

Thigh - Anterior View

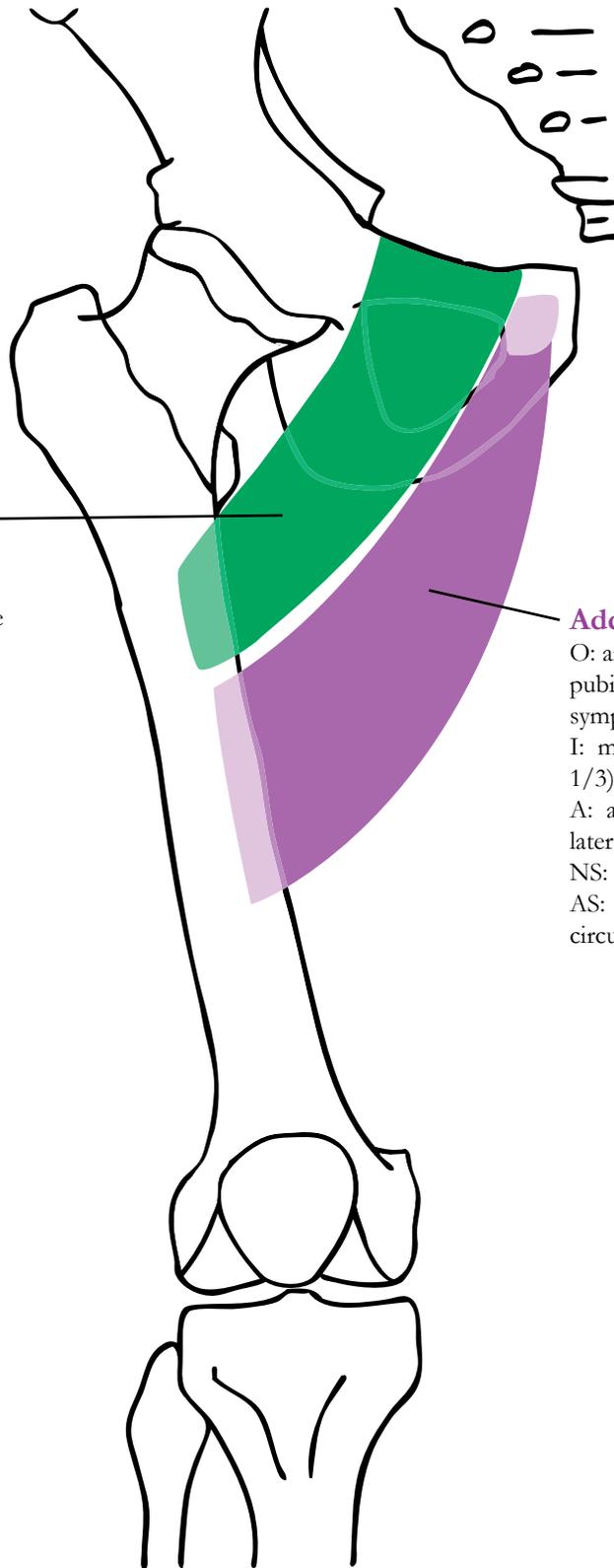
Medial Femoral Compartment Anterior Layer

Pectineus Muscle

- O: pecten pubis (from the pubic tubercle to the iliopectineal eminence)
- I: pectineal line of the femur (crosses the obturator externus muscle)
- A: adduct and flex the thigh
- NS: femoral nerve
- AS: obturator artery and medial femoral circumflex artery

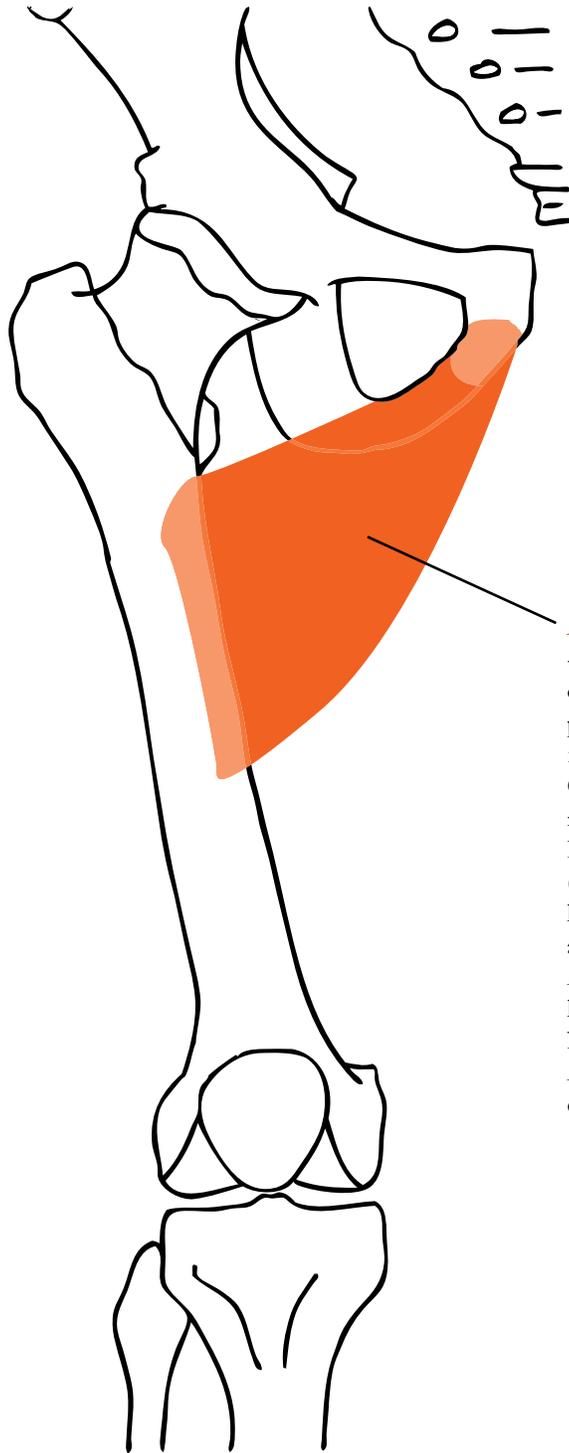
Adductor Longus Muscle

- O: anterior pubic body (inferior to the pubic crest and lateral to the pubic symphysis)
- I: medial lip of the linea aspera (middle 1/3)
- A: adduct and flex the thigh; aids in lateral rotation of the thigh
- NS: obturator nerve
- AS: obturator artery and medial femoral circumflex artery



Thigh - Anterior View

Medial Femoral Compartment
Intermediate Layer



Adductor Brevis Muscle

- landmark muscle for two main branches of obturator nerve and artery, and perforating branches of the profunda femoris artery

O: anterior surface of the inferior pubic ramus

I: pectineal line of the femur and (superior 1/2 of the) medial lip of the linea aspera; shared with pectineus and adductor longus muscles

A: adduct and flex the thigh; aids in lateral rotation of the thigh

NS: obturator nerve

AS: obturator artery and medial femoral circumflex artery

Thigh - Anterior View

Medial Femoral Compartment Posterior Layer

Adductor Magnus Muscle

- largest adductor muscle

O: anterior to posterior orientation of fibers at origin

a. inferior aspect of the inferior pubic ramus

b. ischial ramus

c. inferolateral part of the ischial tuberosity

I: superior to inferior orientation of fibers at insertion

a. gluteal tuberosity (medial edge)

b. medial lip of the linea aspera and medial supracondylar line

c. medial supracondylar line and adductor tubercle

A: adduct the thigh; aid in flexion and extension of the thigh (due to rotation from origin to insertion)

NS: obturator nerve; all except hamstring part

tibial part of sciatic nerve; hamstring part

AS: medial femoral circumflex artery, perforating arteries of the profunda femoris artery, obturator artery, and popliteal artery

- *superior fibers* of adductor magnus muscle are sometimes referred to as the *adductor minimus muscle*.

- the *inferior/vertical fibers* of the adductor magnus muscle are often termed the *hamstring part of the adductor magnus muscle*

- can palpate the tendon of the hamstring part of the adductor magnus muscle at the medial aspect of the knee region, anterior to gracilis and sartorius muscles, with resisted adduction of the thigh

Adductor Hiatus

- opening formed by vertical fibers/ hamstring part of adductor magnus muscle as it passes to its insertion

- allows passage of femoral vessels to and popliteal vessels from the popliteal fossa

Pes Anserinus (means goose's foot)

- 3 tendons that insert at the proximomedial aspect of the tibial shaft. One from each compartment

Muscles:

- Semitendinosus muscle (posteroinferior insertion)

- Sartorius muscle (anterosuperior insertion)

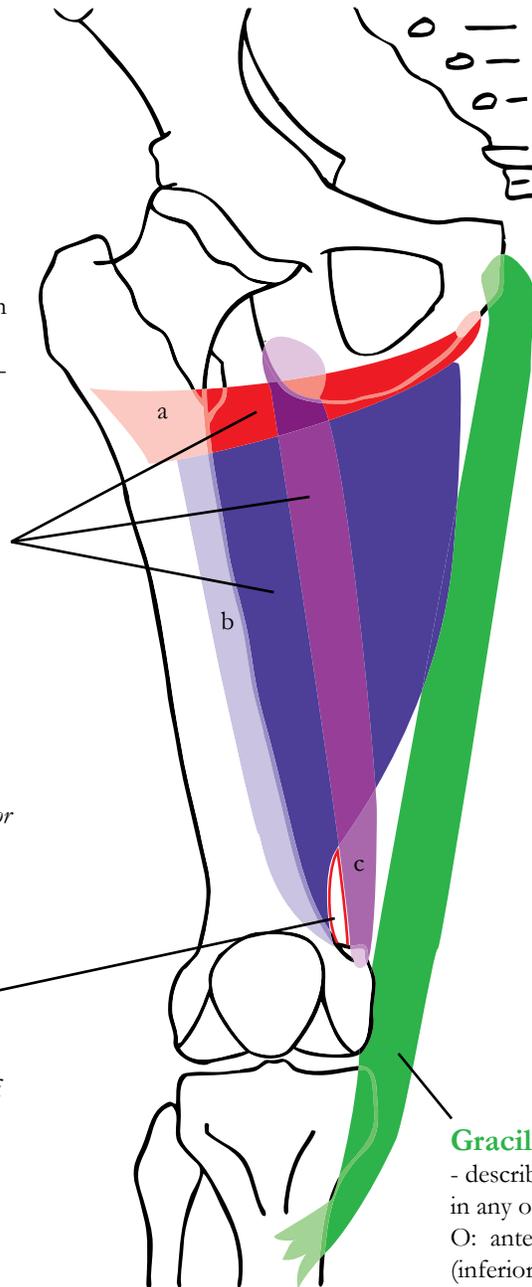
- Gracilis muscle (central insertion)

Bursa Anserina / Anserine Bursa

- separates the 3 tendons of Pes Anserinus from each other and from the bone

- it prevents rubbing friction between these structures

- may become irritated with repeated internal rotation of the leg at the knee



Gracilis Muscle

- described with posterior layer, but not in any one layer

O: anterior aspect of the pubic body (inferior part), inferior pubic ramus (medial part) and pubic symphysis (inferior aspect)

I: proximal medial shaft of the tibia

- forms part of the *pes anserinus*

- passes posterior to the medial femoral condyle

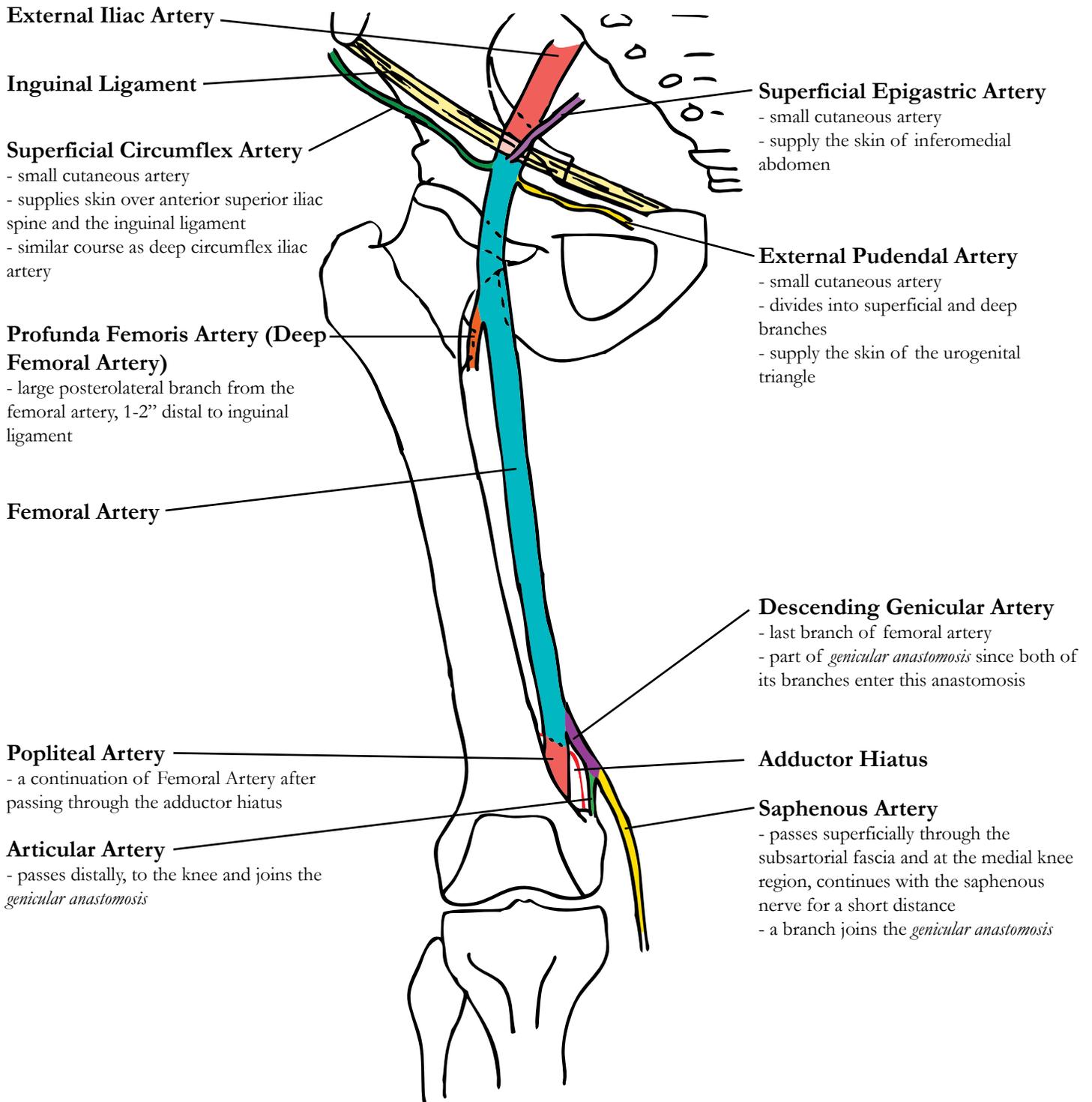
A: Adduct the thigh; flex the leg; aids in medial rotation of the leg (at the knee)

NS: obturator nerve

AS: medial femoral circumflex, obturator, and profunda femoris

Arterial Supply of Thigh

Anterior View



Arterial Supply to Thigh

Anterior View

Lateral

Medial

Femoral Artery

Lateral Femoral Circumflex Artery

- typically branch from profunda femoris artery but occasionally from femoral artery

1 - Ascending

- supplies greater trochanter and head and neck of the femur
- joins trochanteric anastomosis

2 - Transverse

- provides muscular branches
- joins the cruciate anastomosis

3 - Descending

- passes inferiorly in anterior compartment of thigh, intermediate to rectus femoris and vastus intermedius muscles at their lateral edges, near vastus lateralis muscle.
- provides muscular branches and joins the genicular anastomosis

Perforating Arteries

- all pass posterolaterally and pierce adductor magnus near area of insertion
- adductor brevis is landmark for first, second and third.

First Perforating of Profunda Femoris Artery

- passes proximal to the superior border of adductor brevis muscle

Second Perforating of Profunda Femoris Artery

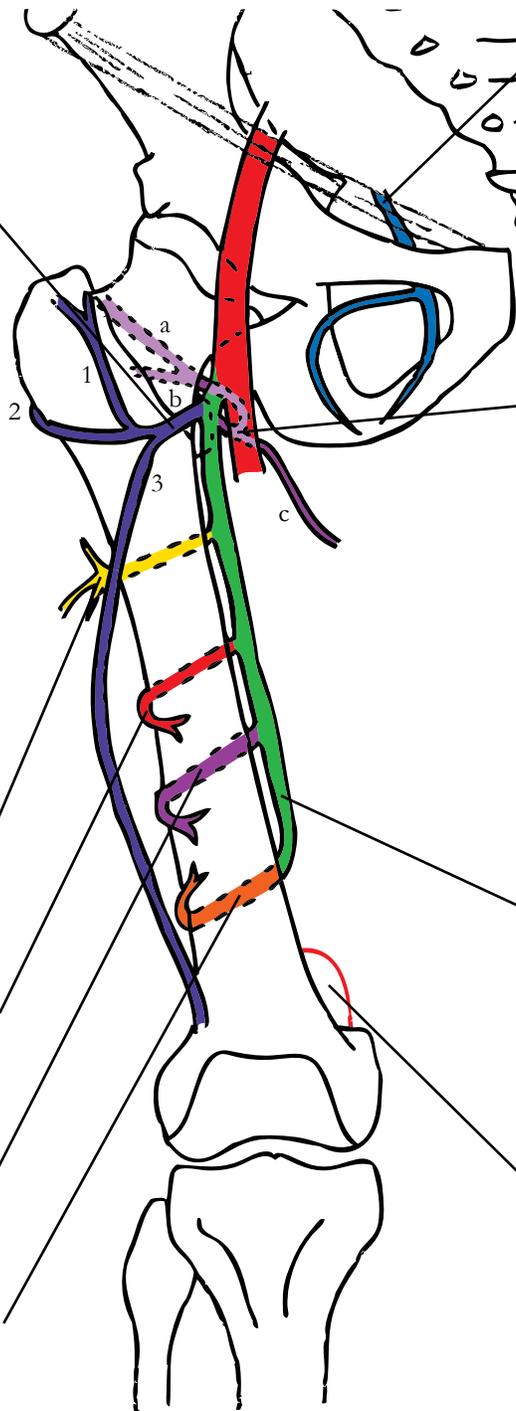
- pierces adductor brevis muscle, usually near the midportion of muscle belly
- supplies the nutrient artery to the femur

Third Perforating of Profunda Femoris Artery

- passes distal to inferior border of adductor brevis muscle

Fourth Perforating of Profunda Femoris Artery

- termination of profunda femoris artery
- located just proximal to adductor hiatus
- anastomosis with branches of the popliteal artery



Obturator Artery

- artery of medial femoral compartment;
- has anterior and posterior branches which pass to anterior and posterior aspects of adductor brevis muscle.

Acetabular Artery

- from posterior branch of obturator artery
- enters hip joint via acetabular foramen
- gives rise to *artery to ligamentum capitis femoris*

Medial Femoral Circumflex Artery

- branch typically from medial side of profunda femoris artery but occasionally from the femoral artery

a - Ascending

- supplies greater trochanter and head and neck of the femur

- joins the trochanteric anastomosis

b - Transverse

- provides muscular branches
- joins cruciate anastomosis

c - Descending

- in medial compartment of thigh
- provides muscular branches

Profunda Femoris Artery

- major branch of femoral artery passes posterior, intermediate to the pectineus muscle and the adductor longus muscle; it then passes inferiorly, anterior to both the adductor brevis and adductor magnus muscles, to its termination.

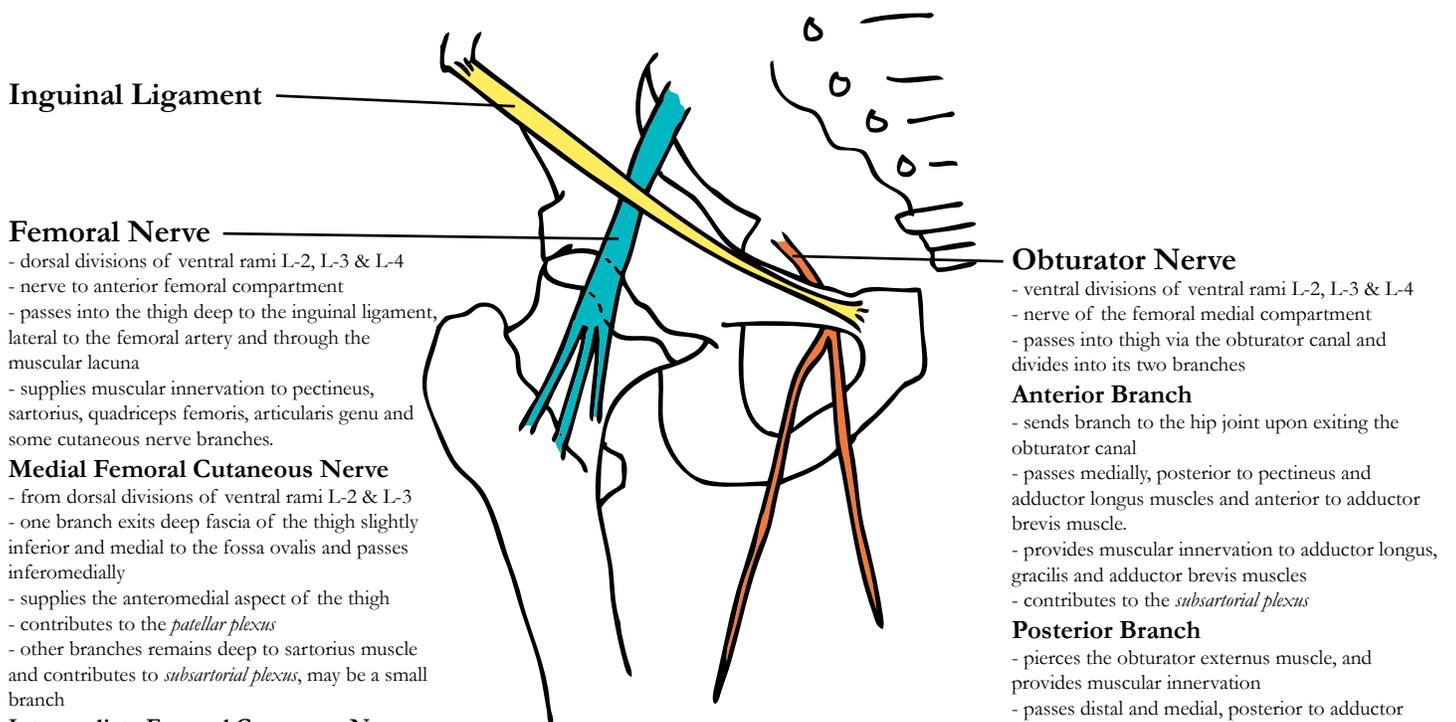
Adductor Hiatus

Nerve Supply of Hip

Anterior View

Lateral

Medial



Inguinal Ligament

Femoral Nerve

- dorsal divisions of ventral rami L-2, L-3 & L-4
- nerve to anterior femoral compartment
- passes into the thigh deep to the inguinal ligament, lateral to the femoral artery and through the muscular lacuna
- supplies muscular innervation to pectineus, sartorius, quadriceps femoris, articularis genu and some cutaneous nerve branches.

Medial Femoral Cutaneous Nerve

- from dorsal divisions of ventral rami L-2 & L-3
- one branch exits deep fascia of the thigh slightly inferior and medial to the fossa ovalis and passes inferomedially
- supplies the anteromedial aspect of the thigh
- contributes to the *patellar plexus*
- other branches remains deep to sartorius muscle and contributes to *subsartorial plexus*, may be a small branch

Intermediate Femoral Cutaneous Nerve

- dorsal divisions of ventral rami L-2 & L-3
- exits fascia lata near the fossa ovalis and passes inferiorly, usually over the rectus femoris muscle
- often pierces sartorius muscle prior to exiting fascia lata
- supplies the central part of the anterior aspect of the thigh
- contributes to *patellar plexus*

Saphenous Nerve

- dorsal divisions of ventral rami L-3 & L-4
- travels with the femoral artery and vein in the adductor canal
- exits the deep fascia at the posteroinferomedial aspect of the thigh or superoanteromedial aspect of the leg
- supplies the skin of medial 1/2 of the leg and patellar surface
- contributes to the *subsartorial plexus*
- infrapatellar branch contributes to the *patellar plexus*

Obturator Nerve

- ventral divisions of ventral rami L-2, L-3 & L-4
- nerve of the femoral medial compartment
- passes into thigh via the obturator canal and divides into its two branches

Anterior Branch

- sends branch to the hip joint upon exiting the obturator canal
- passes medially, posterior to pectineus and adductor longus muscles and anterior to adductor brevis muscle.
- provides muscular innervation to adductor longus, gracilis and adductor brevis muscles
- contributes to the *subsartorial plexus*

Posterior Branch

- pierces the obturator externus muscle, and provides muscular innervation
- passes distal and medial, posterior to adductor brevis muscle and anterior to adductor magnus muscle
- supplies obturator externus and adductor magnus, except hamstring part
- provides a branch to the knee joint which pierces the oblique popliteal ligament (this branch follows the femoral and popliteal arteries)

Subsartorial Plexus

- branches of 3 nerves join near the distal edge of adductor longus muscle and deep to sartorius muscle in lower thigh
- provide cutaneous innervation at the thigh, medially

1. obturator nerve, anterior branch
2. medial femoral cutaneous nerve
3. saphenous nerve

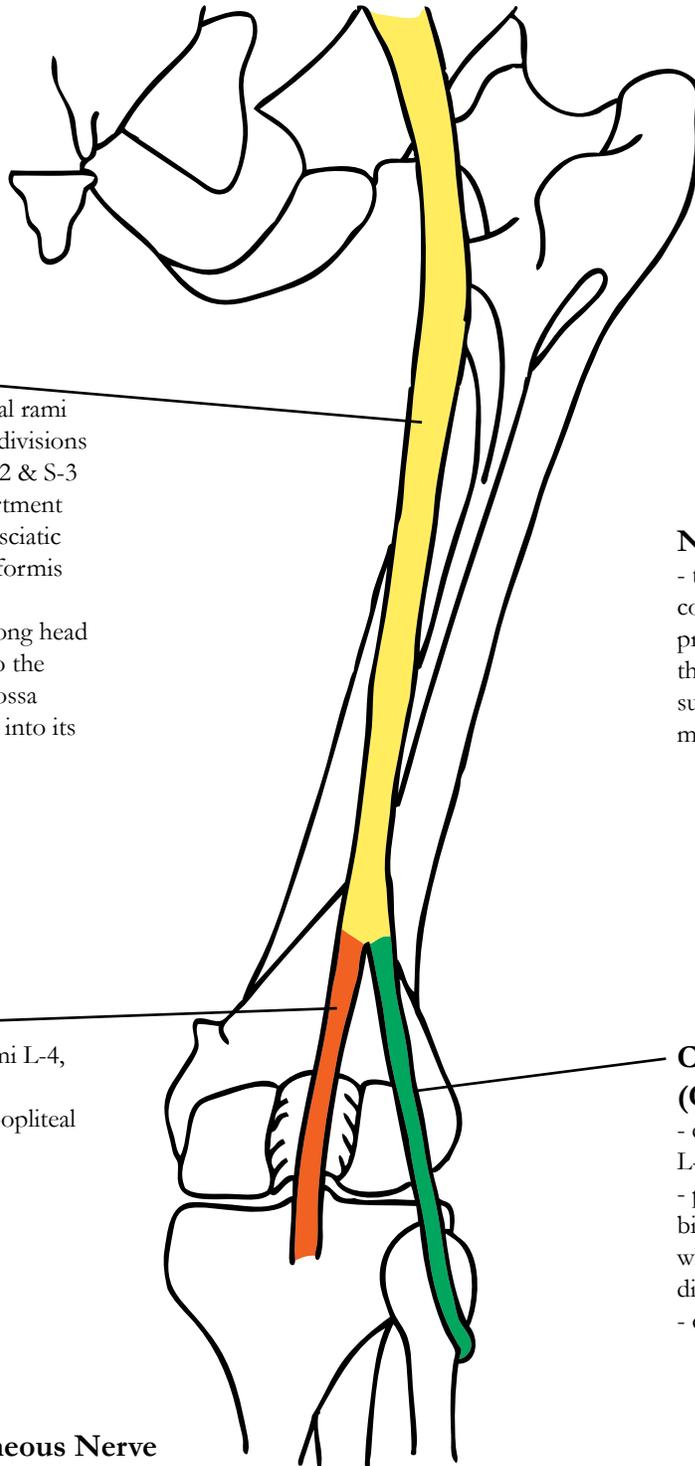
Patellar Plexus

- around the patella
 - formed by branches of 4 nerves
 - provides cutaneous innervation to the patellar surface
1. medial femoral cutaneous nerve
 2. intermediate femoral cutaneous nerve
 3. saphenous nerve, infrapatellar branch
 4. lateral femoral cutaneous nerve

Nerve Supply to Thigh Posterior View

Medial

Lateral



Sciatic Nerve

- from dorsal divisions of ventral rami L-4, L-5, S-1 & S-2 and ventral divisions of ventral rami L-4, L-5, S-1, S-2 & S-3
- nerve of the posterior compartment
- exits the pelvis via the greater sciatic foramen, usually inferior to piriformis muscle
- travels inferiorly, deep to the long head of the biceps femoris muscle, to the superior edge of the popliteal fossa
- at the popliteal fossa it divides into its two component parts.

Note:

- the sciatic nerve may split into its component nerves at any level including prior to exiting the pelvis. In this case the common fibular nerve usually passes superior to or through the piriformis muscle when exiting the pelvis

Tibial Nerve

- ventral divisions of ventral rami L-4, L-5, S-1, S-2 & S-3
- passes inferiorly through the popliteal fossa into the leg

Common Fibular Nerve (Common Peroneal Nerve)

- dorsal divisions of ventral rami L-4, L-5, S-1 & S-2
- passes along the inferior edge of the biceps femoris tendon to the fibula where it passes in an anteroinferior direction around the head of the fibula
- can palpate the nerve at the fibular head

Posterior Femoral Cutaneous Nerve

(not pictured)

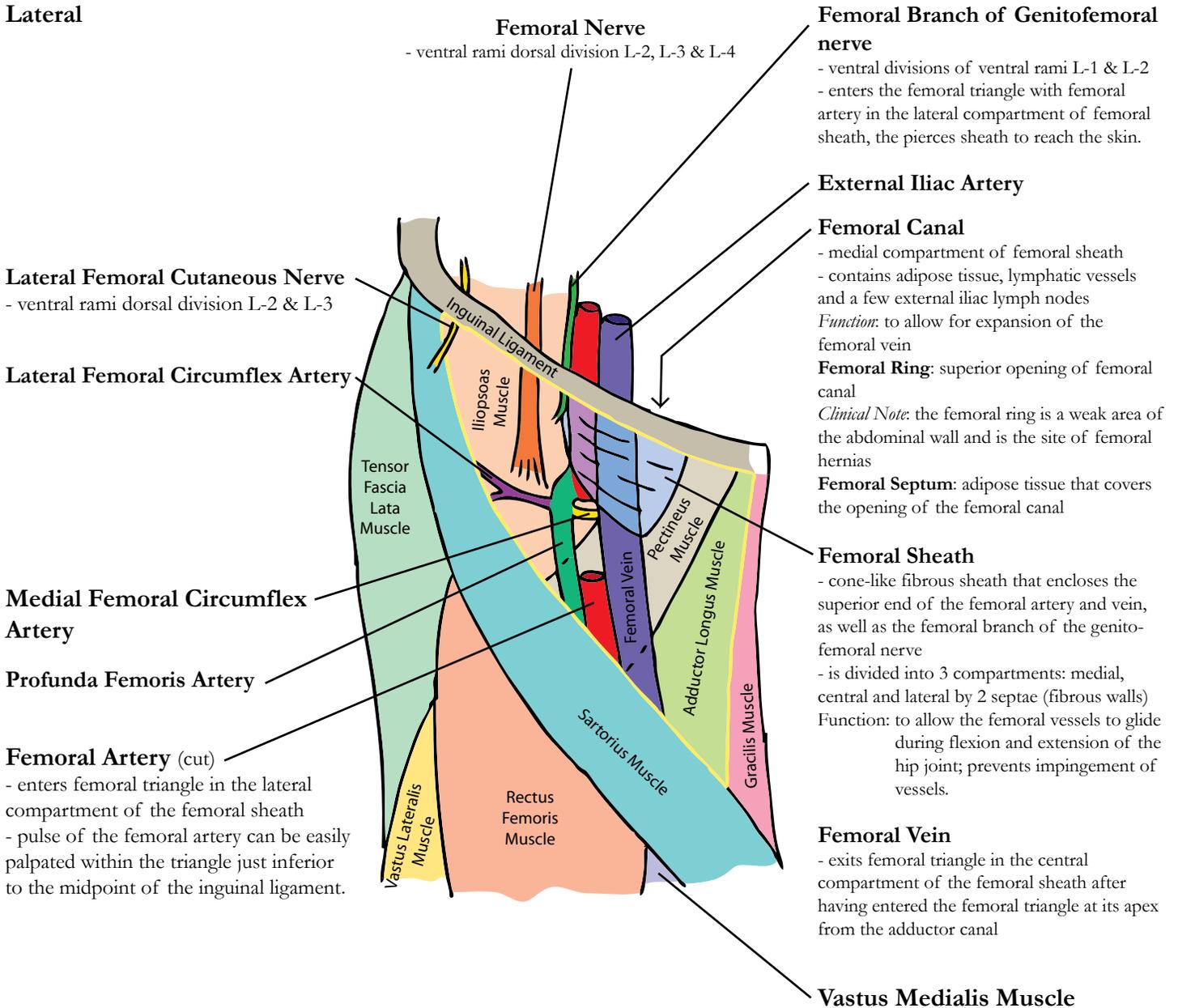
- dorsal division of ventral rami S-1 & S-2 and ventral divisions of ventral rami S-2 & S-3
- sensory nerve in posterior femoral compart-

Femoral Triangle - Hip Region

Anterior View

Medial

Lateral



Femoral Triangle

- triangular space deep to the fascia lata at the superior medial aspect of the thigh
- an important clinical space as many neurovascular structures pass through it
- the base is superior and the apex is inferior
- apex extends to the adductor canal
- Floor - pectineus, adductor longus and iliopsoas muscles
- Roof - fascia lata, includes the cribriform fascia

Base of Femoral Triangle

Superior View

Lateral

Muscular Lacuna/Lacuna Muscularum

Medial

Vascular Lacuna/Lacuna Vasculorum

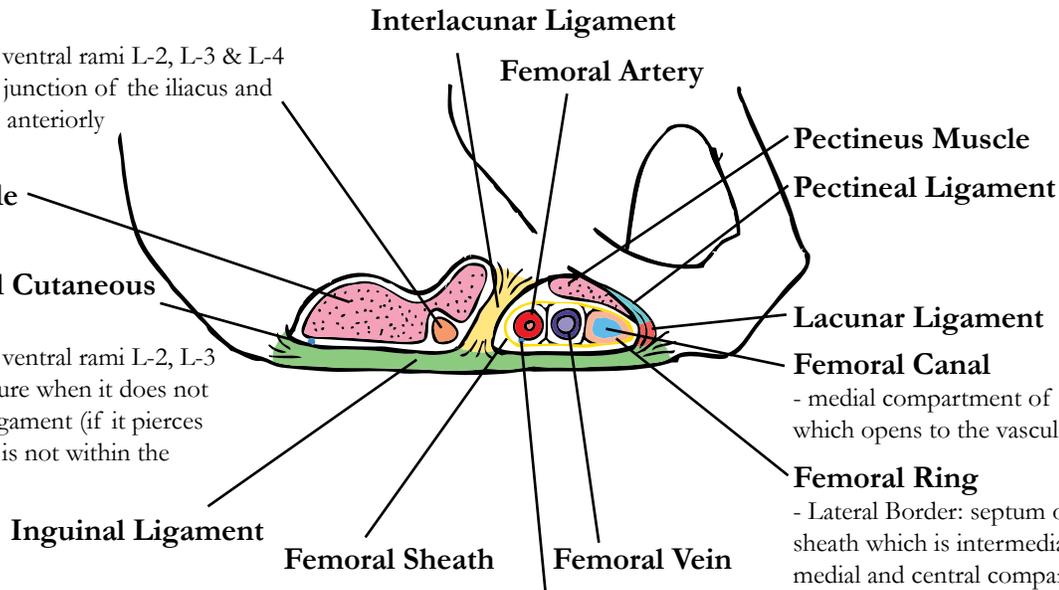
Femoral Nerve

- dorsal divisions of ventral rami L-2, L-3 & L-4
- passes through the junction of the iliacus and psoas major muscles anteriorly

Iliopsoas Muscle

Lateral Femoral Cutaneous Nerve

- dorsal divisions of ventral rami L-2, L-3
- anterolateral structure when it does not pierce the inguinal ligament (if it pierces the ligament, then it is not within the femoral triangle)



Pectineus Muscle

Pectineal Ligament

Lacunar Ligament

Femoral Canal

- medial compartment of femoral sheath which opens to the vascular lacuna

Femoral Ring

- Lateral Border: septum of the femoral sheath which is intermediate to the medial and central compartments
- Medial Border: lacunar or Gimbernat's ligament
- Anterior Border: inguinal or Poupart's ligament
- Posterior Border: pectineus muscle and pectineal ligament or Cooper's ligament

Femoral Sheath

Femoral Vein

Femoral Branch of Genitofemoral Nerve

- ventral divisions of ventral rami L-1, L-2

Muscular & Vascular Lacunae

Inferior View

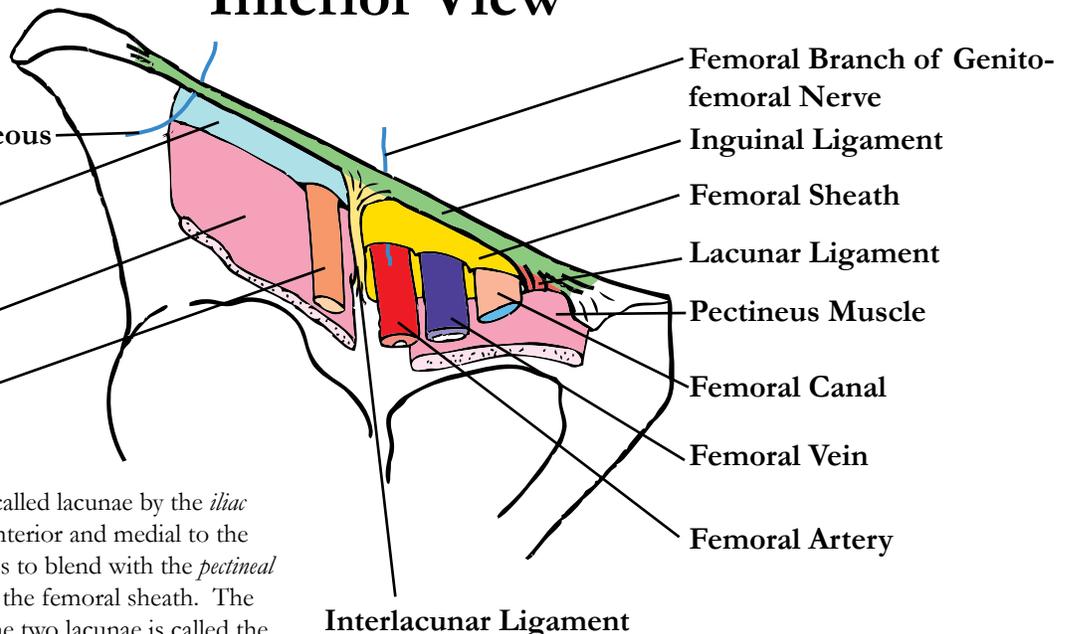
Lateral Femoral Cutaneous Nerve

Iliac Fascia

Iliopsoas Muscle

Femoral Nerve

- area is divided into 2 spaces called lacunae by the *iliac fascia/fascia iliaca* as it passes anterior and medial to the iliacus and psoas major muscles to blend with the *pectineal fascia* and the posterior wall of the femoral sheath. The thickening at the division of the two lacunae is called the *interlacunar ligament*



Femoral Branch of Genitofemoral Nerve

Inguinal Ligament

Femoral Sheath

Lacunar Ligament

Pectineus Muscle

Femoral Canal

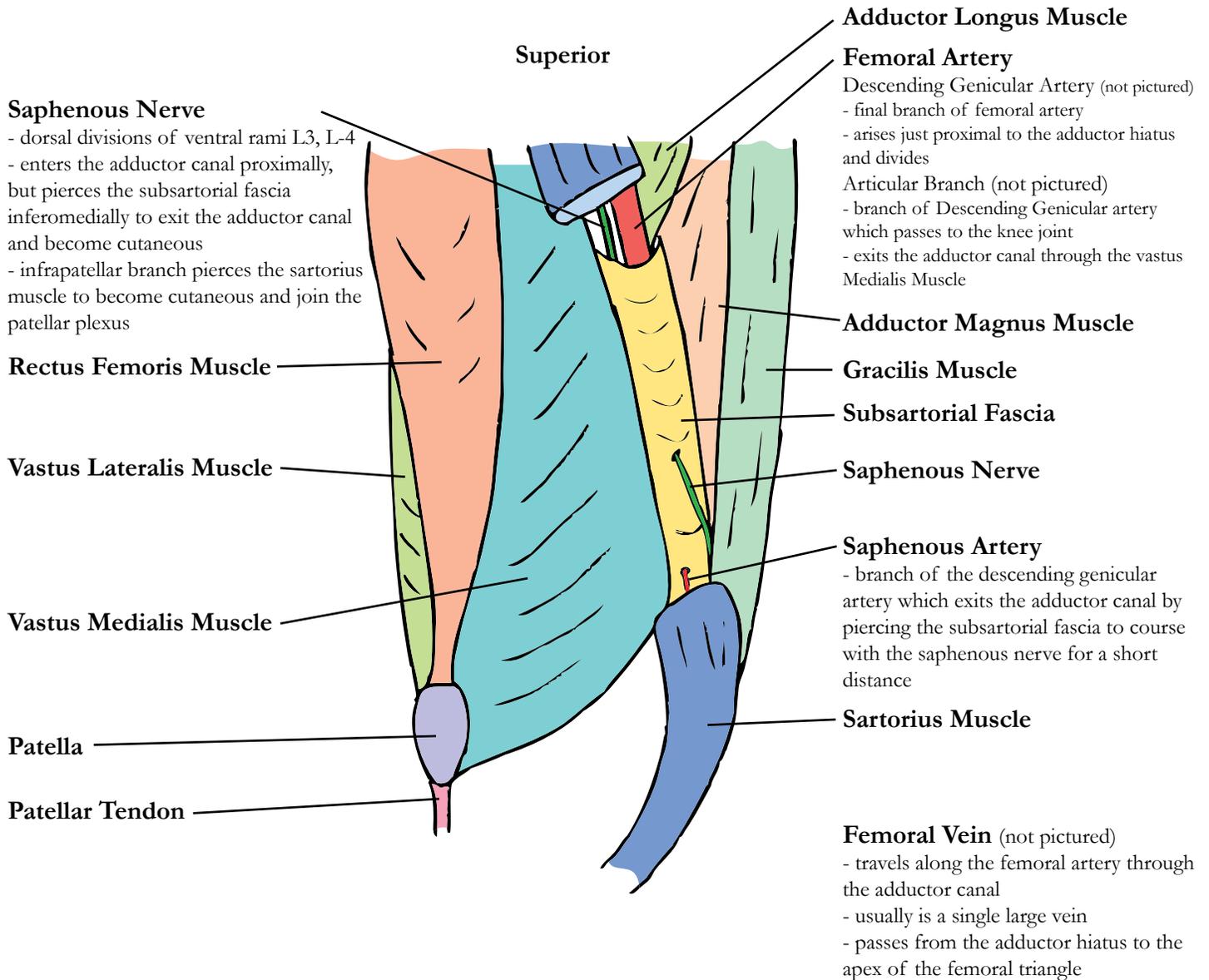
Femoral Vein

Femoral Artery

Interlacunar Ligament

Adductor Canal - Thigh

Anteromedial View



The adductor canal is also called the subsartorial canal or Hunter's canal. It is a narrow fascial tunnel in the thigh which is located deep to the sartorius muscle and extends from the apex of the femoral triangle to the adductor hiatus. The adductor canal is roughly triangular on a cross-section view.

Posterior: adductor longus and adductor magnus muscle

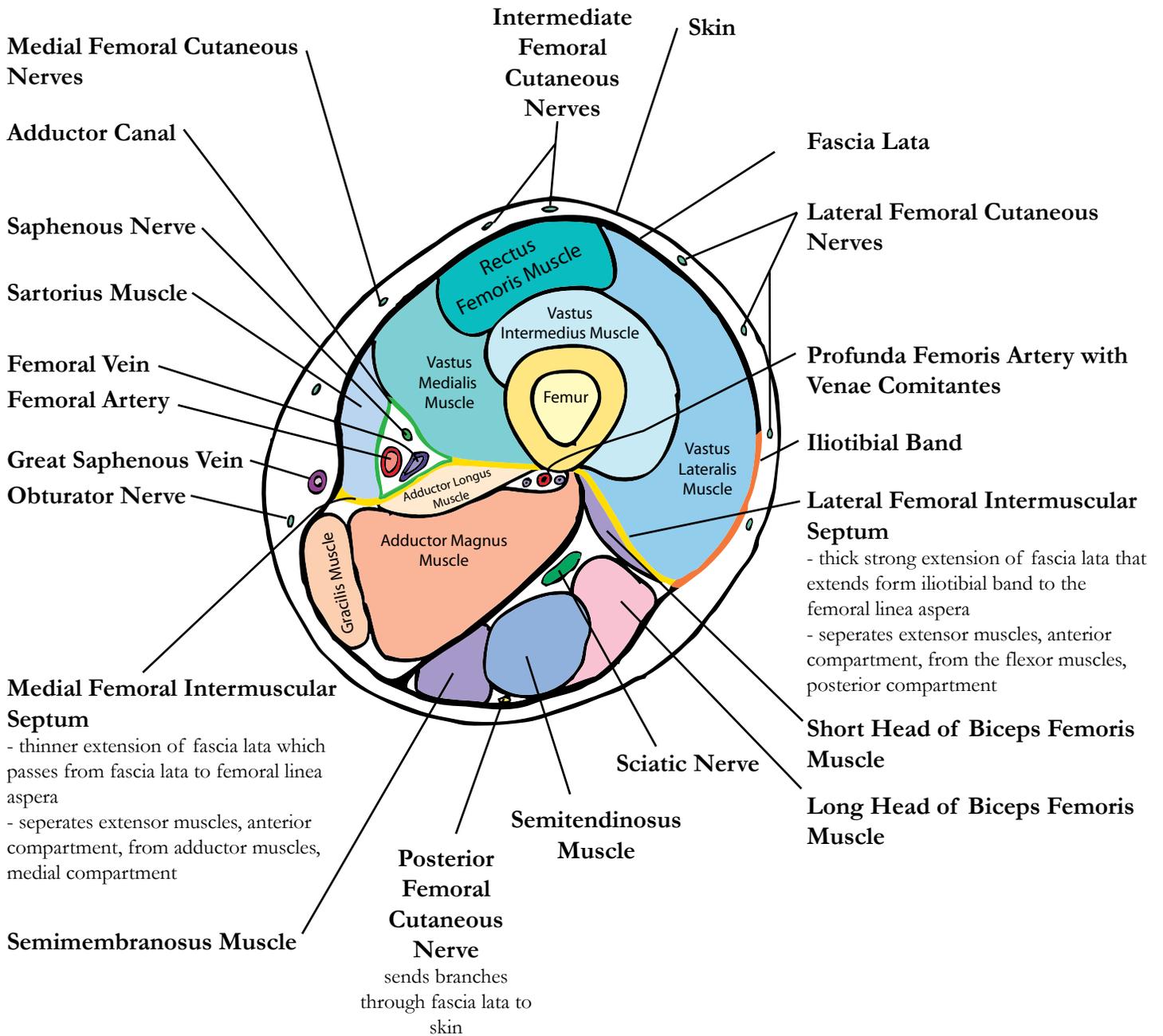
Anteromedial: subsartorial fascia which is very thick and lies on the deep surface of the sartorius muscle

Anterolateral: vastus medialis muscle

Thigh - Cross Section

Anteromedial View

Anterior



Deep fascia/ Fascia lata
- thicker anteriorly and laterally
- laterally it forms the iliotibial band
- fascia lata surrounds all muscles and compartments, but is not named in all areas