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***Question: Describe the importance of vasculature in the relation to immune system and outbreak of pandemic covid19 on the body***

Coronavirus Disease (COVID-19) is an infectious disease caused by a new virus.

The disease causes respiratory illness (like the flu) with symptoms such as a cough, fever, and in more severe cases, difficulty breathing. You can protect yourself by washing your hands frequently, avoiding touching your face, and avoiding close contact (1 meter or 3 feet) with people who are unwell.

**How it’s spread:**

Coronavirus disease spreads primarily through contact with an infected person when they cough or sneeze. It also spreads when a person touches a surface or object that has the virus on it, then touches their eyes, nose, or mouth. The body’s natural barriers against disease-causing intruders – for example, our skin, the mucous and hairs in our nose, and the acid in our stomachs – are part of our innate immune systems.

Adaptive immunity develops over a lifetime of contact with pathogens and vaccines, preparations which help our immune systems to distinguish friend from foe. Each cell, molecule, tissue and organ in this army plays a vital role in warding off invading pathogens, and also helps guard against internal threats like cancer.

Vaccination safely teaches our adaptive immune systems to repel a wide range of diseases, and thus protect ourselves and others.

There is currently no vaccine for coronavirus, and we may not see one [for 18 months](https://www.weforum.org/agenda/2020/03/vaccine-covid-19-coronavirus-pandemic-healthcare/) or longer. So, for now, our immune systems must adapt unaided to this potentially deadly threat.

**How to help your Immune System**

A healthy lifestyle – not smoking, drinking little or no alcohol, sleeping well, eating a balanced diet, taking regular moderate exercise and reducing stress – helps our immune systems to be in the best shape possible to tackle pathogens.

***Question: The Sub-Sartorial Canal is an important area in the lower limb, Discuss:***

The adductor canal (subsartorial or Hunter’s canal) is an Aponeurotic tunnel in the middle third of the thigh, extending from the apex of the femoral triangle to the opening in the adductor magnus, the adductor hiatus. It is an inter-muscular cleft situated on the medial aspect of the middle third of the thigh on [anterior compartment of thigh](https://en.wikipedia.org/wiki/Anterior_compartment_of_thigh), and has the following boundaries:

* Anteromedial wall - [Sartorius](https://en.wikipedia.org/wiki/Sartorius_muscle).
* Posterior wall - [Adductor Longus](https://en.wikipedia.org/wiki/Adductor_longus) and [Adductor Magnus](https://en.wikipedia.org/wiki/Adductor_magnus).
* Laterally - [Vastus Medialis](https://en.wikipedia.org/wiki/Vastus_medialis).

It is covered in by a strong aponeurosis which extends from the [Vastus Medialis](https://en.wikipedia.org/wiki/Vastus_medialis), across the femoral vessels to the [Adductor Longus](https://en.wikipedia.org/wiki/Adductor_longus) and Magnus. Lying on the aponeurosis is the sartorius (tailor's) muscle. The canal contains the sub-sartorial artery (superficial femoral artery), sub-sartorial vein (superficial femoral 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 descendants exit through the anterior foramen, piercing the vastoadductor inter-muscular 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.

***Question: Describe the Extraocular and Intraocular muscles with their nerve supply:***

The **Extraocular Muscles** are the six [muscles](https://en.wikipedia.org/wiki/Muscle) that control [movement of the eye](https://en.wikipedia.org/wiki/Eye_movement_%28sensory%29) and one muscle that controls [eyelid](https://en.wikipedia.org/wiki/Eyelid) elevation ([levator palpebrae](https://en.wikipedia.org/wiki/Levator_palpebrae_superioris_muscle%22%20%5Co%20%22Levator%20palpebrae%20superioris%20muscle)). The actions of the six muscles responsible for eye movement depend on the position of the [eye](https://en.wikipedia.org/wiki/Human_eye) at the time of muscle contraction.

**Nerve supply:**

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| --- | --- |
| **Cranial Nerve**  | **Muscle**  |
| Oculomotor Nerve (N. III)  | Superior rectus muscle 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  |

The nuclei or bodies of these nerves are found in the brain stem. The nuclei of the abducens and oculomotor nerves are connected. This is important in coordinating the motion of the lateral rectus in one eye and the medial action on the other. In one eye, in two antagonistic muscles, like the lateral and medial recti, contraction of one leads to inhibition of the other. Muscles show small degrees of activity even when resting, keeping the muscles taut. This "[tonic](https://en.wikipedia.org/wiki/Muscle_tone)" activity is brought on by discharges of the motor nerve to the muscle.[[1]](https://en.wikipedia.org/wiki/Extraocular_muscles#cite_note-eye,_human-1)

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.