

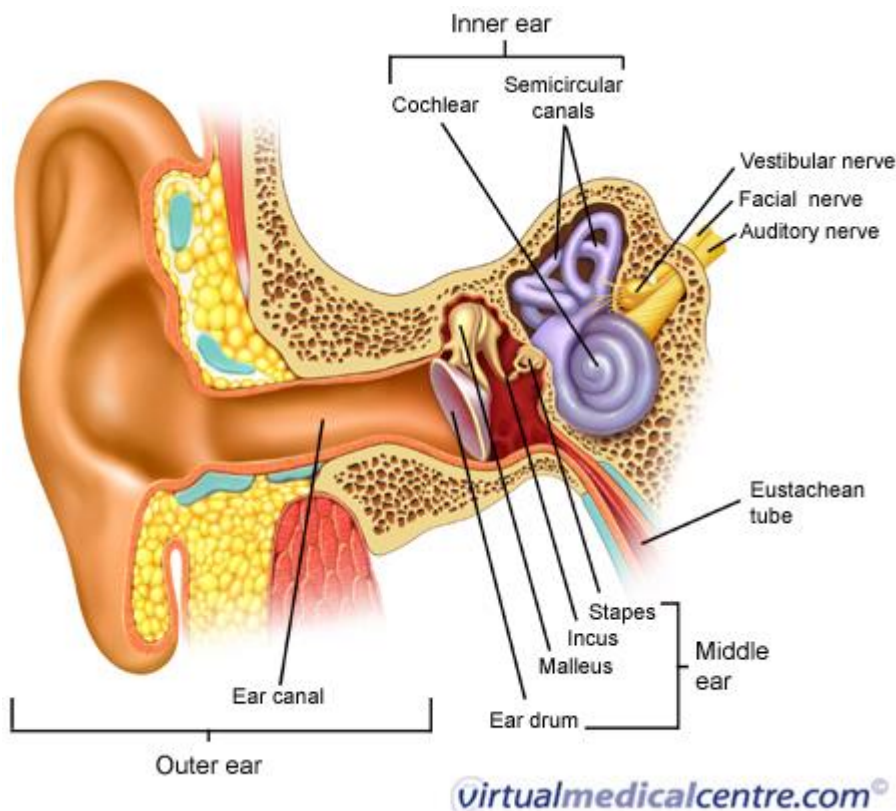
ABOUT HEARING

Your decision to do something about your hearing loss begins with understanding what is happening. Here is information for you or someone you know who may have trouble hearing.

Basic Facts About Hearing Loss

- About 17 percent of adults report some degree of hearing loss.
- At age 65, one out of three people has a hearing loss.
- 60 percent of the people with hearing loss are either in the work force or in educational settings.
- While people in the workplace with the mildest hearing losses show little or no drop in income compared to their normal hearing peers, as the hearing loss increases, so does the reduction in compensation.
- About 2-3 of every 1,000 children are hard of hearing or deaf
- Estimated that 30 school children per 1,000 have a hearing loss.

Anatomy of the Ear



Outer Ear

The **outer ear** is the visible part of the ear consisting of the pinna and also the ear canal. This section of the ear acts as a **sound collector** that funnels it to the middle ear mechanism. The ear canal consists of a bony and cartilaginous section. Wax is secreted in the canal and accumulates with dust and dead skin. As the skin in the ear canal grows sideways earwax normally makes its own way out of the ear canal.

Middle Ear

The **middle ear** consists of the **tympanic membrane** (eardrum), the middle ear cavity and its **ossicles** that transfer sound to the inner ear. The **eustachian tube** enters the middle ear from the throat to ensure the middle ear is at the same pressure as the surrounding atmosphere so that the eardrum can move optimally. The middle ear intensifies the sound energy by means of the large tympanic membrane surface area focussing to a small footplate and also a lever ratio advantage created by the arrangement of the ossicles in the middle ear.

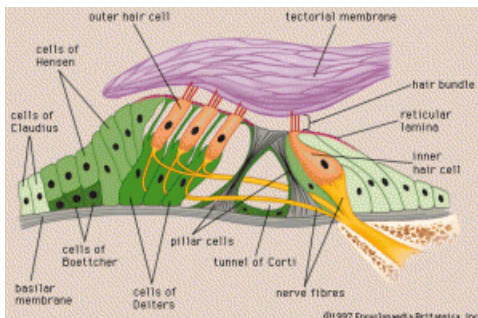
Inner Ear

The **inner ear** or Cochlea is a spiral tube with three compartments. The middle compartment, known as the **scala media**, is where the sensory component of the ear exists. Sound, now travelling through a fluid environment presses the **tectorial membrane** against the outer & inner hair cells, which when deformed trigger an electrical impulse to the brain resulting in the sensation of sound. The cochlea is organised so that high frequencies are heard in the basal turn and low frequencies in the apical turn. Cochlear implants take advantage of this place theory of pitch to convey speech information via electrical impulse from electrodes in the scala media.

Typical Hearing Losses

Hearing loss can be caused by many different causes, some of which can be successfully treated with medicine or surgery, depending on the disease process.

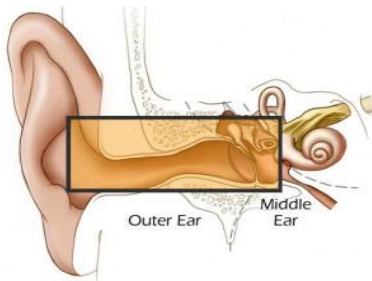
Sensorineural Loss



This is when the hair cells in the cochlea are damaged. This type of loss is usually permanent as there is no medical or surgical treatment available (other than cochlear implants for severe to profound loss). **Hearing aids** are currently the most effective treatment. The image is of a mammalian cochlea showing four rows of outer hair cells (humans have three) and the inner hair cells that are collapsed away from the tectorial membrane (flat

horizontal structure which the hair cells brush against) due to the fixing process. The "neural" component of the term "sensorineural" is a reference to difficulties that may arise at the acoustic nerve or higher levels as the nerve pathways ascend to the auditory cortex in the brain.

Conductive Loss



Conductive loss is when there is a problem with the outer or middle ear such that sound cannot be conducted to the inner ear effectively. This can be caused by wax accumulation (about 3% of cases), damage to the tympanic membrane and damage to the middle ear structures. A conductive loss is sometimes conducive to medical or surgical treatment.

Mixed Loss



Mixed loss is a combination of both conductive and sensorineural loss. The conductive loss is potentially treatable by medication or surgery. Medical specialists will balance carefully the risk of a procedure against the potential gain for the patient in arriving at a decision to proceed or not.

Symptoms of Hearing loss

Do You Think You Have a Hearing Loss? Are You Afraid to Know for Sure? Do You Know Someone Who May Not Admit He or She Has a Hearing Loss?

If you think you or someone you know might have a hearing loss, you are not alone. If you have suspected for a while but just haven't got around to doing anything about it, that is not unusual. On average, it takes people seven years from the time they think they might have a hearing loss to the time they seek treatment.

How can I tell if I have a hearing loss?

If you answer yes to some of the following questions, you may have a hearing loss

- Often ask people to repeat what they say?
- Have trouble hearing in groups?
- Think others mumble?
- Fail to hear someone talking from behind you?
- Turn up the volume on the TV or car radio?
- Have difficulty on the phone?
- Have trouble hearing your alarm clock?
- Have difficulty hearing at the movies
- Dread going to noisy parties and restaurants?

Think about these situations:

Are you embarrassed to talk openly about not being able to hear?

Are you cutting out activities that you used to love but have become painful because you cannot join in fully anymore?



At work are you afraid to reveal your hearing loss in case it jeopardizes your job and your supervisor and co-workers may see you as less competent?

Are you bluffing when out with friends in noisy restaurants?

Are you feeling cut off from your young children because you cannot hear their high-pitched voices?

Are family holidays a strain because so many people are talking at once?

These are common reactions and can lead to withdrawal from social interaction, anxiety, loss of self-esteem and even depression. These increasing difficulties in hearing may produce conflict between the person with hearing loss and family members, with the family insisting on getting help and the person with hearing loss reluctant to recognise the reality.

Get a Hearing Test to Know for Sure

03 9850 8888