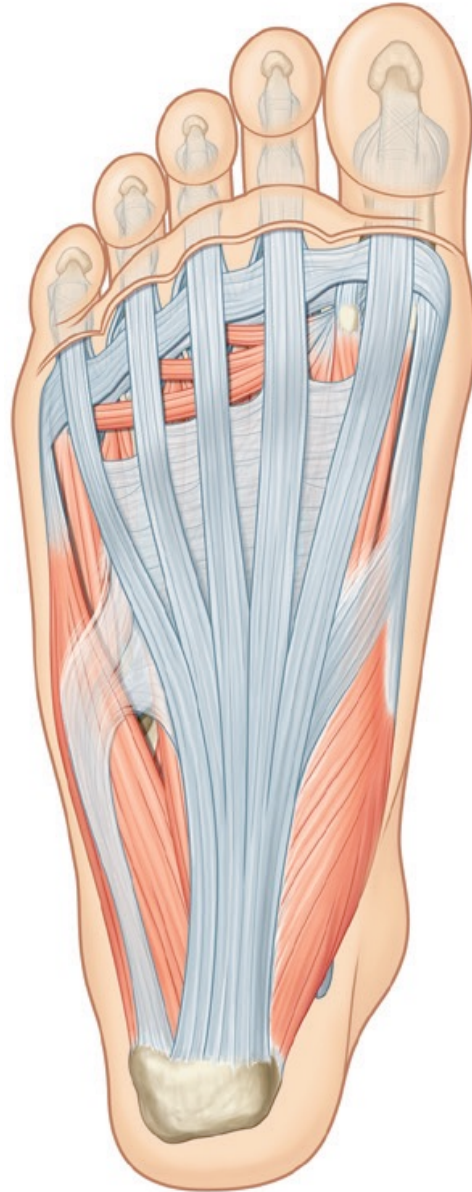
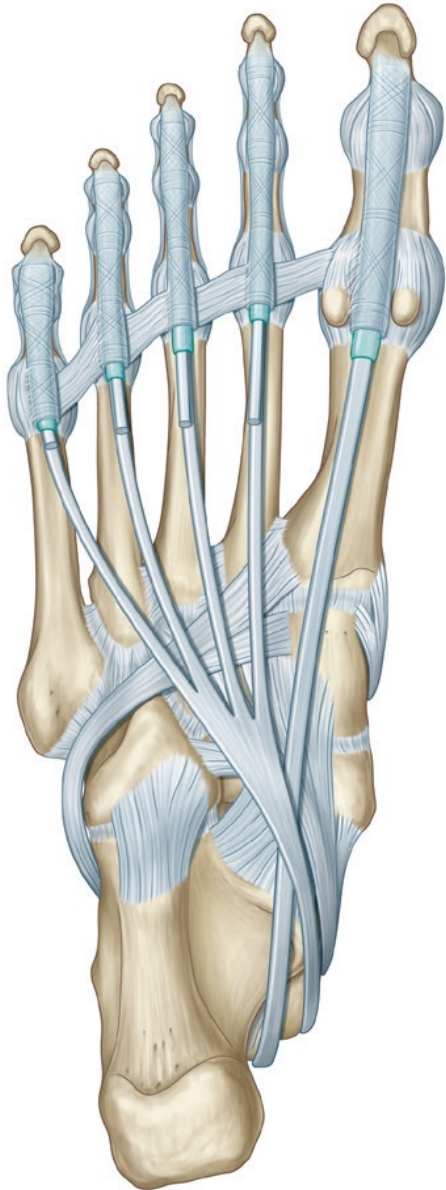
♦ **A. tibialis post.**

♦ **V. tibialis post.**

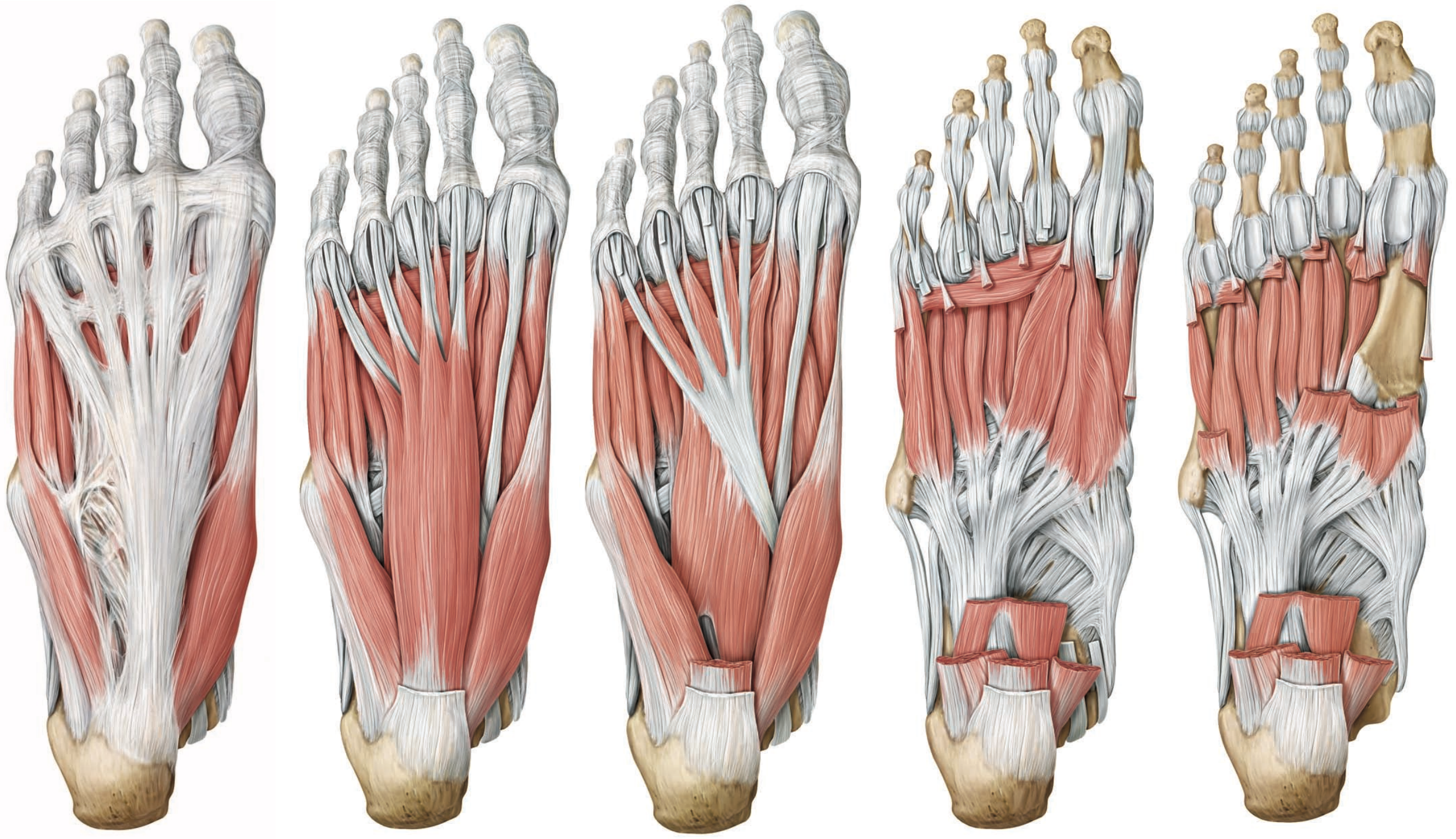
♦ **A. fibularis**

♦ **V. fibularis**

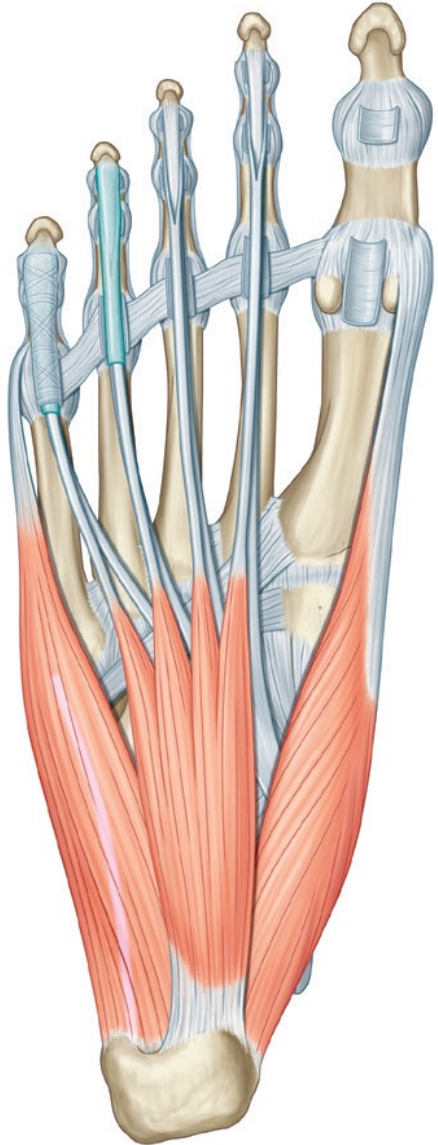
mm. plantae pedis



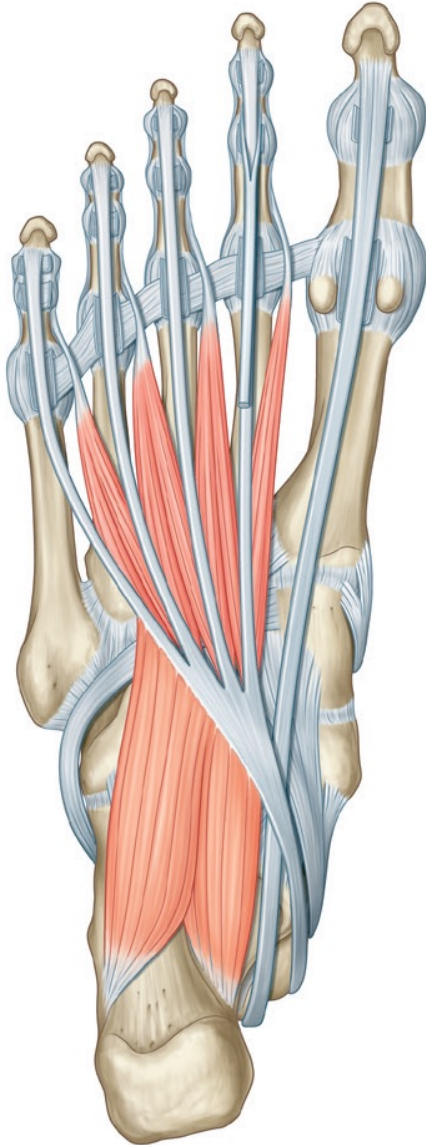
- ♦ *M. tibialis posterior*
- ♦ *M. flexor digitorum longus*
- ♦ *M. flexor hallucis longus*
- ♦ *M. tibialis anterior*
- ♦ **M. abductor hallucis**
- ♦ **M. flexor digitorum brevis**
- ♦ **M. abductor digiti minimi**
- ♦ **M. quadratus plantae**
- ♦ **Mm. Lumbricoides**
- ♦ **M. flexor hallucis brevis,**
- ♦ **M. adductor hallucis**
- ♦ **M. adductor digiti minimi**
- ♦ **Mm. Interossei plantares et dorsales**



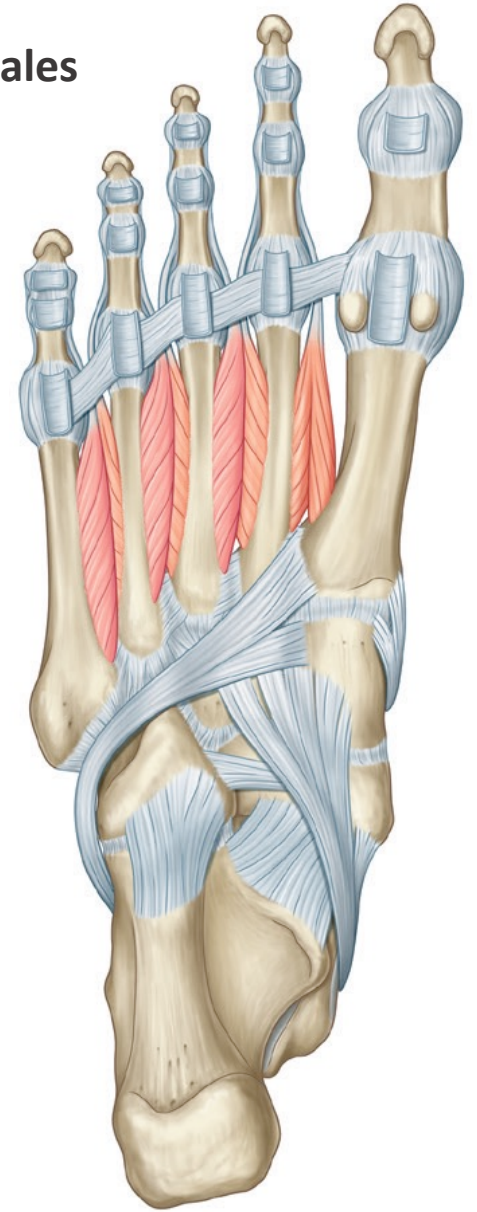
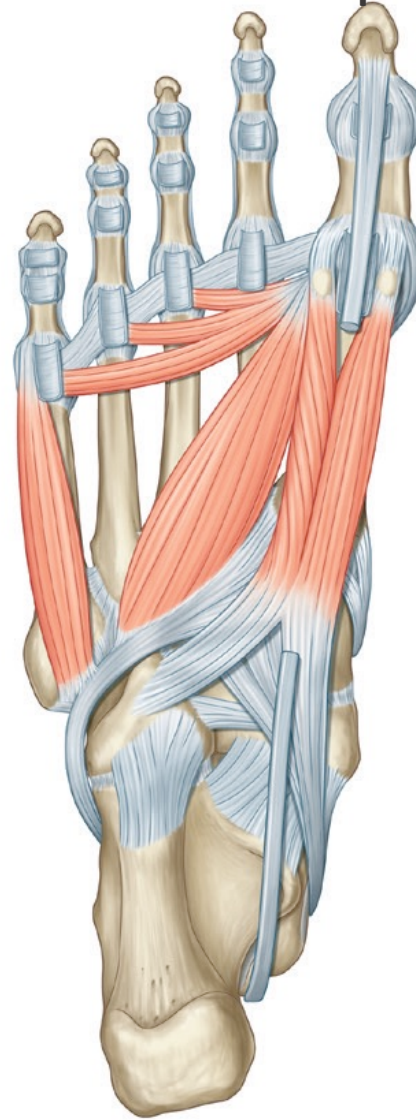
- M. abductor hallucis
- M. flexor digitorum brevis
- M. abductor digiti minimi



- M. quadratus plantae
- Mm. lumbricoides

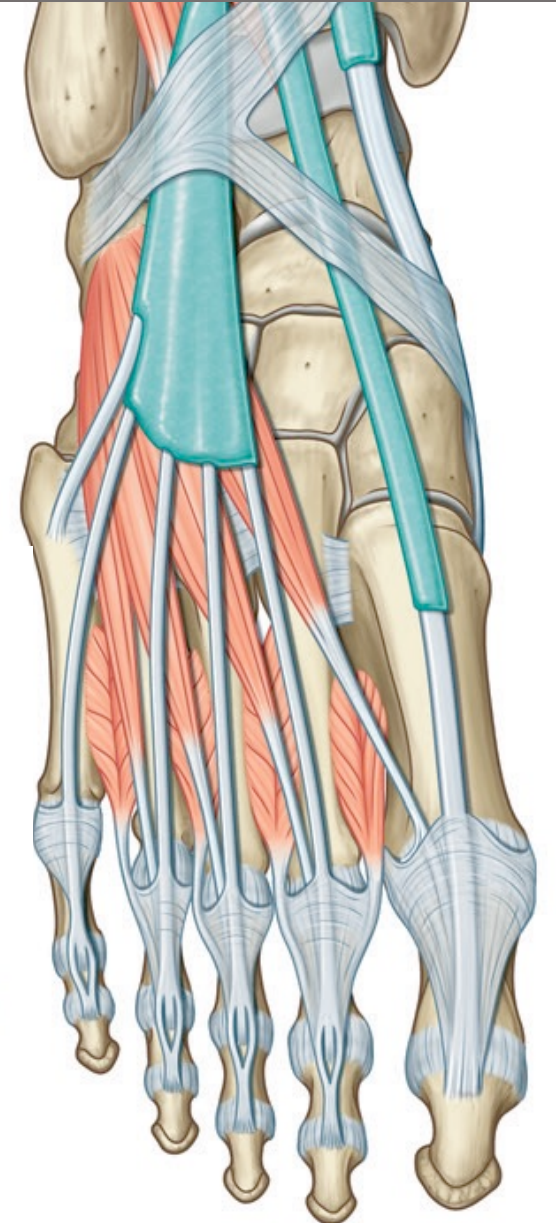
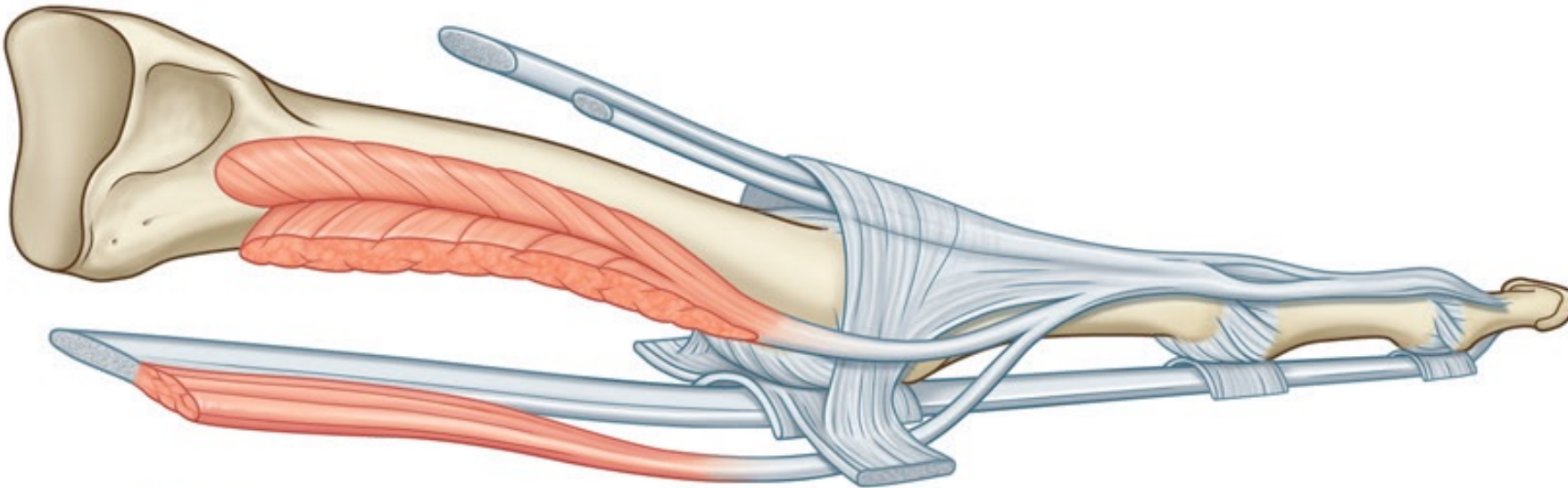


- M. flexor hallucis brevis,
- M. adductor hallucis
- M. adductor digiti minimi
- Mm. Interossei plantares et dorsales



mm. digitorum

- ♦ M. extensor digitorum brevis
- ♦ M. extensor digitorum longus
- ♦ M. lumbricoidei
- ♦ M. flexor digitorum longus
- ♦ M. flexor digitorum brevis



Membrum inferius II.

Prof. MUDr. Jiří Ferda, Ph.D.