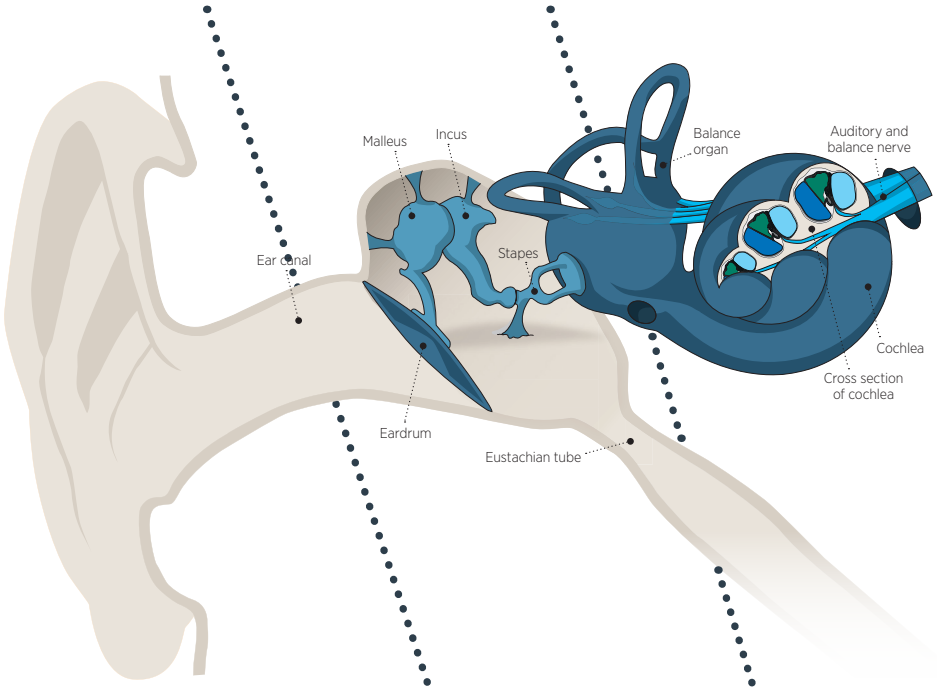
HOW YOUR **HEARING** WORKS

AND WHAT HAVING A HEARING LOSS LOOKS LIKE

Every day you're exposed to a number of very different sounds. Sound comes from movement. When the wind blows, the leaves on the trees will start to move. When the leaves move, they push the molecules in the air and make them vibrate. These vibrations are better known as sound waves. And it's the sound waves that we hear when our ears pick them up.

So how do our ears pick them up and turn them into something we understand? And what happens when our ears don't work as they should?

THE EAR



OUTER EAR

MIDDLE EAR

INNER EAR

HERE'S THE **HUMAN EAR**

The human ear is an amazingly sophisticated, sensitive and complex organ that's always hard at work. The ear has three main areas

- The outer ear
- The middle ear
- The inner ear

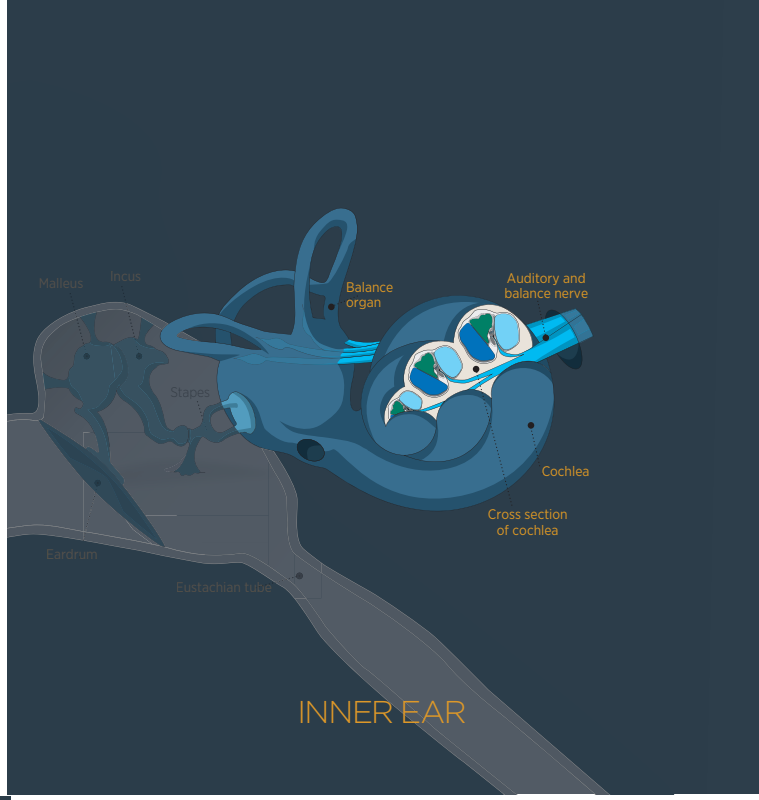
These three have to work properly for us to hear and enjoy the miracle of sound.

So how do they work?

THE **MIDDLE** EAR

The middle ear is filled with air. There are three tiny bones in the middle ear (known as the ossicles): malleus, incus and stapes. They're also referred to as the hammer, the anvil and the stirrup. Their main function is to take the vibrations from the eardrum to the inner ear.

The two muscles attached to the ossicles are activated when very loud sounds reach the ear. Their main function is to reduce excessive sound pressure before reaching the inner ear.



THE **OUTER** EAR

The outer ear is made up of the external part of the ear and the ear canal. The eardrum at the end of the ear canal forms the boundary to the middle ear.

The outer ear is kind of like a satellite dish. It picks up sound waves and takes them to the eardrum, which makes the eardrum vibrate.

THE **INNER** EAR

The inner ear, also known as the cochlea, is shaped like a snail shell and filled with fluid. The balance organ is attached to the inner ear and is made up of three fluid-filled semi-circular canals.

When sound approaches the ear, the stirrup will act like a piston to make the inner ear fluid move and activate the hair cells.

There are about 20,000 hair cells which all send impulses to the brain via the acoustic nerve. This is what the brain perceives as sound.

EVERYTHING MUST WORK FOR US TO **HEAR PROPERLY**

Through these winding ways, the ear is able to pick up sound waves, transform them to bone vibrations, then to wave movements in fluid, and finally to nerve impulses that can then be interpreted by the brain.

But even the slightest flaw in this complex system can compromise your hearing ability. And that's when a hearing loss or an impairment occurs.

TYPES OF HEARING LOSS

Millions of people worldwide are faced with hearing problems in the form of hearing loss or tinnitus. The most common type of hearing loss is age-induced, but it affects babies and youngsters too.

Although hearing loss is very individual, there are two main types of hearing loss.

- Conductive: when the hearing loss is in the ear canal or the middle ear
- Sensorineural: when the hearing loss is caused by problems in the nerve fibres or sensory cells of the cochlea in the inner ear

HEARING LOSS IS **NOT ABOUT VOLUME**

A common misconception is that hearing loss has to do with volume. Most often that's not the case.

In fact, some people only have issues hearing within a specific and narrow frequency region. That's called discrimination hearing loss. The challenge here is that you can hear speech, but you can't understand it.

THE **SOCIAL CHALLENGE** OF HEARING LOSS

Untreated hearing loss can have a huge effect on people. It becomes difficult to keep up with conversations, news, events, and your surroundings in general. And that can lead to a sense of isolation, fatigue and loneliness.

When it comes to children, hearing loss can have a very adverse effect on the child's language development and learning ability, if it's not detected in time. So it's important to do something about hearing problems as soon as possible.

HOW TO **TREAT** HEARING LOSS

Surgery or medication can sometimes improve conductive hearing loss. Still, hearing aids are the best way to gain better hearing, especially with sensorineural hearing loss.

Today, hearing aids are to a large degree tailored to the user's specific needs and unique hearing loss and ears.

And although hearing aids cannot completely restore hearing loss, they do significantly improve hearing ability in all situations. Helping the hearing-impaired gain higher quality of life.

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