Sense Organs

Sense Organs: Organs that helps us to be aware of our surroundings are known as sense organs.

Receptors: Any cell or tissue sensitive to a selective stimuli are called receptors.

Eye

Composed of three layers:

- **Outermost layer-** sclera and cornea
- **Middle layer-** choroid, ciliary body, iris
- **Innermost layer-** retina, with rod cells and cone cells.

- Just behind the iris, a transparent, biconvex, and elastic structure called **lens** is present.

- **Rods –** Contain rhodopsin pigment that is highly sensitive to dim light

- **Cones –** Contain iodopsin pigment that is sensitive to high intensity light. Cones are also responsible for colour vision.

- **Blind spot –** Area where photoreceptors such as rods and cones are absent

- **Fovea –** Area that contains only cones. Vision is finest and sharpest in this zone.

- **Aqueous chamber –** Space between cornea and lens; contains **aqueous humour**.

- **Vitreous chamber –** Space between lens and retina; contains **vitreous humour**

Pupil regulates the amount of light entering into the eyes.

- **Specific abilities of eyes**
  - Power of Accommodation
  - Stereoscopic Vision

- **Mechanism of vision:**

Light rays falls on retina

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Dissociation of retinal from opsin

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Structure of opsin changes

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Permeability of membrane changes

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Generation of action potential in ganglionic cells

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Transmission of impulse to cortical region of brain

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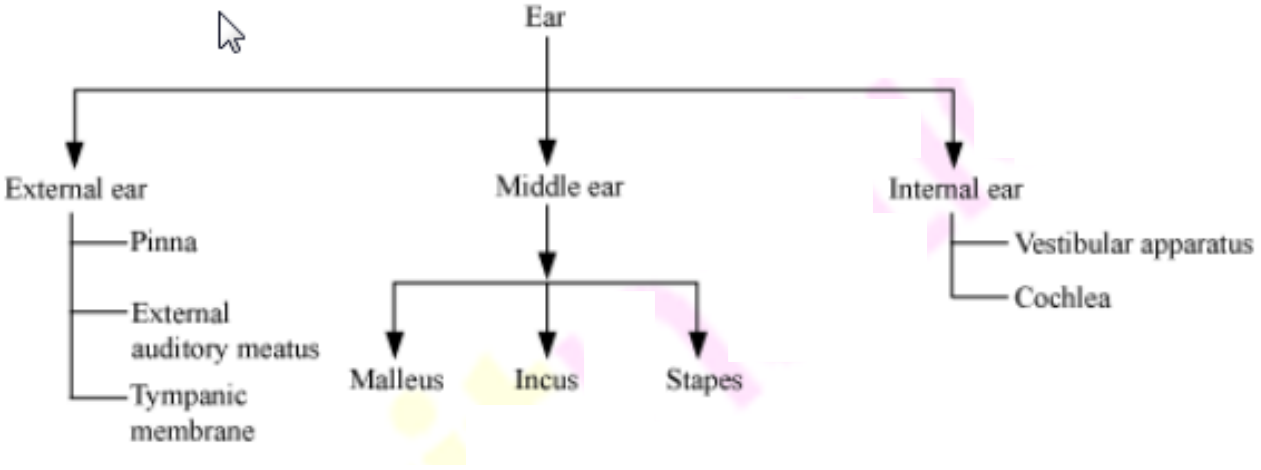
Image formed on retina

Ear

- Organ for hearing and equilibrium



- **Crista and macula** are receptors of vestibular apparatus that are responsible for maintaining body balance and posture.
- **Organ of corti** is the main hearing structure of internal ear. It is located on basilar membrane that has hair cells. The middle ear contains three small bones – malleus, incus, and stapes (arranged from outside to inside).

- **Mechanism of hearing**

Pinna collects sound waves and directs it towards ear drum

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Transmission of vibrations towards fenestra ovalis through ear ossicles

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Generation of sound waves in lymph

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Ripple created in basilar membrane bends the hair cells (of organ of corti) against tectorial membrane

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Sound waves converted into nerve impulses

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Impulse carried to cortex of brain

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Impulse analyzed and sound is recognized

Role of Ear in balancing Body

When we turn our head

fluid inside the semicircular canals moves

pushing against the sensory hair cells

sending nerve impulse to brain -->via auditory nerve

cells present in the semicircular canals are highly sensitive to dynamic equilibrium.

we are able to balance our body.