

Hearing Loss Intro & Types of Hearing Loss

Hearing loss affects about 30 million Americans and essentially is classified as two types – **sensorineural** or **conductive**. For adults, about 95% of hearing loss is **sensorineural** in nature and is commonly referred to as “nerve damage”. This type of hearing loss is usually a result of the aging process, noise exposure, and several other factors. It is rarely treated by medical intervention and hearing aids are the most common method of treating the hearing problems associated with it. People with sensorineural hearing loss describe an inability to hear speech clearly and frequently misunderstand what people say. They describe speech as sounding muffled, and report understanding conversation when in crowds and background noise as very difficult. Loudness is usually not as much a problem, mostly clarity of words.

Conductive hearing loss is not as common in adults and almost always requires an evaluation and consult with a physician. Some examples of a conductive hearing loss are earwax impaction, fluid behind the eardrum, hardening of the middle ear bones (otosclerosis), swimmer’s ear, and other physical or medical signs/symptoms. Treatment options can range from medicinal to surgical and/or being fit with hearing aids.

It is possible to have a “**mixed hearing loss**” which is a combination of sensorineural and conductive.

Profound hearing loss

Profound hearing loss is the most extreme hearing loss. A profound hearing loss means that you may not hear loud speech or any speech at all. You are forced to rely on visual cues instead of hearing as your main method of communication. This may include sign-language and/or speechreading (also commonly referred to as “lipreading”).

Severe hearing loss

People with **severe hearing loss** have difficulty hearing in all situations. Speech may be heard only if the speaker is talking loudly or at close range. A severe hearing loss may sometimes cause you to miss up to 100% of the speech signal. Symptoms of severe hearing loss include inability to have conversations except under the most ideal circumstances (i.e., face-to-face, in quiet, and accompanied with speechreading).

Moderate hearing loss

A **moderate hearing loss** may cause you to miss 50-75% of the speech signal. This means you would not have problems hearing at short distances and understanding people face-to-

face, but you would have problems if distance or visual cues changed. Symptoms of moderate hearing loss include problems hearing normal conversations and problems hearing consonants in words.

Mild hearing loss

A **mild hearing loss** may cause you to miss 25-40% of the speech signal. Usually this results in problems with clarity since the brain is receiving some sounds but not all of the information. Symptoms of mild hearing loss include problems understanding someone farther away than a normal distance for conversation, or even up close if the background environment is noisy. Weak voices are also difficult to understand for people with mild hearing losses.

Unilateral hearing loss

A **unilateral hearing loss** is hearing loss in one ear. Hearing in one ear is normal but the other ear is hearing-impaired. Symptoms of unilateral hearing loss may include difficulty locating the source of sounds, and problems hearing understanding speech in certain situations, such as:

- Problems hearing faint or distant speech, especially if weaker ear is closer to the person speaking
- Problems hearing in a background of noise — especially if the "good" ear is close to the competing signal.

Hearing Loss Symptoms

When people experience hearing loss, they typically report a combination of the following problems:

- Difficulty hearing in crowds, restaurants, or any place with background noise;
- They ask people to repeat themselves often;
- They say "huh?" or "what?" often;
- They report difficulty understanding women's and children's voices more;
- They have to listen to the TV louder than normal;
- They frequently complain, "I can hear people, but just can't understand what they're saying."
- They complain people "mumble" frequently;
- Friends and family comment about their hearing;
- They begin to avoid certain situations that present problems understanding speech
- They complain of a frequent ringing in the ears (tinnitus)

Even when just two of the above problems exist, it is critical that a thorough hearing test be completed to assess the type and degree of hearing loss.

Hearing Loss Treatment Options

It is important to note that Hearing Instrument Specialists and Audiologists are trained to identify any medical problems potentially causing hearing loss and then refer that person to an appropriate medical specialist before fitting hearing aids. This is crucial for the overall health and well-being of the individual.

For the vast majority of adults with hearing loss, hearing aids are the most common treatment option. Almost 95% of the various degrees of hearing loss can be fit with hearing aids. Today's digital technology has never been more advanced with a variety of styles, technology levels, and purchase options.

There are a few surgical options to correct hearing loss, however, it truly depends on the type of loss (primarily conductive) and the severity. Conductive hearing loss can be treated as easily as removing earwax to more invasive surgical procedures such as repairing a ruptured eardrum or damaged middle ear bones.

Some people with severe or profound hearing loss may benefit from a cochlear implant. A **cochlear implant** is a surgically implanted device that has an electrode implanted in the cochlea (inner ear) which picks up sound transmitted from a hearing aid and transducer. The goal is to provide direct stimulation of the inner ear hair cells for better sound and speech awareness.

Hearing Aids - Introduction

“What is the best hearing aid?” This is perhaps the most common question Hearing Professionals are asked. Unfortunately, there is no easy answer. Instead, focus your question on, “What is the best hearing aid for me?”

There are several quality hearing aid manufacturers and most provide comparable technology at wide price ranges. Over the past several years, significant advances with hearing aid technology have resulted in the highest levels of patient satisfaction ever recorded. Selecting the best hearing aid involves at least four main factors:

- The quality and experience of the hearing professional
- The results of the hearing test
- A thorough discussion and understanding of your lifestyle and hearing needs
- What style of hearing aid is desired by the wearer

Factor #1 can't be emphasized enough - it is crucial to seek guidance by a Hearing Professional during this process. Please keep in mind there's only so much research you can do by yourself before it all becomes overwhelming. Eventually you have to be comfortable with and trust your Hearing Professional, and start a trial period of hearing aids to really know how they will work for you.

Types of Hearing Aids

Behind-the-ear (BTE) hearing aids

Behind-the-ear (BTE) hearing aids fit comfortably behind-the-ear and are attached to a soft custom earmold. With BTE hearing aids, the electronics are housed in a case that fits behind the ear. Sound is directed from the hearing aid, through the tubing, and through the earmold to the eardrum. These hearing aids can be modified with connections to external sound sources such as auditory training equipment and infrared listening systems. Several models are also Bluetooth compatible.

BTE hearing aids can provide more amplification than smaller devices due to the stronger amplifier and the larger battery. This style is available in analog and digital circuits and fits the widest range of hearing loss, from mild to profound. They are suitable for all ages. There is a wide range of colors available for matching to hair, skin tone, and even personal style. Standard BTEs use the 13 or 675 battery sizes which are easier to handle and have a longer lifespan compared to smaller batteries. Repairs are typically fewer than custom products and some BTE models may come with a moisture resistant coating and features.

Open Fit Behind-the-ear (OTE) hearing aids

Open Fit Behind-the-ear (OTE) hearing aids are similar to standard behind-the-ear (BTE) hearing aids. The casing is noticeably smaller and the tubing is much thinner. A small tip or dome at the end of the tube is used instead of a traditional earmold. This leaves the ear “open” and reduces problems with occlusion (stuffy or barrel feeling) leading to more natural sounding amplification. This newer style of BTEs has become increasingly popular over the last 4 years and now accounts for **over 50%** of the hearing aid market. Although originally designed for high-frequency hearing losses, newer models can now accommodate a wider range of hearing loss. Reconfiguration of the hearing aid or using a traditional earmold can accommodate changes in a person’s hearing. New OTEs are the most cosmetically appealing style of hearing aid available today.

Today’s OTEs come in two versions. The first is what we call a “**tube-fitting OTE**” that uses very small diameter tubing in the ear similar to the standard BTE. The microphone, amplifier/digital processor, and receiver (speaker) are housed in the hearing aid and the sound is pushed through the thin tube and delivered into the ear canal. This style is easy to maintain because there is not a delicate electric part of the hearing aid inside the ear canal.

The other version of OTE is with the receiver in the ear or **canal receiver technology (CRT)**. This style looks almost identical to the other except that the speaker is separated from the hearing aid. This is accomplished by running a thin wire from the hearing aid down through the thin tubing and connecting it to a small receiver that fits into the ear canal. The only drawback to the CRT style is increased repairs due to moisture or wax damaging the receiver. People with known moisture or wax problems should not wear the CRT style. An advantage to this style is a wider range of hearing losses can now be fit with the availability of having the option of different “power” receivers.

There is no clinical evidence at this time that one OTE style is better than the other. Hearing Professionals and patients may have subjective and/or clinical preferences, however, both

work rather well. Due to their small size, manual controls are very limited. Some manufacturers offer remote controls, battery rechargers, and Bluetooth options with OTE hearing aids. Because of their small size, batteries are smaller. The three most common sizes are 13, 312, and 10A (largest to smallest).

In-the-ear (ITE) Hearing Aids

ITE (in-the-ear) hearing aids can be used for a wide range of hearing losses up to a severe loss. Due to their size, ITE hearing aids allow for optional manual features such as a volume control, program button, or telephone switch. They are also much easier to handle than smaller custom aids. This type of hearing aid fills the outer ear. The hearing aid case is custom made out of a hard plastic material. The hearing aid case houses all of the miniaturized hearing aid parts. The ITE style is available with programmable and digital technology.

Although the largest of the custom products, people with dexterity issues may have difficulties with the small volume control and program button. This may be resolved by opting for a more advanced “automatic” hearing aid or obtaining an optional remote control offered by a few hearing aid manufacturers. They are the most visible of the custom products and many will argue that they are more obvious than a BTE with earmold. Earwax and moisture problems may lead to repairs.

In-the-canal (ITC) Hearing Aids

ITC (in-the-canal) hearing aids fit into the ear canal. They are only slightly larger than the completely-in-the-canal (CIC) hearing aid but smaller than the in-the-ear (ITE) hearing aid. The ITC style is available in analog and digital technology. They are less obvious than the ITE style. Due to a slightly bigger battery, battery life is longer lasting compared to a CIC style.

The ITC style is only suitable for mild to moderately severe hearing loss due to its size. Manual options, such as a volume control or directional microphones are limited due to the size of the faceplate. Like the ITE style, they are susceptible to moisture and earwax. Good dexterity is needed to manipulate the hearing aid.

Completely-the-canal (CIC) Hearing Aids

Completely-in-the-canal (CIC) hearing aids are the smallest size of custom hearing aids, practically invisible to an observer. Custom designed to fit the wearer's ear, CIC hearing aids fit deep inside the ear canal. CIC hearing aids are meant for people with ear canals large enough to accommodate the insertion depth of the device into the ear. This style accommodates people with mild to moderate hearing loss. Some manufactures have power CICs for more severe losses available, although this is not yet the norm. CIC instruments can have analog or digital technology housed within their tiny casing. The microphone of a CIC instrument sits in your ear canal, simulating natural sound reception. However, research shows that directional microphones provide a greater benefit in noise reduction than the single microphone on a CIC. Due to the small size, there is not an option for directional microphones.

CICs use a size 10 battery and typically need to be replaced every 3-6 days. They are usually not recommended for people with dexterity problems due to their small size and even smaller batteries. A tight fit in the ear canal may lead to comfort issues, occlusion (feeling plugged up), and excessive wax buildup. These devices are the most susceptible to damage from wax and moisture buildup since they fit so far down in the ear canal. This may lead to more frequent repairs and a shorter lifespan. With the success of smaller BTEs, especially the OTE style, the popularity of CIC hearing aids has dropped significantly. Right now they account for only about 10% of the hearing aid market.

Digital hearing aids

Digital hearing aids have been the cause of excitement for years now. Digital hearing aids represent the most advanced technology available today allowing the most precise prescriptive fitting available. Digital hearing aids focus on bringing understanding of speech through sophisticated control of the sound signal inside the hearing aid. If you think about the sounds that you can hear and sounds that you cannot hear, these sounds differ in pitch (ex. keys on a piano) and they differ in volume/loudness. Digital hearing aid processing can shape the hearing aids' amplification (volume and clarity of the signal which you hear through the aid) across changing pitches and changing volumes. Another example would be to imagine a graphic equalizer on a stereo and imagine how you can fine tune music to your specific listening preferences.

For most people, hearing loss is usually not the same degree across the various frequencies/pitches. Due to changing hearing levels at different frequencies, each specific frequency needs a different amount of amplification. Digital hearing aids separate the frequency response into "channels", which can be manipulated independently by various "bands" on the Hearing Professional's software. This customizes the hearing aid response to your specific hearing loss.

Today, other styles of hearing aids (mainly analog) are virtually obsolete. About 95% of all hearing aids sold today are digital according to industry statistics. Most hearing aid manufacturers carry several different models, and all the models can be divided into 3 technology levels - **Premium, Mid-Level/Advanced, and Basic/Economy**. Which level is best suited for you will depend upon your hearing loss, lifestyle/hearing needs, and budget. It is our advice to purchase the most advanced technology you can afford in order to give yourself the best chance of success and to leave yourself enough features in the event your hearing loss and needs change.

Analog or Conventional Hearing Aids

In the past 10 years, digital hearing aids have essentially made the use of analog hearing aids obsolete. These devices still serve a function for some people, however. Various individuals who have a history of wearing analog hearing aids for several years sometimes have a difficult time adjusting to and benefiting from the different way digital hearing aids process sound. This is not the fault of the person or the hearing aids, but simply a subjective reaction on the part of the hearing aid wearer. In cases like this, there are still hearing aid manufacturers that make analog hearing aids.

Analog hearing aids essentially make all sounds louder an equal amount. They are good for quite listening but have a number of drawbacks when used in crowd or noisy environments.

From a cost viewpoint, an analog hearing aid costs the same as a basic/entry-level digital hearing aid.

Hearing Aid Cost

The cost of digital hearing aids can have a wide range depending on technology level, features, accessories, and service. Below is an expected retail price range for the different technology levels. Price ranges noted are for **TWO** hearing aids since most people purchase one for each ear. In addition, the below price ranges include fitting and follow-up services from the Hearing Professional. Most hearing aid distributors price their hearing aids with the services included.

Premium Technology – \$5,000 and up with a 3 year manufacturer’s warranty

Mid-Level/Advanced - \$3,800 to \$5,000 with a 2 year manufacturer’s warranty

Basic/Economy - \$3,000 to \$3,600 with a 1 or 2 year manufacturer’s warranty

There will always be pricing extremes on the low and high spectrum, so it’s wise to get a couple opinions.

Hearing Aids - Digital Hearing Aid Features, Options and Bluetooth

There are many options for hearing aids today and it can be confusing for a person to pick and choose among them. A hearing aid is only successful if it is matched to the lifestyle of the patient, not just the hearing loss itself. To navigate successfully through all of these features, it is crucial to have a qualified Hearing Professional assist you in the selection of the most appropriate hearing aids. Here are a few features that are growing in popularity and will help to resolve some of the issues hearing aid users have been complaining about for a long time.

Open fit (OTE)

This style of hearing aid has been around for several years now and has quickly become the most popular style of hearing aid on the market. If a new hearing aid model is released, it almost always has an open-fit version. High-frequency hearing losses were very difficult to fit with traditional cus

tom aids or the standard Behind the Ear. With an open fit hearing aid, the canal is barely covered by a small thin dome that lets in sound naturally while amplifying only the sounds you have difficulty hearing, mainly in the high frequency range. The occlusion/plugged up sensation is now gone with open fit devices. With CRT (canal receiver technology) hearing aids, a wider range of hearing losses can now be fit with the availability of “power” receivers. Due to their small size, open fit hearing aids are the most cosmetically appealing.

Remote controls

One of the problems with small custom or open fit hearing aids is that they may be too small for a volume control and/or push button (to manually change the listening programs). This isn't a problem if you like the automatic volume control or program changes that some models offer. For those who want more flexibility and control over their hearing aids, remote controls are available through several manufacturers. They can fit on your key chain, in your pocket, and even double as a watch. Data-Logging

Data-Logging

is one of the bigger breakthroughs experienced in the industry the past few years. With data-logging, the hearing aids actually record how you use the hearing aids AND the different listening environments in which you are exposed on an everyday basis. This gives the local Professional strong objective data to further customize the hearing aids for you as you progress through the trial period. Before data-logging Hearing Professionals had to frequently make educated guesses about how to fine-tune a person's hearing aids when they came in with complaints.

Self-Learning

Self-learning usually works in conjunction with data-logging. With this feature, the hearing aid learns and applies your volume changes and preferences for various listening situations. A manual volume control or remote is necessary to have access to this feature. Over time, it will learn to adjust the volume automatically in different listening environments so that you won't need to. So by having this feature, you will not need to make that extra trip to the Hearing Professional's office to turn down or turn up the loudness.

Moisture Resistance

Moisture is the #1 cause of hearing aid repairs. It comes from a variety of sources – rain, humidity, condensation, perspiration, earwax, etc. Moisture resistant features for hearing aids are designed to minimize the effects of these various moisture sources, but it does not make the hearing aid waterproof. You cannot shower or swim with hearing aids. Even if you live in a dry area, you are still prone to moisture buildup. This feature is often on newer models that came to the market in 2007 and on. Depending on the manufacturer, a moisture resistant hearing aid either has 1) a coating on the case of the aid to allow moisture beads to roll off; 2) a sealant protecting the internal components of the device; 3) a special microphone covering, and/or 4) a barrier over the speaker inside the ear canal . If used in conjunction with a dehumidifier, such as a Dry and Store, the need for repairs can be reduced.

Wind Noise Management

Hearing aid manufacturers are now able to control a peak in the frequency response when wind noise is present blowing over the microphone. This feature has evolved to the point that the wind noise can now be reduced without diminishing the quality of the speech signal. This feature would be recommended to anyone that spends a significant amount of time outdoors. It is available in almost all premium models and some mid level technology as well.

Bluetooth and Hearing Aids

What is “Bluetooth”?

Bluetooth® is an international wireless communication protocol. It includes software and hardware, which allows secure, two-way audio or data streaming between Bluetooth devices such as computers, mobile phones and PDAs. Bluetooth devices send data and voice in a clean, clear, digital format up to 10 meters.

Since it is digital, the audio signal is not subject to the same sources of signal degradation that sometimes compromise the quality of analog (FM, AM or inductive) transmissions. In an analog signal path, electrical noise from a variety of sources is amplified along with the signal. In contrast, a digital Bluetooth signal is extracted from the noise; it alone is transmitted and amplified, while noise is rejected.

The low-power design of Bluetooth transmission systems has two advantages. One, it minimizes battery consumption for portable devices. Secondly, it places an intentional limit on the range of transmission — the most common version has a range of 10 meters — which helps to avoid interference among nearby devices. At the same time, walls and other obstacles have a negligible effect on Bluetooth transmission.

How does Bluetooth work with hearing aids?

This is relatively new area for hearing aids to evolve. For starters, it is important to note that no hearing aid currently designed has Bluetooth technology integrated into its design. Options or accessories have to be purchased with hearing aids for it to receive a Bluetooth signal. With the proper accessories and properly equipped hearing aids, a consumer can run a Bluetooth signal through their hearing aids.

A hearing aid has to have one or both of the following components to work with Bluetooth:

1. A **Telecoil** – This is essentially a small magnet inside a hearing aid that receives signals from telephones or other devices. Most Bluetooth accessories communicate with the hearing aids through either a magnetic loop worn around the neck or using different magnetic coupler laying against a BTE hearing aid.
2. **Direct Audio Input (DAI)** – this option is almost exclusive to standard BTEs and allows for connection with FM systems and other options. This is the most expensive way to use Bluetooth in conjunction with hearing aids.

Bluetooth options are somewhat limited at the moment, however, the options available do work well. Cost can range from about \$100 for universal devices limited to cell phone use

only to a \$750 option that is hearing aid brand specific that doubles as a remote control, Bluetooth receiver, and television transmitter. The systems using DAI and FM receivers can easily approach \$2,000, but their multi-use functions are numerous and well worth it for the right person.

Hearing Aids - Hearing in Both Ears

Binaural hearing (hearing with both ears) allows you to make fine judgments about sound and to listen selectively to one of several sounds. Most Hearing Professionals agree that because gradual hearing loss typically occurs in both ears, it makes sense to fit both ears with hearing aids. Think of it this way — to correct a vision problem in both eyes, would you wear eyeglasses with only one lens?

These are the advantages when you hear with both ears:

Localized sound

Localization, or the ability to detect the direction and distance of sound, can only be achieved with two ears. The sound of a truck, for example, will reach the ear it is closest to a few micro-seconds earlier, and at a higher intensity, than the opposite ear. These minute difference in the signal transmitted to the brain by each ear enable you to identify the direction from which the truck is coming. If you are only hearing correctly with one ear, information will not be accurately transmitted to the brain.

Balanced hearing

Hearing with two ears may help you more accurately and confidently respond to sounds (like conversation) on your left or right side. This balanced hearing helps you relax, enjoy listening to a full range of sound in “stereo”, and reduces the stress that would occur with just listening with one ear.

Better speech comprehension

Balanced hearing with both ears may improve your ability to disregard background sounds and more clearly understand close-up speech. When the brain receives sounds from both ears, it is able to choose specific sounds to focus on (speech) while paying less attention to others (noise). With only one good ear, the brain has to work harder to focus on speech and this can lead to misunderstandings and fatigue.

Improved sound quality

Hearing with both ears may provide you with more natural sound quality, helping you to hear correctly and respond appropriately to the world around you. With both ears providing even input, less amplification may be required to achieve a comfortable listening level. And you don't need to worry about always getting your "good ear" turned towards sounds.

Auditory deprivation

Auditory deprivation means that further deterioration of hearing, when hearing loss already exists, occurs at a faster rate in an ear without stimulation than it occurs in an ear with stimulation (usage of a hearing aid). In other words, the lack of stimulation to those frequencies with hearing loss actually allows hearing to further decrease. This is best understood by the theory "Use it or lose it."

The Hearing Evaluation - Introduction

To benefit from today's digital hearing aids and the numerous features and options they offer, it is critical to receive a thorough hearing evaluation and consultation. In addition, the Hearing Professional performing the test should also understand your listening environments and lifestyle in order to make a proper hearing aid recommendation. This section will explore the types of professionals who conduct hearing tests as well as discuss a basic interpretation of a sample hearing test.

Who Conducts Hearing Tests?

For the purpose of hearing aid selection, there are two types of Hearing Professionals who can conduct hearing tests – **Audiologists** and **Hearing Instrument Specialists (HIS)**. Both have to be licensed by their respective state(s) where they practice, and both can be equally qualified for the purpose of dispensing hearing aids. The biggest difference is their training originates from two distinctly different paths. It should also be noted that the hearing aid manufacturers allow their products to be sold and fit by each type of hearing professional.

Audiologists

An Audiologist is a professional who has undergone education and training from an accredited university program. Audiologists graduating from school today receive an AuD (Doctor of Clinical Audiology) and are trained to perform a number of diagnostic tests for balance disorders and other ear-related neurological problems, deaf education, pediatric testing, as well as hearing aid dispensing. Audiologists can work in private practice, at hospitals, ENT offices, schools, and for hearing aid manufacturers. Audiologists are frequently certified and members of the American Speech and Hearing Association and the American Academy of Audiology.

Hearing Instrument Specialists (HIS)

There are thousands of qualified Hearing Instrument Specialists in practice throughout the U.S. today. State licensing and training ensures that a HIS is knowledgeable and capable of performing the appropriate hearing test measures to select and fit hearing aids. Also, like Audiologists, a HIS is trained to identify certain medical issues that may preclude someone from wearing hearing aids and then make an appropriate medical referral. Many of these professionals are members of the International Hearing Society (IHS). In order to maintain

membership, continuing education is mandatory and members may also pass additional training and testing to be Board Certified by the HIS.

When looking for a professional with whom to work, you should look for years of experience, knowledge level, and empathy. Ask your friends or your family doctor for a referral. Many states allow you to check a professional's background by searching online through their state's department of health website. The bottom line is that you want to feel comfortable with your Hearing Professional because you'll be entering into a long relationship with that person.

The Hearing Evaluation - Introduction

The hearing evaluation is critical to obtain an accurate hearing aid selection as discussed earlier in this section. Below is an example of an Audiogram with an explanation of the various components.

- The top part of the chart shows the different **frequencies** or “pitches” that are tested. They are measured in **Hertz** and abbreviated “**Hz**”. 250Hz is a low frequency or “bass tone” and 8000Hz on the far right side is a very high-pitched tone such as a bird chirping.
- Along the left side of the chart is **loudness** measured in **decibels** and abbreviated as **dB**. For reference, 25dB is the loudness level of a whisper, 55dB is the typical loudness of one-on-one conversation, 80dB is the level of someone shouting, and 110dB is the typical loudness level of a rock concert.
- When recording a hearing test, the hearing professional marks an “**X**” to note the **left ear** and an “**O**” is used to note the **right ear**. Normal hearing is noted for an adult if all the measured frequencies are recorded between 0 and 25dB. Some professionals will state the case that normal hearing is between 0 and 20dB.
- **Speech Audiometry** has 2 main parts – **Speech Reception** and **Word Recognition**. **Speech Reception** is the softest loudness level a person can repeat 2-syllable words during the hearing test. This test simply confirms the pure tone portion of the hearing test. More important, the **Word Recognition** score reports in a percentage how hearing loss affects a person's ability to understand speech when read at a comfortable loudness level. These words are one syllable words with beginning and ending consonants that can easily be confused with similar sounding words. Other speech audiometry tests that can be helpful are the **Threshold of Discomfort** which is defined as the level of speech determined by the patient to be “uncomfortable” and **Most Comfortable Loudness** which means exactly as it's stated – a subjective level of listening comfort as noted by the patient.

Reference:

<http://www.hearingaidhelp.com/>