



CANOSSIAN SCHOOL

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**A Center of Excellence for the education
of children with hearing loss**

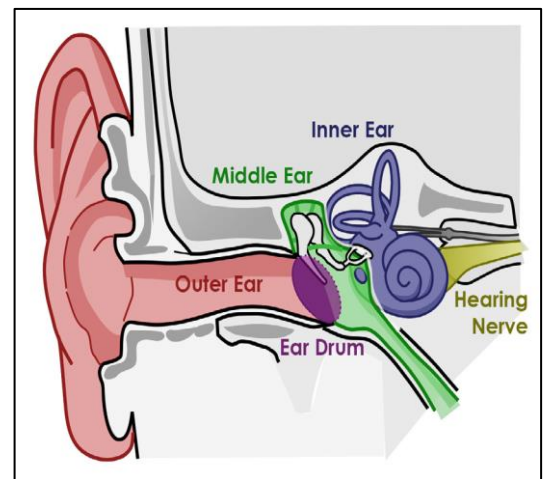
What is hearing loss?

According to World Health Organization, a person has hearing loss if he is unable to hear as well as someone with normal hearing, ie has hearing thresholds of 20 dB or better in both ears.

Types of hearing loss

There are 3 types of hearing loss:

- **Sensorineural hearing loss** is caused by a problem in the inner ear or the auditory nerve. In children, this is usually due to genetics, disease, or medication. In adults, this also can be due to aging and prolonged exposure to loud noise. This type of hearing loss is **often permanent**.
- **Conductive hearing loss** is when sound conducts poorly to the inner ear, usually due to problems in the outer or middle ear. In children, malformation of the ear or infection of the middle ear are common causes. Some causes can be treated medically or surgically, and the hearing can improve. For other causes, the loss is permanent.
- **Mixed hearing loss** is a combination of sensorineural and conductive loss.



Cross-section of the human ear

Severity of hearing loss

A common classification of hearing loss in Singapore, adapted from the American Speech-Language-Hearing Association (ASHA), groups the severity of hearing loss into five levels.

<p>Mild (21-40 dB)</p>	<ul style="list-style-type: none"> • Cannot hear some soft sounds like whispers, birds chirping • Without support, some children will develop speech delay
<p>Moderate (41-55 dB)</p>	<ul style="list-style-type: none"> • Will not hear most speech at normal volume • Without support, children will have difficulty following speech, a reduced vocabulary and poor pronunciation
<p>Moderately Severe (56-70 dB)</p>	<ul style="list-style-type: none"> • Will have difficulty hearing in most situations • Without support, some children will have poor pronunciation while others will not speak at all
<p>Severe (71-90 dB)</p>	<ul style="list-style-type: none"> • Will be very hard of hearing • Even with hearing aids, some children will need to lip-read to understand speech
<p>Profound (91+ dB)</p>	<ul style="list-style-type: none"> • Will have a very weak sense of hearing and need very powerful hearing aids or implants • Without powerful hearing devices, children will need to rely on lip-reading or sign language

Types of hearing devices

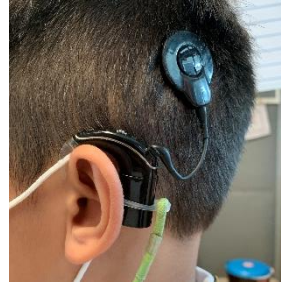
When a person has hearing loss, he needs to wear appropriate hearing devices. There are 3 types of hearing devices:



**Hearing Aids
(HA)**



**Bone Anchored
Hearing Aid
(BAHA)**



**Cochlear Implants
(CI)**

Hearing aids are generally recommended for people with mild to severe hearing loss, as long as hearing aids still benefit them.

BAHA is recommended when there are problems with the external or middle ear, ie when the person has conductive hearing loss. So they are suitable for people with:

- 1) missing or underdeveloped external ear (atresia/microtia)
- 2) chronic ear infection
- 3) hearing loss on only one ear (Unilateral Hearing Loss, UHL or Single-Sided Deafness, SSD)

Cochlear Implants are recommended when the person has problems with the inner ear, ie suffering from sensorineural hearing loss. When the hearing loss is severe to profound and when HA no longer benefits, cochlear implants will be recommended.

There are 3 parts in a cochlear implant: Transmitter coil, Speech processor, Implant. Externally seen are the transmitter coil & speech processor, internally the implant lies within the inner ear (cochlear).

