

The Ear Hears – The Brain Listens

Submitted by Dr. Mary Maddock Au.D.

More than 31 million Americans suffer from hearing loss treatable through the use of amplification. Some people in this group simply deny have a hearing loss and will state, “my hearing is fine, it is just that others mumble”. Others recognize their hearing difficulty but think the loss is not “bad enough” for the use of amplification. Many delay the use of amplification because of the stigma that they associate with a hearing loss or the belief that a hearing loss cannot be helped.

In most cases hearing loss develops slowly over a period of at least fifteen to twenty years. The cause of a gradual hearing loss may be related to aging (presbycusis) or to noise exposure. While noise related hearing loss can be prevented, presbycusis cannot. The first step is to have a baseline audiological evaluation by age 50 or sooner if a hearing loss is suspected. Follow-up audiological evaluations should be completed every 3 – 5 years depending on the status of the hearing at the baseline.

As the hearing loss develops typical everyday environmental sounds such as the humming of the refrigerator, the rustle of the leaves as the wind blows or the birds singing are lost. With further progression of the hearing loss speech sounds such as s, f, th and k will be missed. At this point some intonations in speech will also be missed. Even though we may hear enough of the speech sounds to “hear” the word, we may misunderstand the meaning of the message because of an inability to perceive the tone of the message. With further progression of the hearing loss more speech sounds will be missed causing speech to sound muffled or unclear to the listener. In the next stages, the hearing loss becomes more severe and all speech sounds are either perceived as very soft or become completely inaudible.

Untreated hearing loss not only affects our relationships, our quality of life and our ability to remain active socially but it also affects the brain’s ability to remember common everyday sounds because the hearing pathways are no longer effectively used. When the nerves in the ear lose the ability to pick up the sounds, the brain no longer has the sounds it expects to receive. Over a period of many years the brain “forgets” the sounds and eventually becomes unable or inefficient in the ability to understand the sounds.

The brain’s center for hearing stores sounds, both speech and non-speech, for three to seven years following the onset of a hearing loss. After seven years of missing sounds the memory of the sounds becomes weaker and weaker. When the sound is re-introduced, the brain will need

to re-learn how to identify the sound and determine what importance the sound has to each person in any given setting.

On average ten years will lapse between the time a person recognizes a hearing loss until the purchase of hearing aids. If the fitting of hearing aids is seriously delayed the brain's ability to use the information cannot be fully recovered. The brain no longer recognizes ordinary sounds and must learn how to hear all over again. As we age the process can be compromised because the brain becomes slower in the ability to learn new tasks.

Hearing aids do more than help you hear, they allow your brain to remain active in the ability to understand what you are hearing. Once hearing aids are purchased they must be worn. Frequently people with a "high pitch hearing loss", mild hearing losses or those who live alone say "I only need hearing aids when I go to" Consequently the hearing aids are worn for only a few hours a week. Because the hearing loss has been present for many years and the brain has forgotten how to use some common sounds, wearing the hearing aids as much as possible is very important. The brain will take about a year of consistent hearing aid use to reach maximum ability to use and interpret sound. The process is easier if the hearing loss is mild and has not been present for more than ten or fifteen years but is much harder if the hearing loss is more severe or has been present for a longer period of time.

Initial use of amplification may require progressive re-programming of the hearing aids to re-introduce the brain to sounds at a slower pace. This is completed in stages over the course of a year. The re-introduction of the brain to long missed sounds takes time and effort on the part of the wearer. Patience, perseverance and realistic expectations will lead to a successful hearing aid experience.

For more information regarding hearing, hearing aids or processing of sounds and words in quiet and noise seek the advice of a qualified hearing health care provider.

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