

Gross anatomy

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1. Vasculature means blood vessels which indicates that arteries and veins are in the blood which both have RBC and WBC. In relation to immune system the WBC is for immunity which is responsible the fight against the virus once it gets in contact with the blood vessels.

2. The **adductor canal** (Hunter's canal, subsartorial canal) is a narrow conical tunnel located in the thigh.

It is approximately 15cm long, extending from the apex of the femoral triangle to the adductor hiatus of the adductor magnus. The canal serves as a **passageway** from structures moving between the anterior thigh and posterior leg.

Borders

The adductor canal is bordered by muscular structures:

Anteromedial: Sartorius.

Lateral: Vastus medialis.

Posterior: Adductor longus and adductor magnus.

The adductor canal runs from the apex of the femoral triangle to the **adductor hiatus** – a gap between the adductor and hamstring attachments of the adductor magnus muscle.

Contents

The adductor canal serves as a **passageway** for structures moving between the anterior thigh and posterior leg.

It transmits the **femoral artery**, femoral vein (posterior to the artery), nerve to the vastus medialis and the saphenous nerve – the largest cutaneous branch of the femoral nerve.

As the femoral artery and vein exit the canal, they are called the **popliteal artery and vein** respectively.

3. **The extraocular muscles:** They are located within the orbit, but are extrinsic and separate from the eyeball itself. They act to control the movements of the **eyeball** and the **superior eyelid**.

There are seven extraocular muscles – the levator palpebrae superioris, superior rectus, inferior rectus, medial rectus, lateral rectus, inferior oblique and superior oblique. Functionally, they can be divided into two groups:

Responsible for eye movement – Recti (superior rectus, inferior rectus, medial rectus, lateral rectus) and oblique muscles (superior oblique & inferior oblique).

Responsible for superior eyelid movement – Levator palpebrae superioris

The Levator palpebrae superioris is the only muscle involved in raising the superior eyelid. It is innervated by the oculomotor nerve (CN III) its smooth muscle compartment (superior tarsal muscle) which is innervated by the sympathetic nervous system.

All Recti muscles are innervated by the oculomotor nerve (CN III) except the lateral rectus which is innervated by the abducens nerve (CN VI)

The superior rectus is involved in elevation, adduction and medial rotation of the eyeball.

The inferior rectus is involved in the depression, adduction & lateral rotation of the eyeball. The blood supply to the inferior rectus is provided by the ophthalmic artery and the infraorbital branch of the maxillary artery.

The medial rectus is involved in the adduction of the eyeball

The lateral rectus is involved in the abduction of the eyeball. It is the only muscle supplied by the abducens nerve, cranial nerve VI. The abducens nerve exits the brainstem from the pons-medullary junction, and travels through the superior orbital fissure to innervate the lateral rectus muscle.

The Superior Oblique is innervated by the Trochlear nerve (CN IV) & is involved in the depression, adduction & medial rotation of the eyeball.

The Inferior Oblique is innervated by the Oculomotor nerve (CN III) & is involved in the elevation, abduction & lateral rotation of the eyeball.

***The intraocular muscles** : These include the ciliary muscle, the sphincter pupillae, and the dilator pupillae.

The ciliary muscle is a smooth muscle ring that controls accommodation by altering the shape of the lens, as well as controlling the flow of aqueous humor into Schlemm's canal. The ciliary muscles are supplied by parasympathetic postganglionic myelinated nerve fibers from the ciliary ganglion.

The iris sphincter muscle receives its parasympathetic innervation via the short

ciliary nerves which lead to pupillary constriction (miosis) and accommodation. The parasympathetic fibers that serve the sphincter muscle.

The dilator muscle is innervated more specifically by postganglionic sympathetic nerves arising from the superior cervical ganglion as the sympathetic root of ciliary ganglion. From there, they travel via the internal carotid artery through the carotid canal to foramen lacerum.

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