

Hearing & Amplification

Hearing Aid Choices

What Are Some Special Features Of Hearing Aids?

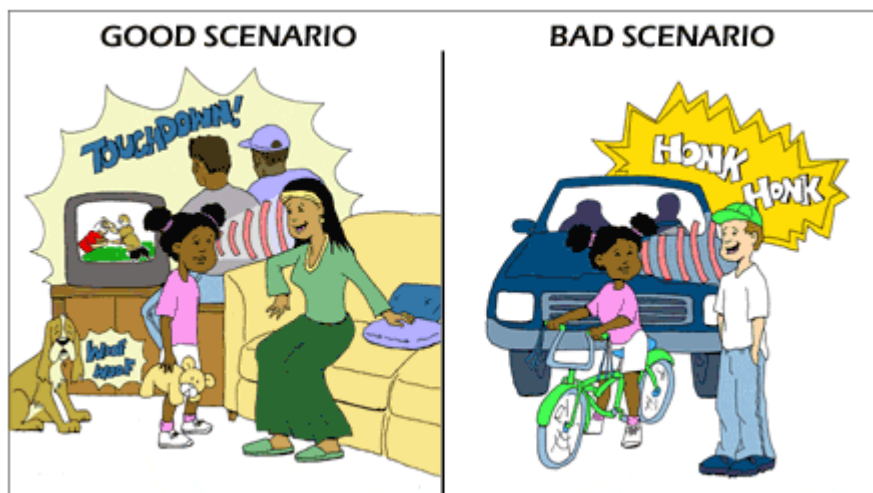
Hearing aids are constantly becoming more sophisticated in their technology. Many hearing aids today have special microphones and amplifiers. Some even have small computers inside. These advances affect how the hearing aid processes (or changes) sounds. Many choices are available and may include one or more of the following options.

1. Wide Dynamic Range Compression

With compression, the hearing aid circuit can amplify softer sounds more than louder sounds. If a hearing aid circuit has wide dynamic range compression, it automatically adjusts the amount of gain available across a wide range of listening levels, so that softer sounds can be more easily heard, while avoiding discomfort from louder sounds. This type of circuit also may help young children to overhear the conversations of others from a distance that would not be possible with other types of hearing aids.

2. Directional Microphones

Some hearing aid circuits have separate microphone settings that allow the user to pick up sound either from a broad area or from a narrower listening range. This is similar to a camera with a wide angle and zoom lens. In noisy listening situations a directional microphone can suppress sounds that come from behind (often noise), improving the child's ability to hear speech that comes from the front. While this feature can be helpful in many situations, there can be problems when directional microphones are used with young children. Infants and toddlers learn a large amount of speech and language by listening to others when they are talking around them. Directional microphones might reduce the child's opportunities to receive some of this incidental language exposure. In addition, safety may be a concern if children are not able to hear warning sounds in their environment, such as an oncoming car. When this type of option is used with a child, it is important to use a type of directional microphone that can be turned on and off. Parents and caregivers will need to understand when to have the directional option turned on.



(continued on page 2)

3. Multi-memory Devices

Some hearing aids have the ability to store more than one frequency response or program within the hearing aid. Multiple memories allow the hearing aid user or a parent to choose from different frequency responses or microphone options with a remote control or by pressing a button on the hearing aid. Adults who use this type of feature often use multiple memories for different listening situations such as high noise backgrounds or listening to TV or music. For young children, multiple memories may have an advantage when hearing loss is progressive or fluctuates over time. This feature would allow changes in hearing aid response to be available quickly. In some cases, it can be helpful to have several different frequency responses available when a hearing aid is first being fit on a young child. That way, parents can help determine which response provides the best audibility for their child. When using multiple memory devices with young children, parents need to be in control of deciding which program will be used and they must also be aware when a change in program is needed



4. Digitally Programmable

Due to improvements in microchip technology, many hearing aids are now digitally programmable. This allows the audiologist to make in-office adjustments to many different hearing aid characteristics. A computer is used to adjust the hearing aid for things as simple as the tone controls or as complex as the number and type of programs saved in the memory. This can provide some needed flexibility when fitting infants and young children, because we may not know the exact degree and shape of hearing loss at the initial hearing aid fitting.

5. Digital Signal Processing

Digital hearing aids have a computer-controlled sound processor inside the hearing aid itself. The incoming sound is converted into a digital signal that allows many different types of signal processing to be applied. No single type of digital processing has been found to be superior for adults and no studies have yet been published using this type of technology with young children.

(continued on page 3)

6. FM Systems

Traditionally, FM systems have been used in educational settings to overcome the problems of listening in noisy classrooms. The teacher wears a small microphone and transmitter and the child wears a hearing aid and receiver. Sound is sent directly to the child via wireless FM transmission. These systems have been shown to improve communication in difficult situations. Many pediatric audiologists now recommend these systems for use in non-educational settings as well. They are most commonly used in any situation where high background noise, reverberation (echos) or distance can make listening and understanding difficult. Some examples are watching television, car trips, family outings, field trips, and religious services.

