QUESTION 1

Vasculature has to do with arrangements of the vascular system in parts of the body, like vasculation of the arm involves the blood vessel of the arm and their anatomical arrangement. Vasculature generally refers to blood supply to various bodily organs and systems.

As regards how it helps the immune system, there are certain cells and organs that make up the immune system component of the body and hence proper vasculature i.e. proper blood supply to these cells and organs help them to effectively carry out their function of being the body's first line of defense. Vasculature is like arteries and veins that supply the body. So, they help immunity because they supply blood round the body. And this blood contains white blood cells that have protective functions

Infection with the virus deprives some of these immune cells and organs proper vasculature (proper flow of blood) and hence leaves the immune system somewhat compromised. This then results in the immune system not being able to fight the disease or virus infectively. This in turn enables the virus grow and multiply, leading to greater health issues for the

personnel concerned.

Fortunately, with the aid of anti-biotics and cures or medicines for these various diseases or viruses, the immune system receives the necessary ability which includes proper vasculation to fight the virus or disease. But in the case pf COVID-19, there is yet to be a cure or a vaccine as of this moment.

ALSO,

when the body gets an infection, chemicals are released into the bloodstream to fight the infection. Sometimes, the body(with the aid of the immune system) creates an overwhelming response to an infection, and the chemicals released into the bloodstream can cause inflammation throughout the body. This reaction is called sepsis. The inflammation can cause blood clots and leaky blood vessels. The poor blood flow can then cause damage to multiple organ systems, and can even cause them to fail.. Alongside many infectious diseases, the immune system's reaction to a virus, bacteria, or other pathogen can cause greater harm to the infected individual than the pathogen itself. Sepsis is a deadly example of this phenomenon. Triggered by an infection, the immune system overreacts, releasing chemicals called cytokines that make blood vessels become leaky. That can ultimately reduce oxygen delivery to vital organs, which may cause organ failure. Sepsis kills more than 10 million people a year.

2. Subsartorial canal is an important area in the lower limb,Discuss.

The subsartorial canal is also called the Adductor canal,Hunter's canal.
It 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.

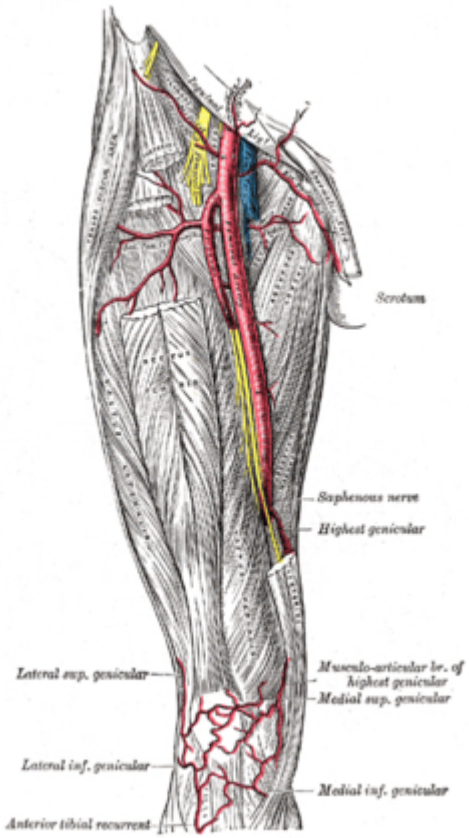

diagram of the adductor canal.

Contents

The canal contains the subsartorial artery,the subsartorial vein, and branches of the femoral nerve (specifically, the saphenous nerve, and the nerve to the vastus medialis).The femoral artery with its vein and the saphenous nerve enter this canal through the superior foramen. Then, the saphenous nerve and artery and vein of genus descendens exit through the anterior foramen, piercing the vastoadductor intermuscular septum. Finally, the femoral artery and vein exit via the inferior foramen (usually called the hiatus) through the inferior space between the oblique and medial heads of adductor magnus.

Importance of the subsartorial canal:

It serves as a passage way for structures moving between the anterior thigh and posterior leg.

It transmits the femoral artery,femoral vein,nerve to the vast us medialis and the saphenous nerve.

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.

Clinical Relevance

Adductor Canal Block

In the adductor canal block, local anaesthetic is administered in the adductor canal to block the saphenous nerve in isolation, or together with the nerve to the vastus medialis. The block can be used to provide sensory anaesthesia for procedures involving the distal thigh and femur, knee and lower leg on the medial side. The sartorius and femoral artery are used as anatomical landmarks to locate the saphenous nerve.

3.Describe the extraocular and intraocular muscles with their nerve supply.

The **extraocular muscles** are the six **muscles** that control movement of the **eye** and one **muscle** that controls eyelid elevation (levator palpebrae). The actions of the six **muscles** responsible for **eye** movement depend on the position of the **eye** at the time of **muscle** contraction.

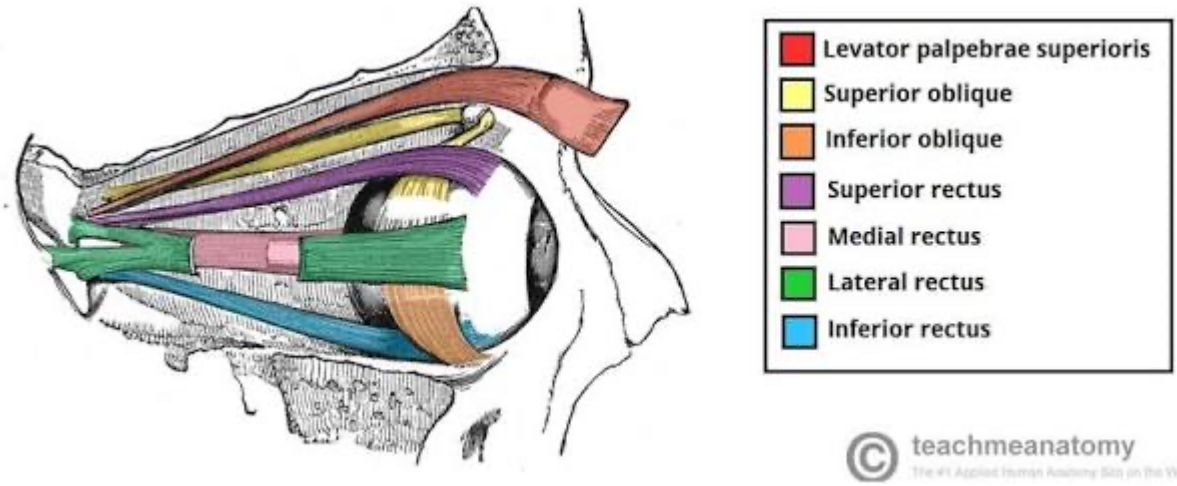

Diagram of the extraocular muscles.

Details of these muscles are shown below:

Medial Rectus (MR)

- This moves the eye inwards, towards the nose **(adduction)**

Lateral Rectus (LR)

- Moves the eye outwards, away from the nose **(abduction)**

Superior Rectus (SR)

- Moves the eye Upwards **(Elevation)**
- Rotates the top of the eye towards the nose **(intorsion)**
- Moves the eye inward **(adduction)**

Inferior Rectus (IR)

- Moves the eye downwards **(depression)**
- Rotates the top of the eye away from the nose **(extorsion)**
- Moves the eye inward **(adduction)**

Superior Oblique (SO)

- Rotates the top of the eye towards the nose **(intorsion)**
- Moves the eye downwards **(depression)**
- Moves the eye outwards **(abduction)**

Inferior Oblique (IR)

- Rotates the top of the eye away from the nose **(extorsion)**
- Moves the eye upwards **(elevation)**

- Moves the eye outwards **(abduction)**

There are also small muscles that control the eyelids, when they become fatigued drooping eyelids (ptosis) can occur.

The Intraocular muscles

The intraocular muscles 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 muscle is attached to the zonular fibers which suspend the lens. Upon contraction of the ciliary muscle, the tension on the lens is lessened which causes it to adopt a more spherical shape to focus on near objects. Relaxation of the ciliary muscle has the opposite effect, optimising distant focus. The sphincter pupillae and dilator pupillae are also composed of smooth muscle. The sphincter pupillae encircles the pupil and is responsible for the constriction of its diameter, while the dilator muscle is arranged radially and increases the pupillary diameter.

There are three primary axes of ocular movements: vertical,transverse, and anteroposterior.

Nerve supply for extraocular muscle.

Cranial nerve	Muscle
Oculomotor	Superior rectus muscle

nerve (N. III)	Inferior rectus muscle Medial rectus muscle Inferior oblique muscle
	Levator palpebrae superioris muscle
Trochlear nerve (N. IV)	Superior oblique muscle
Abducens nerve (N. VI)	Lateral rectus muscle

Nerve supply for intraocular muscle

1.ophthalmic nerve

2. The long and short cilary