

Hearing Aids for Adults

How do hearing aids work?

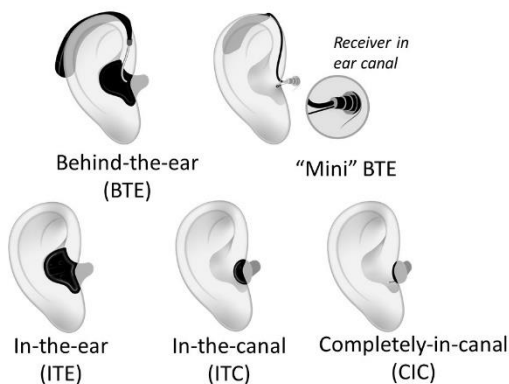
Hearing aids are electronic devices that collect sound, make it louder with a mini-computer chip to levels that are appropriate for a person's hearing loss, and then direct the sound into the ear. Although the style of hearing aids may be different, all hearing aids have these components:

- A **microphone** that picks up sound
- A **computer chip/amplifier** that makes sounds louder
- A **receiver (miniature loudspeaker)** that delivers the amplified sound into the ear
- A **power source** that may be an internal rechargeable battery or a replaceable battery

Hearing aid styles

Hearing aids can be worn in the ear or behind the ear. A behind-the-ear (BTE) device will have a custom mold or a dome. Custom-made devices are made for your ear by taking an impression of your ear. An impression of your ear is done using ear mold impression material that starts out soft and hardens when ready. This process may cause minimal discomfort but is quick and should not be painful. Custom-made devices include a range of sizes—from a larger in-the-ear (ITE) device, to an in-the-canal (ITC) device, to a small completely-in-the-canal (CIC) device.

The BTE styles have two versions. A traditional BTE uses a tube for sound, and a mini-BTE—also referred to as a receiver-in-canal (RIC) or a receiver-in-the-ear (RITE) device—has the receiver and mini-loudspeaker at the end of an electronic wire that sits in the ear canal.



Hearing aid features

- **Volume control:** Hearing aids are digital devices that can amplify, analyze, and adjust incoming sounds quickly. The hearing aid can increase the volume of the soft sounds while keeping loud sounds comfortable. Manual volume control is an optional feature on hearing aids.
- **Directional microphones:** Under the guidance of the computer chip, the hearing aid can help you hear the important sounds and conversation in front of you while reducing the loudness of the sound behind you. This can be either automatic or adjusted by the user.
- **Telephone coils:** Also known as T-coils, these pick up the magnetic signal from a landline phone to help the user hear speech clearly. It is also used with loop listening systems that are often located in some large-group areas such as churches, public meeting areas, and airports.
- **Feedback (whistling) control:** This part of the computer program is built into the hearing aid. It can automatically analyze the feedback from the hearing aid and then automatically adjust the sound coming from the hearing aid to minimize the unwanted squealing noise.
- **Smartphone applications:** Apps are available for many devices and allow the user to adjust the sound from their smartphone (cell phone). The phone acts like a remote control.
- **Programmed listening settings:** These settings allow you to set (program) your aid based on your needs for different listening environments.
- **Remote control:** A small handheld device that allows you to adjust the hearing aids, the remote control is helpful if you are not able to use the tiny control buttons on the hearing aids due to vision or dexterity issues.
- **Rechargeable hearing aid:** This type of hearing aid has built-in lithium batteries that allow the device to be charged. This feature stops the need to purchase and replace batteries.

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• **Wireless technology:** This feature allows the adjustments (e.g., volume control and noise programs) that you make on one hearing aid to be automatically made on the other. If you wear two hearing aids, wireless technology also helps the two aids work together as a pair by customizing what you are hearing based on what sound they (the hearing aids) detect. Many hearing aids now contain Bluetooth® technology that allows users to hear their cell phone calls and to stream signals (e.g., videos, podcasts, music, etc.) directly into their hearing aids. This is great for clearer listening of these devices because the sound heard through the hearing aids is increased to accommodate the hearing loss—and, in many cases, is directed to both ears instead of just one.

Lifestyle and communication needs

When considering the style of hearing aids or features that you will need, your audiologist will ask you about your lifestyle and activities. This will help them suggest a hearing aid and features that work for you. For example, they may ask you these questions:

- Do you work or stay home?
- Do you attend meetings, conferences, plays, movies, concerts, or worship services?
- Do you communicate in mostly one-on-one situations or mostly in large or small groups?
- Do you participate in sports?
- Do you enjoy watching TV, talking on the phone, or traveling in the car?

Hearing aids are small. Your audiologist will also ask about your ability to see and handle them.

Role of the audiologist

After your hearing is tested, the audiologist will do the following when you meet with them:

- Carefully explain your test results
- Discuss realistic expectations based on test results
- Give you a copy of your test results
- Ask you about your lifestyle and listening needs
- Describe the various styles and features available and what they think might be most appropriate for you
- Discuss the costs and possible available funding sources
- Provide a written contract that includes how much your hearing aids will cost and how much you will be charged for the fitting and follow-up fees. The contract should also provide a clear description of the services that are included as well as the date of purchase.
- Schedule you to return in 1 or 2 weeks for a hearing aid fitting, programming, and orientation.

Content contributed by Sandra Stumpf Reams, AuD, CCC-A.

Notes: _____

For more information and to view the entire Audiology Information Series library, visit www.asha.org/aud/pei.

For more information about balance problems, preventing falls, hearing loss, hearing aids, or referral to an ASHA-certified audiologist, contact:



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