



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT : PHYSICIAN ASSISTANT

COURSE NAME : ANATOMY

UNIT : SENSE ORGANS

TOPIC : EYE



SENSE ORGANS



- Sensory Organs provide us with data for perception, and it is the physiological capacity of all living organisms.
- Five sense organs are equipped in the human body. Those organs provide us with first-hand information about our external or internal world.



The names of those organs are stated below

- Eye: perceives vision.
- Ear: perceives sound.
- Skin: perceives touch, temperature, roughness.
- Nose: perceives smell.
- Tongue: perceives taste.



EYE



- The function of the human eye is to receive visual signals and transfer them to the brain. The paired eyes are in sockets of the skull called orbits.
- The adult human eyeball is nearly a spherical structure. The eye is our organ of sight. The eye is a slightly asymmetrical globe, about an inch in diameter.





The wall of the eyeball is composed of three layers.

External Layer:

It is composed of a dense connective tissue known as the sclera.

Middle Layer:

- Choroid, bluish in colour, contains dense blood vessels present in this layer of the eye.
- In the posterior two-thirds of the eyeball this choroid layer is thin but in the anterior part becomes thick.



- In the anterior part, the thick portion of the choroid forms the ciliary body.
- This ciliary body then continues forward to form a pigmented and opaque structure known as the Iris.
- Iris is the visible coloured portion of the eye.
- A transparent crystalline lens is held in place by ligaments attached to the ciliary body.
- Pupil, the aperture, surrounded by the iris is seen in front of the lens,
- The diameter of the pupil is regulated by the muscle fibres of the iris.



Inner Layer:

- It is the retina and it contains three layers of neural cells from inside to outside – Ganglion cells, bipolar cells and photoreceptor cells.
- There are two types of photoreceptor cells found in the eye and they are as follows:
 - Rod cell
 - Cone cell
- These cells contain the photopigments of one type of light-sensitive protein.



- The daylight vision and the colour vision are functions of cones and twilight vision is the functions of the rods.
- Rhodopsin or visual purple, a purplish-red protein is found in the rods and this rhodopsin contains a derivative of Vitamin A.
- The point at which the optic nerve leaves the eye and the retinal blood vessels enter it is known as the blind spot and Photoreceptor cells are not present in that region.
- Macula lutea, a yellowish pigmented spot with a central pit called the fovea, is located at the posterior pole of the eye lateral to the blind spot.



- In the fovea, the cones are densely packed, and it is the point where the visual acuity or resolution is greatest.
- Aqueous humor, a thin watery fluid, found in the aqueous chamber, the space between the cornea and the lens.
- Vitreous humor, a transparent gel, found in the vitreous chamber, the space between the lens and the retina.



WORKING OF HUMAN EYE



- The light rays in visible wavelength enter the retina through the cornea and lens of the eye, which then generates impulses in rods and cons cells.
- The photosensitive compounds or photopigments in the retina get activated and generate an impulse that gets transmitted via the optic nerve to the visual cortex area of the brain. The impulses are then analyzed, and the image formed on the retina is recognized based on earlier memory and experience.



APPLIED ANATOMY



- Age-Related Macular Degeneration
- Amblyopia
- Cataract
- Diabetic Retinopathy
- Glaucoma
- Refractive Errors
- Strabismus



ASSESSMENT



- How Human eye is working ?
- What all are the Layers of eye ?