



Hearing Loss or Deafness

Hearing is the ability to perceive sounds around us and understand our surroundings with the help of our ears. It's one of the very essential senses that helps us maintain balance and understand things. Hearing loss refers to reduced or very less hearing compared to the standards (normal hearing < 20db)

Physiology of hearing

There are 3 steps to conduct sound from the pinna to the brain

Step 1- Collection of sound from the surroundings and transferring the energy to the Eardrum

Step 2- Vibration of eardrum and ear bones that amplifies the sound and transfers it to the inner ear

Step 3 - From the inner ear, the auditory nerve transfers information to the brain.

Impairment of the vibration mechanism is also called conductive hearing loss and impairment of the inner ear and/or nerve mechanism is called sensori-neural hearing loss.

Are all "hearing loss" the same?

Not all hearing loss are the same. There are some correctable causes of hearing loss, like wax blocking the canal, FB in the ear , and infections of the ear.

But as age progresses, the nerves that conduct the sound to the brain get weaker, which will lead to hearing loss. This is called presbycusis.

There are other causes of nerve damage, like viral infection, loud noise exposure, and brain tumors. With these, there is a less likely chance of a full recovery in due course.

Children and Hearing Impairment

Every newborn in our country is screened for hearing impairment. The major cause of severe hearing loss in children is birth anomalies. Other reasons could be

intra uterine infection, meconium in the ear, etc.

Hearing impairment in children is of the utmost importance because without hearing, their learning and speech will be delayed.

Occupation and hearing loss

Exposure to loud noise continuously will also affect your hearing. Occupations like traffic policemen, workers who work with machines, and Army personnel are more prone to noise-induced hearing loss.

Hearing music via headphones for a longer duration can also affect hearing in due course.

It is better to use earplugs and sound cancellation devices in these cases to prevent hearing loss.



How severe is the hearing loss?

A whisper is about 30 dB, normal conversation is 60 dB, and a horn is about 90 dB.

The degree of hearing loss depends on the inability to hear the various decibels. It can be mild, moderate, moderately severe, severe, and profound.

What is conductive hearing loss?

Conductive hearing loss happens when there is impairment of the vibration mechanism of hearing that is any restriction to the sound wave contacting the eardrum, vibration of the eardrum, transmission of these vibrations to the inner ear by ossicles (small bones) can cause conductive hearing loss. Various conditions that can cause conductive hearing loss are:

- Wax / foreign objects / infection of external ear that prevents sound reaching the eardrum
- Perforated eardrum (loss depends on the size of perforation)

- Retracted or thick eardrum
- Fluid collection behind the eardrum
- Fixed ear ossicles
- Eroded ear ossicles
- Otosclerosis (fixation of footplate that transmits the vibrations into the inner ear)

What is sudden hearing loss?

A person who is apparently normal experiences a hearing loss of 30 dB or more in a short span of hours to three days.

Causes of sudden hearing loss

1. Infection (bacterial/ viral) of the inner ear
2. Fracture to the bone above the inner ear
3. Vasculitis
4. Ototoxic Drugs - Drugs affecting inner hair cells
5. Viral infections like COVID-19
6. Unknown causes (most often)



What is the treatment for hearing loss?

Treatment depends on the degree and type of hearing loss.

To know how much of your hearing you've lost, your ENT doctor can perform one or more tests:

- **Physical exam** to look in your ear for earwax buildup, infection, or structural problems.

● **Tuning fork tests** where you wear earphones and listen for sounds directed into your ear. The level of sound you can hear can be measured with greater accuracy with this test by an audiologist than with other screening tests.

● **Audiometer tests** where you wear earphones and listen for sounds directed into your ear. The level of sound you can hear can be measured with greater accuracy with this test by an audiologist than with other screening tests.

Note: Note: Today, we also have tablet and smartphone apps that you can use on your own to screen for hearing loss. If you have hearing loss, begin treatment as soon as possible.

Treatment of conductive hearing loss varies from simple wax removal to surgery to reconstruct the hearing mechanism depending on the cause of hearing loss.

Treatment of nerve loss may include medications, surgery, hearing aid or a combination of these depending on the root cause.

What is a hearing aid?

A hearing aid is an amplifier that amplifies external sounds and helps with hearing..

There are different types of hearing aids that can be worn behind the ear, in the ear, or completely in the ear (not visible from the outside). Hearing aids are mostly battery-operated.

Every candidate for a hearing aid needs specific tuning according to their needs. It may require a few sessions with an audiologist to fine-tune it.

Types of hearing aid:

Important note -

Do not buy hearing aids over the counter, as they will cause more discomfort than benefit.

Beyond Hearing Aids

Children with congenital anomalies or severe nerve damage will need cochlear implantation to improve their hearing. Cochlear implants are the only bionic

sense organ. They are implantable hearing aids where electrodes are surgically placed inside the ear.

If you or a family member is having difficulty hearing, an audiologist or an ENT doctor can check your hearing and tailor a personalized treatment.

- Dr. Prashanth R Reddy

“E.N.T health - ENTry for better senses”

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