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Diploma in Pharmacy 1st Year
Human Anatomy & Physiology
Experiment

To study the given model of human ear.

Aim:

To study the given model of human ear.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Dr. Sharma Rahul Kumar , "Practical Manual of Human Anatomy and Physiology" Published by Nirali Prakashan , Pg.No 163 - 168

Theory :

The car is a sensory organ that also helps with balance and is supplied by the 8 cranial nerve which is the cochlear part of vestibule cochlear nerve that gets stimulated via vibration induced by sound waves.

Structure of Ear

The ear is categorised into three different parts

1) **Outer Ear and Ear Canal:** Brings sound into ear drum.
2) **Eardrum:** It vibrates to enhance sound and to distinguish between the inner and middle ear.
3) **Middle Ear:** There are three little bones or ossicles in the middle ear anvil, stirrup, and ossicles Sound is amplified with the use of stapes (small bones which vibrate sound).
4) **Eustachian Tube:** It links middle ear to the throat to adjust pressure on eardrum.
5) **Cochlea:** It is located in the inner ear, and contains sound receptors and transmits information to the brain via the auditory nerve.

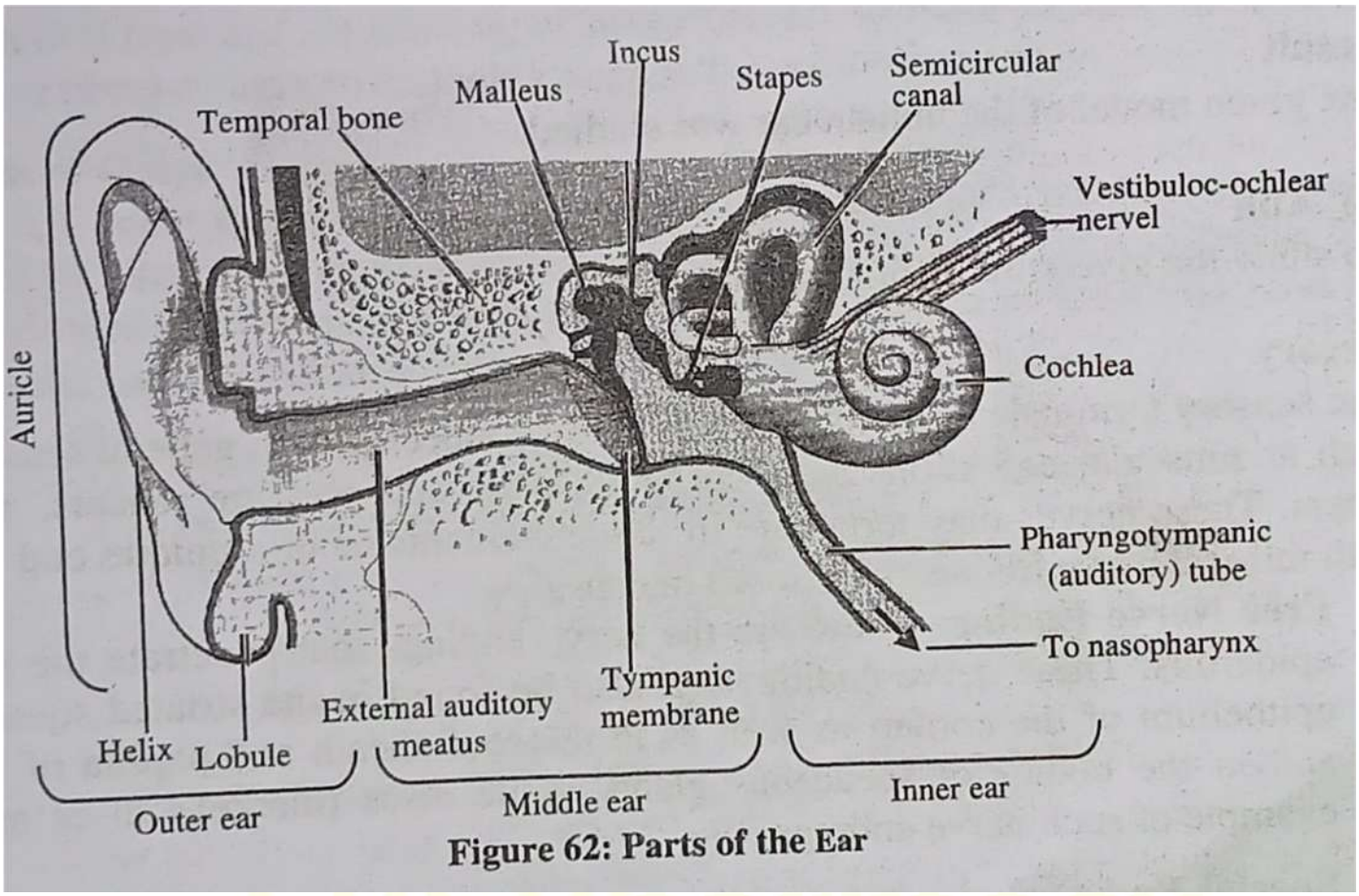

Figure 62: Parts of the Ear

Physiology of Hearing

1) Sound waves enter outer ear and pass to the middle ear via ear canal.
2) A thin, sensitive membrane stretched firmly across the entrance of the middle car conducts the waves to eardrum.
3) Eardrum vibrates as a result of the waves.
4) Vibrations are transmitted to the hammer via three small bones in ear. The anvil, which is a small bone that touches the hammer, vibrates as a result of the hammer's vibrations The anvil sends these vibrations to the stirrup. which is another small bone that touches the anvil from the stirrup, and the vibrations flow into the inner ear.
5) The stirrup makes contact with a liquid-filled bag, and vibrations are transmitted to the cochlea, which is shaped like a sheath.
6) A vestibular system is found inside the cochlea and is made up of three semi- circular canals that are about right angles to each other and are responsible for the sense of balance and spatial orientation. It has

chambers filled with a viscous fluid and small calcium carbonate particles (otoliths). The movement of these particles through microscopic hairs in the inner ear delivers messages to the brain, which are interpreted as motion and acceleration. The information from the ear is processed by the brain, which allows us to distinguish between different sorts of sounds.

Physiology of Balance

Balance is linked to the semi-circular canals and the vestibule (utricle and saccule) Movement in perilymph and endolymph is caused due to any changes in the position of the head bending the hair cells and stimulating the sensory receptors in the utricle, saccule and ampullac.

Vestibular nerve transmits the resultant nerve through which the cochlear nerve is joined to form vestibulocochlear nerve. The vestibular branch transmits initially to the vestibular nucleus then to the cerebellum.

Result: The given model of the human car was studied.

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