**NAME: NWOKOCHA PRISCILLIA
DEPT: NURSING
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**GROSS ANATOMY ASSIGNMENT**

1. Describe the importance of vasculature in relation to immune system and outbreak of pandemic COVID-19 on the human body
2. Subsartorial canal is an important area in the lower limb, Discuss.
3. Describe the extraocular and intraocular muscles with their nerves supply.

**ANSWERS**

1. Viruses work by hijacking cells in the body. They enter host cells and reproduce. They can then spread to new cells around the body. Coronaviruses mostly affect the respiratory system, which is a group of organs and tissues that allow the body to breathe. Respiratory illnesses affect different parts of this respiratory system, such as the lungs.
 A coronavirus may include coughing or shortness of breath. In some cases, it can cause severe damage to the lungs. For example, some people might develop acute respiratory distress syndrome, leading to severe breathing difficulties.Usually, the immune system will identify and respond to coronavirus early by sending special proteins, or antibodies, to fight the infection. The immune response to infection has side effects body, including fever. During an infection, white blood cells release pyrogens, a substance that causes fever.
2. The adductor canal (Hunter’s canal, subsartorial canal): This is a narrow cornical 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 passage way from structures moving between the anterior thigh and posterior leg. It is covered by a strong aponeurosis, the anteromedial intermuscular septum (subsartorial fascia) which extends from the vastus medialis, across the femoral vessels to the adductor longus and magnus. Lying on the aponeurosis is the sartorius(tailor’s) muscle.

**BORDERS;**

The adductor canal is bordered by muscular structures

* Anteromedial: Sartorius
* Lateral: Vastus medialis
* Posterior: Adductor longus and adductor magnus

 **CLINICAL RELEVANCE**
1) 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 land marks to locate the saphenous nerve

1. Adductor Canal Compression Syndrome

Adductor canal compression syndrome describes entrapment of the neurovascular within the adductor canal. A rare condition, it is usually caused by hypertrophy of adjacent muscles such as vastus medialis. It is most common in young males, who may present with claudication symptoms due to femoral artery occlusion (more common) or neurological symptoms due to entrapment of the saphenous nerve.

1. **THE EXTRAOCULAR MUSCLES**

The extraocular muscles 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 and oblique muscles.
* Responsible for superior eyelid movement – levator palpebrae superioris.

**LEVATOR PALPEBRAE SUPERIORIS**

The levator palpebrae superioris (LPS) is the only muscle involved in raising the superior eyelid. A small portion of this muscle contains a collection of smooth muscle fibres – known as the superior tarsal muscle. The levator palpebrae superioris is innervated by the oculomotor nerve (CN III). The superior tarsal muscle (located within the LPS) is innervated by the sympathetic nervous system.

**MUSCLES OF THE EYE MOVEMENT**

**Recti Muscles**: these muscles characteristically originate from the common trendinous ring. This is a ring of fibrous tissue which surrounds the optic canal at the back of the orbit.
 From their origin the muscles pass anteriorly to attach to the sclera of the eyeball.

**Recti Muscles include**;
Superior Rectus – innervated by oculomotor nerve (CN III)
Inferior Rectus --- innervated by oculomotor nerve (CN III)
Medial Rectus --- innervated by oculomotor nerve (CN III)

**Oblique muscles**
There are two oblique muscles – the superior and inferior oblique. From their origin, the oblique muscles take an angular approach to the eyeball. They attach to the posterior surface of the sclera.
superior oblique – innervated by trochlear nerve (CN IV)
inferior oblique – innervated by oculomotor nerve (CN III)

**INTRAOCULAR MUSCLES**There are three intraocular muscles;
**Ciliary Muscles** – Helps in accommodation and is innervated by parasymphathetic via 3rd CN
**Dilater Pupillae** – Dilates pupil and is innervated by symphathetic nerve via 5th CN
**Sphincter Pupillae** – Constricts pupil and is innervated by parasymphathetic via 3rd CN.