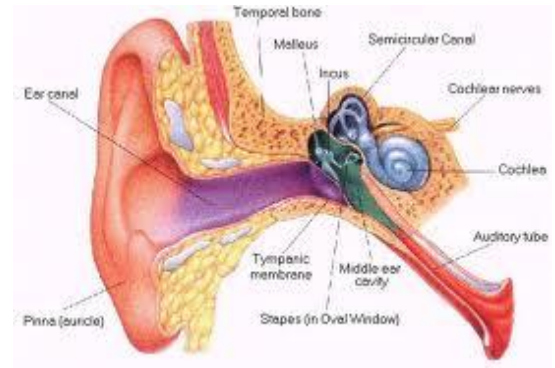


The Human Ear

The human ear is a sense organ which enables us to hear and to balance. The process by which we hear is an entirely mechanical one, as opposed to involving chemical reactions like taste, sight and smell.

Anatomy of the Ear

The human ear is made up of three main parts – the outer ear, the middle ear, and the inner ear.



The Outer Ear

The outer ear is the only visible part of the ear in humans. It consists of:

- ❏ The pinna, which is the flesh coloured cartilage attached to the side of the head, which catches sound waves.
- ❏ The ear canal carries the sound waves to the ear drum.
- ❏ The most superficial part of the ear drum, the tympanic membrane, which vibrates as soon as it receives a sound wave.

The Middle Ear

The middle ear is the air filled cavity behind the eardrum. It contains:

- ❏ The three ear bones or ossicles, the malleus, or hammer, incus, or anvil, and the stapes, or stirrup. The three bones are arranged so that movement of the ear drum causes movement of the malleus, which in turn moves the incus, which moves the stapes. When the stapes footplate pushes on the oval window, it causes movement of fluid within the cochlea, which is a spiral shaped portion of the inner ear.
- ❏ The opening of the eustachian tube is also within the middle ear. It connects the middle ear to the nasopharynx and aerates the middle ear. The eustachian tube opens and closes in reaction to sudden changes in atmospheric pressure.

The Inner Ear

The inner ear is made up of:

- ❏ The cochlea, which is the organ of hearing. Fluid inside the cochlea of the inner ear stimulates sensory hairs. These in turn initiate the nerve impulses that travel along the auditory nerve to the brain.
- ❏ The labyrinth or vestibular apparatus, which is a sense organ that is attuned to the effects of both gravity and motion.

Amazing Facts about the Ear

The smallest bone in the human body is found in the middle ear, it is the stapes bone.



The whole area of the middle ear is no bigger than an M&M.



Ears are self cleaning. Pores in the ear canal produce cerumen, or earwax, and tiny hairs, called cilia, push the wax out of the ear.



A sonic boom occurs when an object breaks the speed of sound. The sound waves from behind and in front of the object crash into each other and create the boom.



At one hundred and fifteen decibels, a baby's cry is louder than a car horn.



LexiMed Consultants

- **Dr Frank Anning**
Ear, Nose and Throat Surgeon