



How do we hear?

This page details the anatomy or structure of the ear and how we hear.

To understand how you hear, it is useful to know more about the structure of your ear.

The ear is divided into three parts; the outer ear, the middle ear and the inner ear.

- The outer ear is made up of the visible part of the ear on the outside of your head (known as the pinna) and the ear canal.
- The middle ear is made up of the eustachian tube, a narrow tube which connects to the back of the nose and allows air to reach the middle ear space, as well as the ear drum and three bones or ossicles (the hammer, the anvil and the stirrup).
- The inner ear is made up of the snail shaped cochlea which includes the hearing nerves and the balance system.

Sound occurs when an object vibrates or moves and causes the air around it to move as well.

- Sound travels in waves through the air, the ear picks up the waves
- Sound waves travel down the ear canal and hit the eardrum in the middle ear
- This causes the eardrum to vibrate
- The three tiny bones in your middle ear link the vibrating eardrum to the cochlea in the inner ear
- The cochlea turns the sound vibrations into electrical information for the brain which you understand as a sound or word
- The cochlea is filled with liquid that carries the vibrations to thousands of tiny hair cells sitting on a membrane that stretches the length of the cochlea
- The hair cells on the membrane fire off tiny electrical signals
- These electrical signals travel up the cochlea nerves of the auditory pathway to the brain and
- All this happens in a fraction of a second.