

Understanding Your Hearing



Allina Health

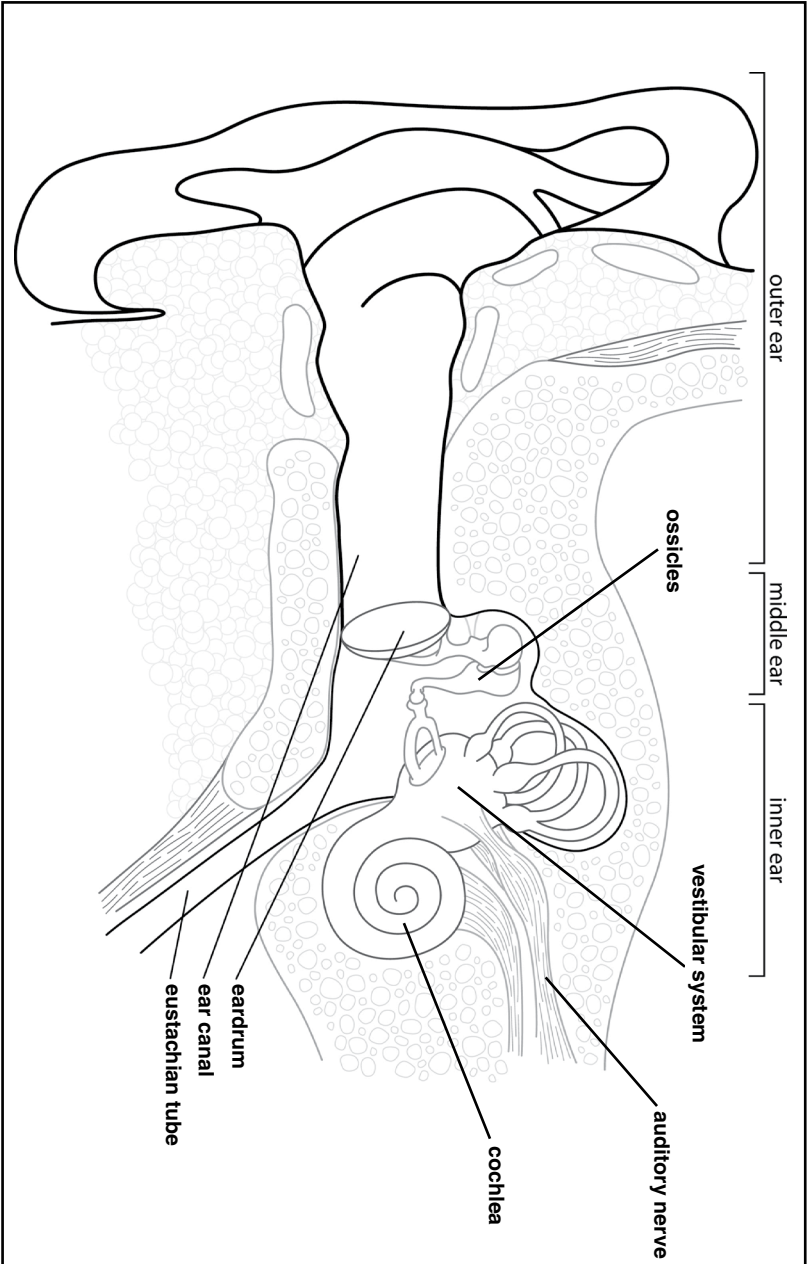


Introduction

Your ears have two important roles. They collect sounds and help you keep your balance.

This book will give you information about how your ears work, the types and causes of hearing loss and what to expect during a hearing test.

The Parts of Your Ear



- **Outer ear** – collects the sounds
- **Ear canal** – how sound travels to the eardrum
- **Eardrum** – separates the outer ear from the middle ear. It vibrates from the sound that is traveling to the inner ear.
- **Middle ear** – vibrations from the eardrum travel through the little bones of the middle ear (ossicles) and are sent to the inner ear. The space in the middle ear is filled with air.
- **Eustachian tube** – allows normal middle ear fluids to drain into the throat where they are swallowed. It also balances air pressure between the middle ear and the outside. This allows the eardrum to function properly and produce good hearing.
- **Inner ear** – sorts sound by pitch and loudness. The vibrations enter the cochlea and are turned into nerve signals. Then they are sent through the auditory nerve, which carries the signals from the ear to the brain. The brain understands these signals as sound. The space in the inner ear is filled with fluid. The vestibular (balance) system is also found in the inner ear. It maintains your body's balance and posture.

Types and Causes of Hearing Loss

There are three types of hearing loss:

- **conductive:** This type of hearing loss happens when there is a problem in the outer or middle ear. It can be caused by:
 - earwax in the ear canal
 - an ear infection
 - trauma to the ear
 - family history
- **sensorineural:** This type of hearing loss happens when there is a problem in the inner ear. It can be caused by:
 - aging
 - noise exposure
 - medicines
 - illness
 - trauma to the ear
 - family history
- **mixed:** This type of hearing loss is when you have both conductive and sensorineural hearing loss.

Levels of Hearing Loss

■ Mild hearing loss

- When sounds are soft, you may miss 25 to 40 percent of the conversation.
- You may have trouble hearing depending on the noise level, how far you are from the speaker and the type of hearing loss you have.
- You may benefit from using a hearing aid.

■ Moderate hearing loss

- You can understand a face-to-face conversation at a distance of 3 to 5 feet.
- You may miss 50 to 75 percent of the conversation.
- You will likely benefit from using a hearing aid.

■ Moderately-severe hearing loss

- You may miss much of a face-to-face conversation.
- You will have trouble talking in a group.
- You will benefit from using a hearing aid.

■ Severe hearing loss

- You may not hear voices or other sounds, unless they are very loud.
- You may need visual cues such as someone waving at you or tapping you on the shoulder to get your attention.
- You will benefit from using a hearing aid.

■ Profound hearing loss

- You may not be able to understand what is said during a conversation.

- Hearing aids may not help you understand what is said during a conversation.
- Hearing aids will help increase your awareness of environmental sounds such as traffic, sirens or being aware that people are talking.

How Untreated Hearing Loss Can Affect Your Life

Each person is affected differently by hearing loss. When it goes untreated, hearing loss can affect many different parts of your life.

Social

- **Isolation from family and friends.** Hearing loss can affect your ability to communicate well with others. This can cause you to feel embarrassed, frustrated, tired or all three. You may avoid talking to people or going to social events. This can cause you to feel lonely or distant from others.
- **Avoiding social situations.** Hearing loss can affect your participation in activities where it is hard to hear. These activities may include going to plays, movies, religious services, restaurants and social gatherings.
- **Social phobia:** Hearing loss may make you feel worried about embarrassing yourself in front of others. You may believe that other people are watching you, waiting for you to make a mistake. You are likely to dread most social situations and withdraw from others.

Emotional

- **Embarrassment:** You may feel embarrassed if you don't understand what the conversation was about, you respond wrong to a question or miss the punch line of a joke.
- **Anger and frustration:** It can be frustrating to live with untreated hearing loss. You may remember what it was like to hear well and wish it was still that way. Each time you misunderstand information or need it repeated, you are reminded of your hearing loss. You may get angry at others when they suggest that you are missing things or should get hearing aids.
- **Depression:** Hearing loss can make you feel overwhelmed and helpless. Depression can be common in people who have hearing loss that goes untreated.
- **Fatigue:** If you have hearing loss, it takes more energy and focus to hear what is said. This can make you feel tired and keep you away from activities you enjoy.

Physical

- **Trouble understanding speech:** If left untreated, hearing loss can cause your hearing (auditory) system to not work as well. Your ears will have a harder time processing speech. Wearing hearing aids will help keep the parts of your brain that process sound active.

Safety

- **Environmental awareness:** Hearing is important for connecting to others as well as the world around you. Your hearing makes you aware of an approaching car, the doorbell chime, the oven timer and much more. These sounds provide cues that allow you to recognize your surroundings.
- **Alerting devices:** Many alerting devices use sound to get your attention, such as fire detectors and carbon monoxide detectors. If you cannot hear these sounds it can affect your safety.

Thinking

- **Ability to think clearly decreases:** People with hearing loss are more likely to have a decrease in their ability to think clearly over time than those of the same age without hearing loss.
- **Need for extra time to understand information:** Not all of the information is getting from the ears to the brain in people with hearing loss. Because of this, the brain has to work harder to make up for the hearing loss.

Hearing Test

The goal of a hearing test is to find out if you have normal hearing or if you have any hearing loss. If you do have hearing loss, the test will also help find out which part of the ear has a problem and what kind of treatment is needed.

What to expect during a hearing test

During a hearing test, the audiologist will ask you about your health history and your symptoms. He or she will look into your ears to check for wax buildup and if your outer ears are normal.

- **To check your eardrums**, you will have a test called a tympanogram. This test will make sure there are no holes in your eardrums and that they are moving normally.
- **To check your hearing levels**, you will wear a pair of earphones or ear plugs. Different levels of sound will be played. You will push a button or raise your hand when you hear the beeping sound.
- **To check how you understand speech**, you will be asked to repeat words that you hear.
- **To check your inner ear**, a small black box will be placed behind your ear. You will hear beeping sounds. You will be asked to push a button or raise your hand when you hear the sound.

Audiogram

A hearing test (audiogram) uses frequency and intensity to measure sound.

- **Frequency** is the pitch of the sound. It is measured in hertz (Hz).
 - A low number is a low (bass) sound such as a fan or motor.
 - A high number is a high (treble) sound such as a bird singing or a telephone ringing.
- **Intensity** is the loudness of the sound. It is measured in decibels (dB).
 - 10 dB is quiet such as water dripping.
 - 100 dB is loud such as a chainsaw.

When you hear a sound with your left ear, the audiologist will mark it with an “X” on the audiogram.

When you hear a sound with your right ear, the audiologist will mark it with an “O” on the audiogram.

Treatment

If the results of your hearing test show that you need medical treatment, you will need to see your primary care provider or a doctor who specializes in ear, nose and throat care (an otolaryngologist). Treatment may include medicine or surgery.

If the results of your hearing test show that you do not need medical treatment, hearing aids, other helpful ways to communicate or both may be recommended.



Notes



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