

NAME: RASAK NAFISAT ATINUKE
MATRIC NUMBER: 17/MHS01/286
DEPARTMENT: MBBS
COLLEGE: MHS

[1]

WRITE AN ESSAY ON THE HISTOLOGICAL IMPORTANCE OF EYE IN RELATION TO THEIR CELLULAR FUNCTION.

SOLUTION:

From an anatomical view, the eye can be viewed as a series of overlapping layer of tissue. The external structures of the eye include:

CONJUCTIVA: Lines the inner part of the eyelid

TEAR FILM: Consist of aqueous, mucus and oily secretions

ACCESSORY GLAND: Made up of lacrimal gland

MUSCLE: Orbicularis oculi etc.

EYELID: A mobile layer made up of skin and also muscular tissue and also covers the eyeball.

THE INTERNAL STRUCTURE IS MADE UP OF:

SCLERA: The white eye. It's a dense CT made up of 4 layers: episclera, stroma, lamina fusca endothelium.

CORNEA: Consist of type one collagen fibers oriented in a uniform parallel direction to maintain transparency.

THE MIDDLE LAYER IS MADE UP OF:

IRIS: A thin annular structure in the eye responsible for controlling the diameter and size of the pupil.

CILIARY BODY: Tissue which divides the posterior chamber and vitreous body

CHOROID: Consist of a dense network of blood vessel which supply nourishment to structures of the eye.

THE INNERMOST LAYER IS MADE UP OF:

LENS: Separates the aqueous and vitreous chamber

VITEROUS: A jelly like space made up of type ii collagen fibres separating the retina and the lens

RETINA: Nervous tissue of the eye where photons of light convert to neurochemical energy via action potential

The layers of the eye perform distinct which create a unified experience. The external eye helps to protect the delicate tissue of the internal eye. Eyelids helps to prevent foreign bodies from entering the eye. Eyelashes are finely sensitive to touch. The internal part of the eye have primarily structural and visual functions.

The uvea of the eye is a crucial mediator of nutrition and gas exchange.

[2]

CORONA VIRUS CAN PENETRATE INTO THE BODY THROUGH EYE AND IMPLICATE THE IMMUNE SYSTEM, BRIEFLY DISCUSS.

SOLUTION:

The retina can be divided into 10 layers. It's the innermost, light sensitive layer of tissue of the eye

of most vertebrae. The layers from the innermost to the outermost include:

INNER LIMITING MEMBRANE: This is the basement membrane elaborated by the Muller cells.

NERVE FIBER LAYER: This are axons of the ganglion cell bodies.

GANGLION CELL LAYER:

Contains nuclei of the ganglion cells.

INNER PLEXIFORM LAYER:

Contains the synapses between the bipolar cell axons and dendrites of ganglion and amacrine cells.

INNER NUCLEAR LAYER:

Contains the nuclei and surrounding cell bodies of amacrine cells, horizontal cells and bipolar cells..

OUTER PLEXIFORM LAYER:

Projections of rods and cones ending in the rod spherules and cone pedicle respectively.

OUTER NUCLEAR LAYER: Made up of cell bodies of rods and cones.

EXTERNALLIMITING MEMBRANE:
Layer that separate the inner segment portion of photoreceptors from their cell nuclei.

OUTER SEGMENT LAYER: Made up of a highly specialized light sensing apparatus.

RETINAL PIGMENT EPITHELIUM:
Single layer of cuboidal epithelial cells. This layer is the closest to the choroid and provides nourishment and supportive functions to the neural retina. The black pigment layer prevent light reflection throughout the globe of the eyeball, this is extremely important for clear vision.

Anatomically, the mucosa of the ocular surface (the conjunctiva and cornea) and upper respiratory tract is connected by the nasolacrimal duct. When the virus is dropped into the eye, liquid is partially absorbed by the cornea and conjunctiva, but mostly drained into the nasal cavity through the

nasolacrimal duct and then transferred towards the lower part of respiratory tract. This allows pathogens exposed to the eye to be transferred to the respiratory tract and the gastrointestinal mucosa.

The efficacy of the virus infection into the host depends on 3 points:

- THE INVASSIVENESS OF THE VIRUS: ACE2 is said to be responsible for this.
- VIRAL RECEPTORS ON HOST CELL MEMBRANE: The location of viral entry receptor expression are consistent with the tissue tropism and pathogenesis of the viral infection.
- IMMUNE CONDITION OF THE HOST: This depends on the immunity of the host.