

Hearing Loss

You may have hearing loss, and not even be aware of it. People of all ages experience gradual hearing loss, often due to the natural aging process or long exposure to loud noise. Other causes of hearing loss include viruses or bacteria, heart conditions or stroke, head injuries, tumors, and certain medications. Treatment for hearing loss will depend on your diagnosis.

How does hearing work?

The aural sense is a complex and intricate process. It is divided into two broad categories a) the conduction of sound waves from the air to the nervous system of the ear and b) the sensorineural system of the ear which turns the sound waves into electrical impulses that travel to the brain.

A. Conduction

The conductive part of the ear is made up of three sections: the outer ear, the middle ear, and the inner ear. These parts work together so you can hear and process sounds. The outer ear picks up sound waves which then travel through the outer ear canal. When the sound waves hit the eardrum in the middle ear, the eardrum starts to vibrate. When the eardrum vibrates, it moves three tiny bones in your ear. These bones are called the hammer (or malleus), anvil (or incus), and stirrup (or stapes). They help sound move along on its journey into the inner ear.

B. Nervous system of the ear

This part of the ear is generally referred to as 'sensorineural' system because of the cochlea which is the *sense* organ and the acoustic nerve which is the *neural* part of the term. The cochlea is an amazing and complex organ which is filled with liquid and lined with cells that have thousands of tiny hairs on their surfaces. There are many special types of cells that are not found in any other place in the body. The vibrations from the stapes move the fluids in the cochlea. The fluid movement makes the tiny hairs move. In turn, these movements change the sound vibrations into nerve signals which travel to the brain via the acoustic nerve.

Types of hearing loss

1. Conductive

This occurs when there is a problem with the bones of the ear, eardrum, fluid buildup, Eustachian tube dysfunction, cholesteatoma, perforations of the eardrum and ear infections. These problems can often be treated with medicine or surgery.

2. Sensorineural

This type of hearing loss occurs with abnormal function of the cochlea and/or acoustic nerve. The most common causes are age related degeneration, noise damage, familial hearing loss. There are other uncommon causes such as benign tumors on the acoustic nerve, damage from toxic chemicals and stroke. These problems, unfortunately, cannot often be treated.

3. Mixed

Mixed hearing loss is a combination of the two other types of hearing loss. An example of this would be a person who had scarring of the eardrum as a child but then develops hearing loss as he/she gets older.