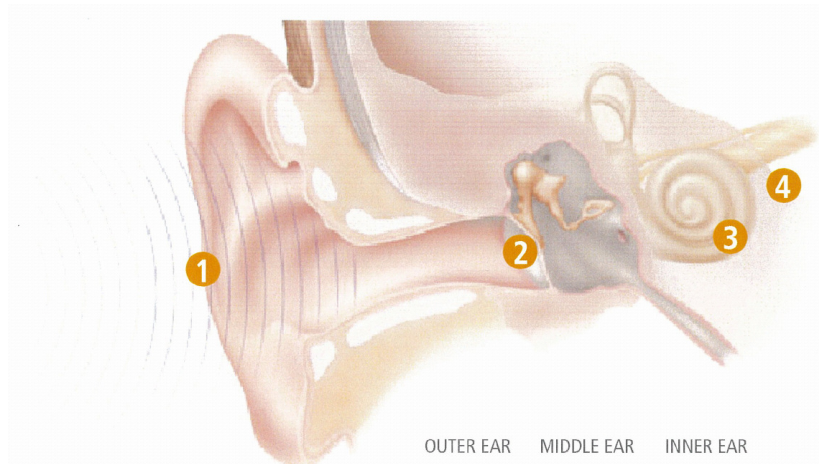


How the ear works

- 1. Ear canal:** Sound moves through the ear canal and strikes the eardrum.
- 2. Eardrum and bones:** Sound waves cause the eardrum to vibrate, sending the bones in the middle ear into motion. The tiny bones are called the hammer, anvil and stirrup.
- 3. Inner ear:** This motion causes the fluid inside the inner ear (cochlea) to move the hair cells.
- 4. Hearing nerve:** Hair cells change the movement into electric impulses, which are sent from the hearing nerve into the brain; you hear sound.



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What is hearing loss?

Hearing Loss is what happens when some part of the ear (outer, middle and/or inner ear) is missing, misshaped, or damaged. Hearing problems may be present at birth (congenital) or develop later in life (acquired). Some people can hear in one ear, but not the other (unilateral); some have problems in both ears (bilateral).

There are 4 degrees of hearing loss:

- **Mild** - unable to hear soft sounds, difficulty perceiving speech in noisy environments.
- **Moderate** - unable to hear soft and moderately loud sounds, considerable difficulty in perceiving speech, particularly with background noise.
- **Severe** - speakers must raise their voice. Group conversation is possible only with considerable effort.
- **Profound** - some loud sounds are audible but communication without a hearing instrument is impossible.

Types and causes of hearing loss

Type of hearing loss	CONDUCTIVE Problem in the outer or middle ear (eardrum and three tiny bones).	SENSORINEURAL Problem in the inner ear (cochlea and/or auditory nerve).
Causes	Outer or middle ear infections, birth defects, head injury, perforated eardrum, gradual build-up of earwax, otosclerosis.	Normal aging process, genetics, chronic exposure to loud noises, head injury, some medications (inner ear hair cells get damaged), Meningitis, Meniere's disease.
Level of hearing loss	Mild-to-moderate Hearing Aids can help	Mild-to-profound – hearing Aids can help Moderately severe-to-profound – Cochlear Implants can help.

Signs & symptoms of hearing loss

Adults:

- Difficulty understanding words, especially in background noises
- Asking others to speak more slowly, clearly and loudly
- Withdrawal from conversations and social settings
- Needing to turn up the volume of the television or radio
- Difficulty hearing certain environmental sounds, such as birds
- Tinnitus (hearing a persistent ringing, buzzing or other sound)

Babies and Children:

- Problems learning at school
- Does not respond to speech from behind or soft speech
- Appear inattentive, restless or express some behavioural problems
- Speak loudly or whisper while speaking
- Speech development stops or is slow compared to others of the same age

How common is hearing loss

One in six Australians is affected by hearing loss. That's an estimated 3.5 million people. The prevalence increases with age; up to three in four adults aged 60 experience hearing loss.

Government studies reports that hearing loss ranks with asthma, diabetes and musculoskeletal conditions in terms of burden of disability. And hearing loss represents a cost to Australia of \$11.7 billion per year.

Effects of hearing loss

Children and Adults suffering from hearing loss (and tinnitus) may experience:

- Withdrawal from social activities, isolation
- Problems with speech and language development
- Low self-esteem, emotional difficulties and depression
- Problems learning at school or getting and keeping a job

Treating your hearing loss with either hearing aids or cochlear implants may lead to:

- Greater self-confidence and independence
- Improved relationships with family and friends
- Participation in social activities and better results at either school or work

Choosing the right treatment

Before choosing a treatment, it is in your interest to have a thorough test by an experienced hearing healthcare professional. Proper diagnosis and treatment is highly dependent on the skills and judgment of the professional doing your test. An accurate audiological evaluation at Attune will rule out any medically treatable aspects for hearing loss, and get you the right advice on the treatment most appropriate for you.