How Assistive Listening Devices Can Improve Your Life

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Technology continues to make possible many improvements in hearing aids and cochlear implants, but most still provide unsatisfactory results in a noise-filled room. An assistive listening device (ALD) can help. It picks up sound through a microphone located near the speaker, amplifies it, and delivers it to the ear of the listener, thereby reducing the impact of other noises and distortion.

ALDs use various types of technology. There are wired and wireless devices that connect or interface directly with your hearing aid or cochlear implant. Others use FM radio frequency, infrared light transmission and audioloop technology (electromagnetic induction).

A high quality telecoil in a hearing aid or cochlear implant can be indispensable in helping to make the most of ALDs.

1. Hard Wired and Wireless Devices

With a hard wired or wireless device, the microphone is placed near the sound source or held by the speaker. The signal either travels to an amplifier and then to the listener's ear, or travels directly to a hearing aid or cochlear implant. A microphone, for example can be connected to certain body-worn cochlear implant processors.

These simple devices, which can cost as little as $75 to $100, are very useful in restaurants, offices, small meetings, and when riding with someone in a car. Their drawback is that they can be used only by one person at a time.

2. Audio Induction Loops

An audio induction loop, often called simply a "loop", is a specialized cable which is usually laid around a room and connected to a power amplifier or audioloop driver. The amplifier or driver is connected to a microphone, mixer, or another source providing sound. Electricity flows through the loop.

When the speaker talks, the microphone picks up his or her voice and converts the sound to electrical energy, which is then made louder by the amplifier. The amplified electrical energy enters the cable and creates a magnetic field, becoming electromagnetic energy.

A hearing aid or cochlear implant with a telecoil can pick up this electromagnetic energy and send it to the receiver of the hearing aid or cochlear implant, where it is converted to sound.

Loops come in various sizes. Often they are installed in the walls, floors, or ceilings of meeting rooms. Portable loops can be temporarily set up for meetings and then disassembled. They can be used around a chair, desk, or dining room table. There are also neckloops for individual use with all the other types of ALDs.

Because loops can provide clear sound to a hearing aid or cochlear implant, a neckloop will often be the preference for use with any hard wired ALD. If your hearing aid or cochlear implant does not have a telecoil switch, you can use a personal loop receiver or, in the case of certain cochlear implants, a telecoil adapter that attaches to, or is contained in, your processor. While headsets are provided by most systems, they bypass use of your hearing aid and cochlear implant, so you will not have the advantage of using them at maximum efficiency.

3. Infrared

In this wireless system, sound is transmitted via invisible infrared light waves. A transmitter or emitter sends the signal to a receiver, which picks up the signal and converts it back to sound. This is a line-of-sight system. To use it, you must be positioned where the receiver can pick up the signal transmission, or where the signal is reflected.

While infrared systems continue to improve, they can still be ineffective in sunlight. Infrared systems are available for areas ranging from a small room to a large one. The listener may use earphones or a neckloop with the receiver. Some cochlear implants can connect directly to the receiver with a patch cord or other device.

Receivers have a volume control. There are two types of infrared receivers: body-pack style and headphone. If a neckloop is used, the hearing aid or cochlear implant must be at the telecoil setting. These systems are usually used in theaters, courtrooms, and auditoriums.

4. FM

FM (frequency modulation) systems use radio waves to transmit sound in the 72 to 76 megaHertz frequency range. A transmitter must be connected to a microphone, and each listener must have a receiver with a headset or a neckloop. FM systems are used in auditoriums, places of worship, classrooms, theaters, and performances at outdoor facilities such as Wolf Trap Center for the Performing Arts.

Personal FM systems are used for meetings where the speaker is too far away for the use of a hard wired device. FM systems can also be used almost everywhere that a hard wired device is used. Although more costly than hard wired devices,

they have some advantages. They permit greater flexibility because nearness to the speaker is not a requirement.

Attachments for ALDs

Attachments for use with ALDs include headphones, earbuds, silhouettes, neckloops, and cochlear implant patch cords or adapters. People with hearing loss will prefer one accessory over another, depending on the nature of their individual hearing loss. Those who frequently use ALDs will want to acquire their own attachments, especially if they use headphones or earpieces, to minimize potential spread of disease.

Purchasing Assistive Listening Devices and Attachments

When considering the purchase of an ALD, you will want to evaluate the company or individual. Some questions to ask are:

- What are the seller's qualifications, and how long has the company been in business?
- Does the seller often sell these devices?
- Does he or she attend trainings to keep abreast of the latest technology information?
- What are the payment terms, return policies, and warranty terms?
- What is the device manufacturer's reputation?
- Does the seller have the ability to service what is sold, and if so, what is the approximate repair time?
- Is there a trial period before purchasing, and is a loaner device available during servicing?

Talk to other consumers and ask them about their experiences with the company and the brand. The local chapters of Hearing Loss Association of America (HLAA) and Association of Late-Deafened Adults (ALDA) can be excellent resourcea. The Northern Virginia Resource Center for Deaf and Hard of Hearing Persons (NVRC) can provide contact information for these organizations.

Sources of ALDs

For a list of companies that specialize in ALDs, contact NVRC. Several internet and mail order companies have catalogs containing hundreds of assistive devices. Buying a replacement item through a catalog may be satisfactory, but the initial purchase of a device through the mail may not be a good idea. If possible, get a consultation with a professional to fit you with a device and to recommend new options that may be best for you and your price range. You will want to go in and test the system, and have adjustments made if needed. Another consideration is a delay you may face if you need to mail your device back for servicing.