



▶ AUDITORY SENSORY DEPRIVATION.....1

○ ISSUE 1 | ○ VOLUME 1 | ○ 2012



▶ TIPS AND TRICKS: HOW TO DEAL WITH RESISTANCE1



▶ HEARING AIDS – REALISTIC EXPECTATIONS2

Hear and Now

Auditory Sensory Deprivation

Every day we use five senses to navigate ourselves around the world. These five senses are touch, taste, smell, sight and hearing. Typically we notice if something tastes different, we can't feel something, we can't smell dinner cooking or if we are not seeing clearly. But, do we always notice that we are not hearing sounds? Similar to our other senses, our ears are very sensitive and require sound in order to stay healthy.

The auditory system is arranged tonotopically, which means that certain areas of the cochlea (inner ear), eighth nerve and central mechanisms are responsible for certain frequencies. This suggests that if certain frequencies of the inner ear are deprived of sound, the individual will not hear those sounds. This limits the function of the frequency areas and results in a reduction in the understanding of speech.

The most common form of adult hearing loss is a high frequency

sensorineural hearing loss. High frequency information provides us with the ability to hear the consonant sounds of speech. This gives us our clarity of speech and our ability to differentiate between similar sounding words; i.e. cat vs. hat. Since the damaged ear is not hearing the sound, the auditory nerve does not pass the sound information on to the brain. Over time the brain will forget sounds. Depriving the nerves and pathways of stimulation will starve the ear; eventually causing the rate of information passed to the brain to slow down. (Imagine if you attempted to run freely through a garden path that has been neglected for years; you would have to slow down and watch your every step and take detours!) Once this slow down occurs, sounds can become distorted. The distortion occurs in the inner ear; which is then sent to the brain. The brain receives this distorted sound, which it tries to make sense of. Often times individuals who suffer from sensory deprivation, will score poorly on tests specifically for word understanding.



Even with the appropriate treatment and amplification, the damaged system will always transmit some form of a distorted sound. In order to maximize audibility and understanding, those with poor word understanding need to rely on more sophisticated hearing aid technology or assistive listening devices.

Auditory sensory deprivation is a condition that is preventable, whether it's through medical intervention, the use of hearing instruments, or assistive listening devices. Seeking help at the first signs of hearing loss is essential to the early detection and prevention of further auditory sensory deprivation.

Written By: Stacey Samuels Cole, M.A., CCC-A

Tips and Tricks: How to Deal with Resistance



Do you have a friend or family member that has a hearing problem but will not address it? Use these suggestions to gently encourage them to find a hearing healthcare professional and get help.

Stop repeating yourself! – Explain that you are on a “Hearing Help Quest”— one that involves your loved one by allowing him or her the opportunity to realize the significance of their hearing loss. Do not stop helping though. All you do is preface what you repeat by saying each time, “Hearing Help!” or some other identifier. In a short amount of time, your loved ones will realize how often you say this. In turn, they will come to realize how often they depend on you. (This suggestion is only for a loved one who resists the idea of getting any help).

Stop raising your voice – (then complaining you're hoarse). That results

in stressing your throat and vocal chords.

Stop being the messenger by carrying the communication load for the family – Do not tell your loved one “He said” and “She said” when he or she needs to be responsible for getting this information directly from the source.

Do not engage in conversation from another room – as tempting as this is and as convenient as it appears. This sets up your communication process for failure.

Create a telephone need – This means for you to stop being the interpreter on the telephone. Allow your loved one to struggle in order to recognize how much help he or she needs. We're looking for motivation (to hear) from your loved one—not you.

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**Hearing Professionals
Doctors of Audiology**



Hearing Aids

Realistic Expectations: A Key To Success

clock ticking, a fan running, crackling paper and the rustling of clothes, all of which a person with normal hearing can hear with ease. The aid is creating a normal hearing dynamic and it is the individual who determines which sounds to mentally focus on and which sounds are simply peripheral noises.

Individuals who decide to pursue the use of hearing aids must understand and accept the need for an adaptation period. Their auditory system has missed many sounds and has become desensitized by deprivation. This is why the auditory system is more sensitive to sound once it is returned. For this reason a complete hearing evaluation and consultation by a licensed Audiologist is the most important part of pursuing hearing aid options. It is essential that an individual express to their Audiologist specific information regarding where, when and why they need hearing help. Only then can an Audiologist make a recommendation as to which hearing instrument would best suit their needs and discuss realistic expectations.

Hearing aids are exactly that, an aid! The

number one reason why a person will return or refuse the use of hearing aids is because of unrealistic expectations. It is unrealistic to think that hearing aids will allow you to conduct a conversation with someone in another room or that you will understand every word on your favorite TV show. However, one should expect that when wearing hearing aids, you are able to understand the majority of conversation in quiet, improve your word understanding in a noisy environment, acknowledge that someone is speaking to you from another room and require a lower volume when watching TV.

In adjusting to the hearing aids, follow-up care with your Audiologist is essential. During these visits you and the Audiologist will discuss your progress and make any needed adjustments. Typically, a new hearing aid wearer will have an adaptation period ranging from 1 to 4 months; experienced wearers also need time to allow the brain to adapt to new subtle tone differences.

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One of the major keys to success with hearing aids is to have realistic expectations. Hearing loss is a frustrating and complicated impairment to begin with. Frustration occurs when sounds are heard, but not understood. It takes approximately 7 years for a hearing impaired individual to seek treatment for their loss, as the loss typically happens gradually. Consequently over the years certain sounds have not been heard and some sounds may have been forgotten altogether.

Hearing aids are designed to allow the wearer to experience a more normal listening environment. They do not return a person's hearing back to normal and they do not eliminate environmental noises completely. The use of hearing aids should allow an impaired ear to hear a

The Doctors of Audiology at Hearing Professionals not only provide comprehensive hearing evaluations and treatment options for patients of all ages, but are also specifically trained in the diagnosis of vestibular disorders and pathologies. A sample of testing offered:

Auditory Brainstem Response (ABR)—ABR's are usually warranted when there is a subjective complaint of unilateral tinnitus or aural fullness, issues with dizziness or when the audiological test results reveal an asymmetry in hearing thresholds. Auditory Brainstem Response testing evaluates the integrity of the VIIIth (auditory) cranial nerve as it transmits signals from the cochlea up to the brainstem for processing. ABRs are useful in the identification of possible central nervous pathologies affecting hearing and/or balance function. Most notably, this test helps in the possible identification of an acoustic neuroma or vestibular schwannomas, which is a very small, slow-growing tumor located on the VIIIth cranial nerve. Many people have these tumors for years without any signs or symptoms.

Electrocochleography (ECOG)—The Ecog test is specifically devoted to identify the presence or absence of Meneire's Disease or Endolymphatic Hydrops. These conditions are caused by an increased endolymphatic pressure within the inner ear. It is important to note that a negative finding does not necessarily rule-out these conditions, as this testing is most sensitive during an active phase of the disease process. During an active phase or "while feeling dizzy" this test is most accurate.

Videonystagmography (VNG)—This is a comprehensive test that will evaluate the vestibular system (peripheral and central). It is used to differentially diagnose between the most common forms of vestibular dysfunctions, such as positional vertigo, a unilateral/bilateral vestibular weakness as well as ocular and/or central vestibular involvement. This test, in combination with several of the tests above, is used to identify the need for further medical investigation, as well as the extent of vestibular rehabilitation that will be necessary for treatment.

HEARING PROFESSIONALS HAS 4 CONVENIENT LOCATIONS

For more information on Hearing Professionals and the services we offer, please visit:

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