



Types of Hearing Impairment



The auditory system, which enables us to hear, consists of the outer ear, the middle ear, the inner ear and the auditory nerve. Disorders in any one of these parts may affect our hearing ability. Depending on which part of the system is damaged, hearing impairment can be categorized into the following three types:

Conductive Hearing Impairment

Caused by damage or blockage in the outer or middle ear. It can be acquired (e.g. otitis media) or congenital (e.g. atresia of the external canal). Some causes of conductive hearing impairment are:

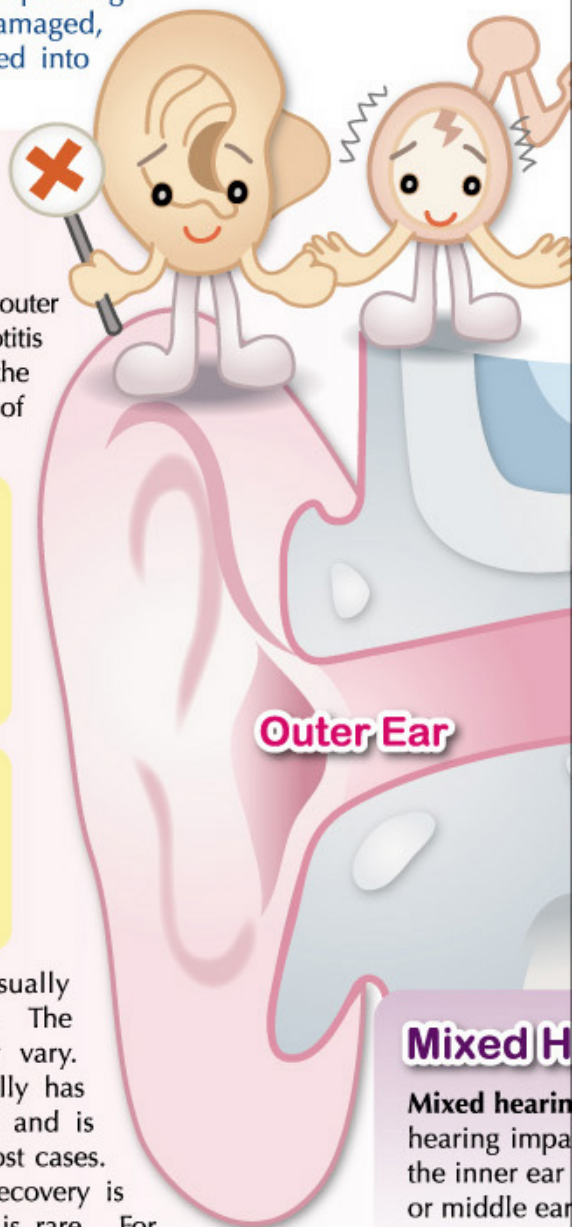
Outer ear

- Foreign objects blocking the ear canal
- Blockage of the ear canal by impacted wax or cerumen
- Otitis externa
- Partial or complete closure of the ear canal (atresia)

Middle ear

- Serous otitis media / otitis media
- Otosclerosis
- Ossicular chain disarticulation
- Perforation of the tympanic membrane

Conductive hearing impairment usually involves a reduction in sound level. The degree of hearing impairment may vary. Conductive hearing impairment usually has no bearing on the quality of sound and is surgically or medically treatable in most cases. With treatment, the chance of full recovery is high and permanent loss of hearing is rare. For those students who cannot recover from conductive hearing impairment after treatment, their hearing ability can be improved effectively by wearing hearing aids.



Mixed H

Mixed hearing impairment involves damage to the inner ear or middle ear.

Sensorineural Hearing Impairment

Caused by damage or malfunction of the inner ear or the auditory nerve. It can be congenital or acquired.

Causes of congenital or hereditary sensorineural hearing impairment:

- Heredity
- Prematurity
- Perinatal anoxia
- Infections in pregnancy (e.g. German measles)
- Serious jaundice

Causes of acquired sensorineural hearing impairment:

- Bacterial or viral infections
- Head injury
- Acoustic neuroma
- Use of ototoxic drugs
- Prolonged exposure to intensive noise
- Senile deafness or presbycusis loss



Sensorineural hearing impairment affects not only the amount but also the quality of the sound received. There is hardly any medical treatment for this type of hearing impairment and so it is considered permanent. Students with mild to moderately-severe sensorineural hearing impairment can benefit significantly from wearing hearing aids. For those with severe or profound hearing impairment, hearing aids are of little help. They may, however, consider having cochlear implants.



Hearing Impairment

Hearing impairment is a combination of sensorineural and conductive impairment, i.e., abnormalities in the outer or middle ear as well as the auditory nerve. Hence, recovery of disorders in the outer ear can only solve the problem of conductive hearing impairment.

Early identification and appropriate treatment, coupled with the use of hearing aids, can minimize the impact of hearing impairment on students with hearing problems in the course of development.

The main differences among conductive, sensorineural and mixed hearing impairment are listed below:

| | Conductive hearing impairment | Sensorineural hearing impairment | Mixed hearing impairment |
|-----------------------------|---|---|--|
| Degree of impairment | Not severe in general, but conditions are often unstable. | The degree of impairment may vary. Hearing ability is relatively stable but regular check is still needed. | The degree of impairment may vary with possible unstable conditions. |
| Treatment | Impairment can generally be alleviated by medication or surgery. | Impairment in most cases cannot be alleviated by medication or surgery. | The problem of conductive hearing impairment may be alleviated by medication or surgery. |
| Type of hearing aid | Hearing can be improved by wearing hearing devices, which include bone conduction hearing aids in some cases. | Hearing aids are very helpful. People with severe or profound hearing impairment may consider having cochlear implants, though full recovery is not likely. | The type of hearing aid to be used varies from case to case. |

Hearing impairment can also be classified temporally according to when the hearing disorders arise. There are **pre-lingual** and **post-lingual** (i.e., before and after the completion of speech development) hearing impairment. For pre-lingual hearing impairment, hearing disorders appear before the completion or at the beginning of speech development. It will affect speech development and even the ability to speak. For post-lingual hearing impairment, hearing disorders appears after the completion of speech development. In general, students with post-lingual hearing impairment will have their speech communication improved with the help of hearing aids. They may have difficulty in speech reception, but their auditory memory and experience can help them to decode other people's utterances. Hence their articulation and overall oral expressive skills are generally better than those suffered from pre-lingual hearing impairment.

Published by:



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