Gross Anatomy Coursepack Illustrations



STUDENT COLLABORATIVE RESOURCES FOR UNDERSTANDING AND BRODY SUCCESS

SCRUBS is a student driven initiative that aims to develop supplemental resources for current and future cohorts that will pass through Brody. Members of **SCRUBS** participate in a variety of sub-committees working to create resources for students, by students. These resources aim to offer unique perspectives from students that have walked in the same shoes, developing resources that we wish we had been exposed to during our time in the course.

The hope is this organization will become a staple of the Brody student body, exemplifying the unique collaborative community that Brody offers. If this is a mission that aligns with your goals and you have the desire to help those that will come behind you, as well as a goal to leave your mark on Brody as a whole, we invite you to join the team!

Disclaimer:

The resources that are included in this document are made by students and not the faculty. As such, there is the possibility for errors in our development, although this is mitigated via a team approach to development with multiple stages of vetting. If there is a contradiction with the coursework presented within your course, please go by the course documents. Additionally, **SCRUBS** aims to supply **supplemental resources**, however these are in no way replacements to the instruction of the Brody faculty. Use these resources as a supplement, but not as your primary source for course material.

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Pelvic Inlet and Outlet

Coursepack Section: Pelvic Inlet, Outlet, and Anal Region

Image Description: The pelvic inlet, is the upper opening of the true pelvis, bordered by the sacral promontory and ala of the sacrum posteriorly, the arcuate lines of the ilium laterally, and the pubic symphysis anteriorly. It separates the abdominal cavity from the pelvic cavity. The pelvic outlet is the lower opening of the true pelvis, bordered by the tip of the coccyx posteriorly, the ischial tuberosities laterally, and the pubic arch anteriorly.



Key Points:

- Top Left = Greater (false) pelvis is above the pelvic inlet, Lesser (true) pelvis is below
- Top Right = Boarders of the pelvic inlet
- Bottom= boarders of the pelvic outlet



Urogenital and Anal Triangles

Coursepack Section: Male and Female Perineum

Image Description: The urogenital triangle, located anteriorly in the perineum, contains the external genitalia and associated muscles, with boundaries formed by the pubic symphysis, ischial tuberosities, and an imaginary line between them. The anal triangle, positioned posteriorly, includes the anus and external anal sphincter, bordered by the coccyx, ischial tuberosities, and the same imaginary line.



Key Points:

- The perineum can be spit into two triangles
 - Anal triangle posteriorly
 - Urogenital anteriorly



Lumbar Plexus

Coursepack Section: Lumbosacral plexus

Image Description: The lumbar plexus is a network of nerves formed by the anterior rami of the L1-L4 spinal nerves. It is located within the psoas major muscle and provides motor and sensory innervation to the lower abdominal wall, pelvis, and lower extremities. Major branches of the lumbar plexus include the iliohypogastric, ilioinguinal, genitofemoral, lateral femoral cutaneous, femoral, and obturator nerves.



Key Points:

- Genitofemoral: Cremaster/scrotum and skin over femoral triangle (femoral branch)
- Posterior obturator = Obturator externus + Adductor magnus
- Femoral iliopsoas + flexor compartment of thigh
- Pectineus is split innervation between obturator and femoral nerves



Sacral Plexus

Coursepack Section: Lumbosacral plexus

Image Description: The sacral plexus is a network of nerves formed by the anterior rami of the L4-S4 spinal nerves, located on the posterior pelvic wall in front of the piriformis muscle. It provides motor and sensory innervation to the pelvis, buttocks, genitals, thighs, legs, and feet, with major branches including the sciatic nerve, pudendal nerve, superior and inferior gluteal nerves, and the posterior femoral cutaneous nerve.



Key Points:

- Broken into anterior and posterior divisions
- Sciatic nerve = Common fibular (L4-S2) + Tibial (L4-S3)
- The superior gluteal passes out of the GSF above the piriformis muscle
- The inferior gluteal passes out og the GSF below the piriformis muscle



Internal Pudendal Artery

Coursepack Section: Male and female perineum

Image Description: The internal pudendal artery is a branch of the internal iliac artery, and is the primary source of blood flow to the perineum. It runs with the pudendal nerve and shares names with most of its branches. It exits the pelvis through the greater sciatic foramen (GSF), passes behind the ischeal spine, and reenters via the lesser sciatic foramen (LSF).



Key Points:

- The pudendal nerve passes OUT of the GSF and INTO the LSF into the perineum
- The pudendal nerve initially pranches into a perineal and dorsal branch
- The perineal then divides once more into superficial (skin) and deep (muscle) branches



Pudendal Nerve

Coursepack Section: Male and Female Perineum

Image Description: The perineum is innervated by the pudendal nerve, made up of spinal segments S2-4. This nerve is the counterpart to the internal pudendal artery, following the same pathway and having many of the same branches. The dorsal nerve branch will innervate the glans penis/clitoris while the deep perineal will innervate the muscles of the urogenital triangle while the superficial pudendal innervates the skin of the region.



Key Points:

- The pudendal nerve passes OUT of the GSF and INTO the LSF into the perineum
- The pudendal nerve initially branches into a perineal and dorsal branch
- The perineal then divides once more into superficial (skin) and deep (muscle) branches



Sciatic Nerve Branches

Coursepack Section: Lumbosacral Plexus

Image Description: The sciatic nerve is the major nerve of the sacral plexus, made up of spinal segments L4-S3. The sciatic nerve is composed of two nerves that are held together by a connective sheath forming, when in actuality it is made of the tibial (L4-S3, anterior division) and common fibular (L4-S2, posterior division) nerves that go on to separate in the popliteal fossa.



Key Points:

- Sciatic nerve is composed of the tibial nerve (L4-S3), and the common fibular (L4-S2)
- The tibial nerve is the primary innervation for: posterior thigh, posterior leg, and plantar foot
- The common fibular nerve branches into the superficial and deep fibular nerves
- Deep fibular = muscles of the anterior compartment + dorsum foot
- Superficial fibular = muscles of the lateral compartment + *skin* of the dorsal foot
- The common fib. and tibial nerves both contribute to the sural nerve (cutaneous only)



Femoral Triangle

Coursepack Section: Anteromedial Thigh

Image Description: The femoral triangle is defined superiorly by the inguinal ligament,

inferolaterally by the sartorius muscle, and inferomedially by the adductor longus. The floor and roof are made up of the fascia lata and the pectineus/iliopsoas, respectively. Within the triangle, the femoral artery and vein, not the nerve, are wrapped by the femoral sheath.



Key Points:

- The structures from lateral to medial can be remembered by the phrase NAVEL
 Nerve, Artery, Vein, empty space, Lymphatics
- The skin of the femoral triangle is innervated by the genitofemoral nerve (L1-L2)



Adductor Canal

Coursepack Section: Anteromedial Thigh

Image Description: The adductor canal is a triangular tunnel formed by the vastus medialis and the adductor longus & magnus. The sartorius muscle crosses over the canal, forming the anterior border. The canal terminates with the superficial femoral artery passing inferiorly through the adductor hiatus, where they will then become the popliteal artery and vein.



Key Points:

- The LATERAL border is the vastus MEDIALIS
- The adductor canal also contains the nerve to vastus medialis and saphenous nerve
- The artery and nerve pass out of the adductor canal via the adductor hiatus



Iliac Branches

Coursepack Section: Anteromedial Thigh

Image Description: The blood supply to the anteromedial thigh comes from the obturator (from internal iliac artery) and external iliac arteries. The external iliac artery crosses the inguinal ligament to become the femoral artery which gives off the profunda femori and its associated branches. Several branches of the femoral artery (indicated by a purple star) form the cruciate anastomosis, an important source blood supply to the femoral head. The medial femoral circumflex artery supplies the majority of blood to the head and neck of the femur.



Key Points:

- Profundus femoris branches = Lateral circumflex and Medial circumflex
- Superficial branches = sup. circumflex iliac, external pudendal, superficial epigastric
- The cruciate anastomosis is formed by the medial cicumflex, ascending branch of the lateral circmflex, inferior gluteal, and first profundus perferator



Veins of the Lower Limb

Coursepack Section: Anteromedial Thigh and Leg

Image Description: All veins of the lower limb eventually drain back into the femoral vein. The primary vein of the lower limb is the great saphenous vein, which begins at the medial side of the dorsal venous arch on the dorsum of the foot and travels up to the femoral triangle where is passes through the saphenous hiatus. The saphenous nerve runs with the great saphenous vein. The other major vein of the leg is the small saphenous vein. This vein is the lateral continuation of the dorsal venous arch and empties into the popliteal vein of the popliteal fossa. The small saphenous vein runs with the sural nerve on the posterior surface of the leg.



Key Points:

• Mirrors arterial supply in large part. Exceptions include the great saphenous and small saphenous veins



Popliteal Fossa

Coursepack Section: Leg

Image Description: The popliteal fossa is a diamond-shaped depression located at the back of the knee joint. It is bounded by the biceps femoris muscle laterally, the semimembranosus and semitendinosus muscles medially, and the heads of the gastrocnemius muscle inferiorly, containing important structures such as the popliteal artery and vein, tibial and common fibular nerves, and lymph nodes.



Key Points:

- From deep to superficial, the structures are Artery, Vein, and Nerve
- Common fibular exits and passes around the head of the fibula



Arteries of the Lower Limb

Coursepack Section: Lower Limb

Image Description: The popliteal artery branches into the anterior tibial artery, which continues as the dorsalis pedis artery on the dorsum of the foot, and the posterior tibial artery, which further divides into the medial and lateral plantar arteries forming the plantar arch. The plantar arch gives rise to the plantar metatarsal and digital arteries, ensuring blood supply to the toes and the plantar surface of the foot.



Key Points:

- Anterior interosseous pierces the interosseous membrane to the anterior compartments
- The fibular artery does not pass the ankle
- The posterior tibial passes behind the medial malleolus into the foot
- The anterior tibial artery continues to the dorsum of the foot as the dorsalis pedal artery