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The Comprehensive Guide to Healthy Hearing

Your Guide to Information on Hearing Loss, Hearing Aids and Helping A Loved One with Hearing Loss

Part of the Hearing Aid Personalized Profile for You (HAPPY™)
Exclusively Available at Healthy Hearing (www.healthyhearing.com)

*Hearing loss can be frustrating - **Get HAPPY™!***

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If you have comments, suggestions or would like to provide updates to this guide, please contact: editor@healthyhearing.com.

Welcome Letter

Thank you for requesting this Comprehensive Guide to Healthy Hearing!

This key component of the Hearing Aid Personalized Profile for You (HAPPY™) contains a broad overview of all aspects of hearing loss and hearing aids. This guide was put together by consulting with the foremost experts in the fields of audiology, hearing science and hearing aid technology. It is an expanded version of the Quick Guides that we feature on the website.

We would like to thank Oticon for sponsoring this guide and allowing us to offer you this important information, which we hope you find helpful.

Wishing you Healthy Hearing!

Sincerely,

The Healthy Hearing Editorial Staff

CHAPTER 1

About Hearing & Hearing Loss

Introduction

We all know someone affected by hearing loss, considering the recent statistics. Approximately 1 in 10 people have hearing loss - 1 in 3 if you are over 65 (NIDCD).[1] And experts say hearing loss is on the rise.

Quality of life can be significantly compromised for people with hearing loss and their families. Hearing loss can refer to severe hearing loss, where loud safety signals may not be heard, or more commonly, it can manifest as subtle difficulty with word understanding. In these cases, certain voices or conversations are difficult to hear clearly, especially in noise.

New and better treatments for hearing loss are now available, thanks to advances in healthcare and medicine. Treating hearing loss has been proven to have very positive effects on quality of life. Learning about hearing loss – its causes, symptoms and most importantly, what can be done about it - starts with a basic understanding of our ears and how sound travels through them.

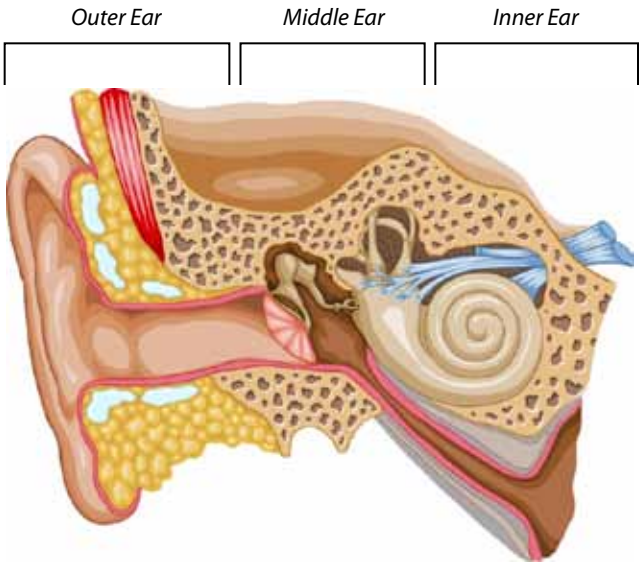
How We Hear

The Outer Ear

Sound first enters our ear at the pinna – the portion of our ear visible on the outside of our head. The pinna collects sound waves and funnels them down the ear canal to the eardrum. Together the pinna and ear canal are referred to as the outer ear.

The Middle Ear

The middle ear begins at the tympanic membrane or eardrum. When sound waves from the outer ear strike the tympanic membrane, it vibrates like a drum (hence the term "eardrum"). Behind the eardrum is an air-filled space containing three middle ear bones, the smallest bones in the body. The eardrum vibrations cause the middle ear bones to vibrate.



Conductive Hearing Loss

Conductive hearing loss occurs when conduction of sound through the outer ear and/or middle ear is disrupted. Some examples include excessive earwax in the ear canal, perforation of the eardrum (by cotton swabs or other means), and middle ear infection with fluid build up. Approximately 10% of all hearing losses are conductive, which can range from mild to moderate in severity. Conductive hearing loss can often be medically treated, and in many cases, hearing can be restored.

The Inner Ear

The cochlea - our hearing and balance organ - together with the auditory (hearing) nerve, are referred to as the inner ear. Sound passes to the inner ear via the vibrations of the middle ear bones, which are connected to the cochlea at one end. Electron microscopic sensory hair cells within the cochlea convert the vibratory signal into an electro-chemical signal that's carried by the auditory nerve to the brain, where sound is finally heard and recognized.

Images courtesy of National Institutes of Health

Don't put anything smaller than your elbow in your ears! *A conductive hearing loss can be caused by cotton swabs rupturing the eardrum. Our eardrums are delicate membranes, sitting just over an inch down our ear canals. It's much easier than you think to cause damage with cotton swabs (or bobby pins, paper clips, nail files, etc). For most people, the only ear cleaning that's necessary is a wiping of the pinna with a towel after a shower.*

How We Hear (cont)

Sensorineural Hearing Loss

Hearing loss that originates in the inner ear is referred to as sensorineural hearing loss or "nerve loss". Approximately 90% of all hearing losses are sensorineural, most commonly caused by damage to the inner hair cells. Once damaged, hair cells can't repair themselves nor be medically treated. Sensorineural hearing loss most often occurs from genetic factors (i.e. hearing loss can run in families), excessive noise exposure, and presbycusis (hearing loss caused by changes in the inner ear due to aging). Other causes of sensorineural hearing loss include: ear-toxic medications; auditory nerve tumors; congenital or acquired infections such as meningitis, mumps, and others; kidney disease; and vascular disease. In many cases, the cause is unknown or idiopathic. A sensorineural hearing loss can be of any degree – mild, moderate, severe or profound.

In more than 95% of cases of sensorineural hearing loss, hearing aids or cochlear implants are the recommended course of treatment.

Mixed Hearing Loss

Sound can be blocked in multiple places along its path. When a hearing loss occurs from conditions in the inner ear as well as the outer and/or middle ear, this is known as mixed hearing loss. An example of a mixed hearing loss may be someone with inner ear hair cell damage due to aging who at the same time has infected fluid in the middle ear due to an upper respiratory infection.

Turn it down! *Noise is a leading cause of hearing loss. Both the level of the noise and the length of time you're exposed to it determine if a noise will cause damage. A good rule of thumb – if you have to raise your voice to be heard by someone standing three feet away, the noise around you could be damaging. Hearing loss from noise exposure is permanent, as it damages the inner ear hair cells. A comprehensive hearing evaluation is the first step in determining if you've had hearing loss from noise exposure and what you can do about it.*

Symptoms of Hearing Loss

Symptoms of Conductive Hearing Loss

With conductive hearing loss, the overall volume of sound is reduced. Symptoms of conductive hearing loss may include: turning up the volume on the television or radio, asking people to repeat what they say, hearing in one ear better than the other, and difficulty hearing on the telephone. With conductive hearing loss, when volume is sufficiently increased, clarity and understanding are usually intact. So if a person with a conductive hearing loss is listening to television, and the volume of the television is sufficiently increased, the person would generally be able to hear clearly. Depending on the cause of the conductive hearing loss, other symptoms may be present. For example, in some cases ear pain, drainage from the ears, or a feeling of pressure or blockage in the ears, may occur.

Symptoms of Sensorineural Hearing Loss

With sensorineural hearing loss, the overall volume of sound may be reduced, and the clarity of sounds or voices may also be affected. People with sensorineural hearing loss sometimes say that they can hear people speaking, but can't always understand all the words, even when the volume is adequate. Music may also sound distorted, even when the overall volume of the music is comfortable, leading to a decreased enjoyment of music. The symptoms of sensorineural hearing loss may include turning up the volume on the television or radio, asking people to repeat what they say, perception of people mumbling or not speaking clearly, lack of clarity when listening to speech, and difficulty hearing in noise.

Fortunately, there are many new and effective treatments for people with hearing loss to help them to hear better and to lead productive, fulfilling lives.

Tinnitus, also known as ringing or buzzing in your ear, often co-occurs with hearing loss. *Tinnitus may be defined as ringing, hissing or other noise heard in the ears or head when there is no outside source of the sound. Tinnitus is not a disease but a symptom of another underlying condition – of the ear, the auditory nerve, or elsewhere. Tinnitus may be mild or severe, infrequent or chronic. Treating a hearing loss, either by medical management, if indicated, or with hearing aids, may offer relief of tinnitus. Other new and effective tinnitus treatments are also available. A comprehensive hearing evaluation is an important first step in the evaluation and management of tinnitus.*

Getting Help

Types Of Treatment

In most cases, conductive hearing loss responds to medical treatment, and hearing is restored when the underlying condition is remedied. When medical approaches are not indicated or effective, the use of hearing aids or other types of amplification (i.e. - bone conduction implants) may provide effective means to better hearing for people with conductive hearing loss.

Sensorineural hearing loss is most often caused by damage to the inner ear hair cells. Sensorineural hearing loss is usually permanent since hair cells do not repair themselves and cannot be medically treated once damaged. In some cases, an underlying medical condition such as a tumor or vascular condition can be identified that causes or contributes to sensorineural hearing loss. In these cases, treatment of the underlying condition may be indicated, but will not usually restore hearing. When medical intervention is contraindicated or cannot restore hearing, hearing aids and cochlear implants can provide effective means to better hearing for individuals with sensorineural hearing loss. In fact, in more than 95% of all cases of sensorineural hearing loss, hearing aids or cochlear implants are the recommended course of treatment.

Early diagnosis – via a comprehensive hearing evaluation - and prompt treatment are important with hearing loss, and result in the most successful best outcomes.

Getting Help (cont)

Get Professional Help

The diagnosis and treatment of hearing loss begins with a comprehensive hearing evaluation to determine the amount of hearing in each ear. A visit to a professional who specializes in hearing testing and hearing aids or cochlear implants is typically the first step in the evaluation and treatment of hearing loss.

Audiologists have master's or doctorate degrees in the diagnosis and rehabilitation of hearing loss. Some audiologists specialize in hearing instruments; others may specialize in cochlear implants, tinnitus, pediatric audiology, educational audiology, hearing conservation, balance and dizziness, or other areas of audiology. Some may have several areas of specialty. In addition to treating hearing loss through amplification, audiologists identify and refer any conditions that require treatment by an otolaryngologist or ENT (ear, nose and throat) physician. The physician will often use the results of audiological testing to assist in diagnosing and treating ear conditions. Hearing Instrument Specialists are trained to perform hearing evaluations and dispense hearing instruments. They abide by state licensure laws for hearing instrument dispensing, and may also hold board certification. They are also trained to refer to physicians for treatable ear conditions.

Hearing loss usually occurs gradually, and is sometimes first noticed by friends and family. *It's usually recommended to bring a loved one with you when you have your hearing tested. A loved one can contribute valuable information regarding your symptoms and the effects of your loss, and provide you with support as you begin the treatment process.*

Getting Help (cont)

Comprehensive Hearing Evaluation

A comprehensive hearing evaluation is a painless, non-invasive, quick and inexpensive exam, typically taking 30 – 45 minutes for most adults.

Case history

Before beginning the evaluation, you will be asked a series of questions about your general health, as well as specific information regarding the symptoms of hearing loss and/or associated ear conditions. This information is used along with the objective test results to make the diagnosis and to determine the most effective and appropriate course of treatment.

The information you provided as a part of the Healthy Hearing HAPPY™ is a great starting point for information in your case history. *Be sure to bring a copy of the HAPPY™ to your appointment.*

Otoscopic inspection

Next, a visual inspection of your ear canal and eardrum is performed with an otoscope (or ear light) to determine if any blockages or abnormalities exist in the outer ear that could contribute to hearing loss. Any conditions identified, such as earwax build-up or perforation of the eardrum, are noted and the appropriate medical referrals are made if necessary.

Audiogram

The amount of hearing in each ear is measured in a quiet environment such as a quiet room or sound treated test booth. A series of tones of different frequencies (or pitches) as well as speech signals are presented to each ear through earphones. The tones used during the hearing test are those that are most critical for understanding speech. You'll be asked to respond to the test signals either by a hand raise, pushing a button, or in the case of speech signals, repeating what was heard. The lowest level you can hear each signal at least half the time is called your threshold. The thresholds for each ear are plotted on a chart called an audiogram.

Other tests

Further tests may be conducted during the hearing evaluation. Your ability to understand words or sentences at different levels may be assessed; tympanometry, or testing of middle ear function may be conducted; and tests that assess the auditory system from the inner ear to the brain may be performed.

Diagnosis and Evaluation

Your Audiogram

The outcome of the comprehensive hearing evaluation is a chart of your hearing called an audiogram. Your audiogram is a record of the softest sounds you heard during your hearing test (at least half the time, otherwise known as your thresholds) in each ear.

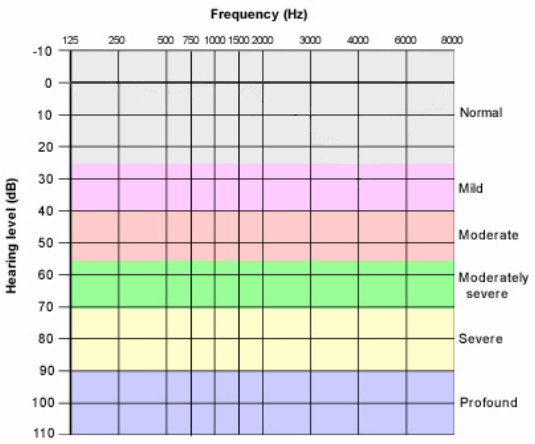
Loudness is measured in decibels hearing level and is abbreviated as dB HL. It is represented on the vertical axis of the audiogram, from approximately 0 dB HL (very soft) to 120 dB HL (very loud).

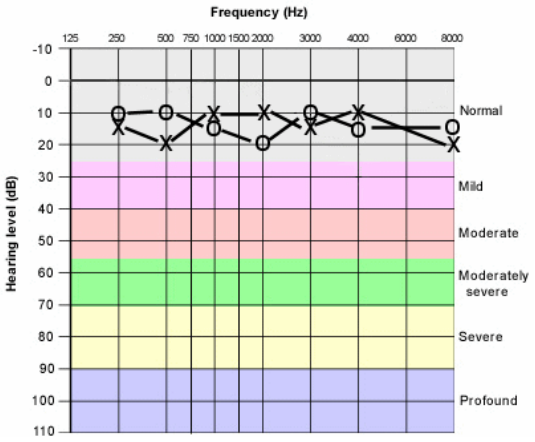
Frequency or pitch is measured in Hertz and abbreviated as Hz. It is represented on the horizontal axis of the audiogram, from 125 Hz (very low pitch) to 8000 Hz (very high pitch).

When testing with earphones (referred to as air conduction testing), the right ear thresholds are recorded on the audiogram as O or △ and the left ear thresholds are represented by X or □.

The audiogram to the right has thresholds for the right and left ears recorded. In this audiogram, the thresholds fall within the normal hearing range (-10 dB HL to 25 dB HL).

Bone conduction testing determines whether a hearing loss is conductive, mixed or sensorineural. A headband is placed over the head with a vibrating piece or oscillator resting behind the ear. During bone conduction testing, tones are presented through the oscillator and thresholds are recorded. Bone conduction thresholds are recorded using > and < symbols on the audiogram. They may also appear as] or [.





Diagnosis and Evaluation (cont)

Degree Of Hearing Loss

Hearing and hearing loss can be quantified based on the audiometric thresholds. The American Speech, Language and Hearing Association (www.asha.org) has established the following standard for diagnosing the degree of hearing loss:

Mild Hearing Loss

Thresholds in the 26 dB–40 dB range. People with a mild hearing loss have difficulty hearing and understanding soft sounds and soft speech. Hearing aids are recommended when mild hearing loss cannot be medically treated. A wide range of styles, including some that are nearly invisible when worn, is available. New, open ear hearing aid models offer benefits for people with mild and moderate high frequency hearing loss.

Moderate Hearing Loss

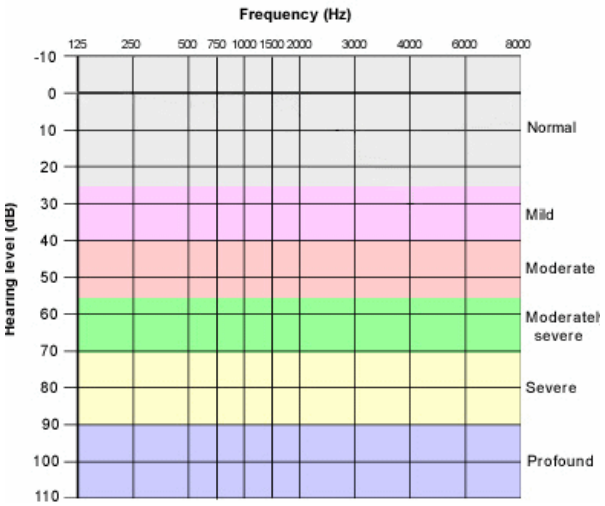
Thresholds in the 41 dB–70 dB range. With a moderate loss, conversations can be difficult to follow, especially in noisy environments. People with moderate hearing loss often perceive that other people are mumbling, because their hearing loss prevents them from hearing speech clearly. Even in quiet environments, people with moderate hearing loss find it hard to have a conversation in a group of people, or if the person speaking has their back turned or has a soft voice. They may often rely on visual cues or lipreading to help fill in what they don't hear, without even realizing it. Hearing aids are recommended for moderate hearing loss that cannot be medically treated. A wide range of styles is available.

Severe Hearing Loss

Thresholds in the 71 dB–90 dB range. People with severe hearing loss cannot hear soft or moderate sounds, birds singing, or conversational speech. They require the person speaking to them to use a very loud voice in order to hear speech at all. In addition, when volume is increased, words or sounds may sound unclear and distorted.

Profound Hearing Loss

Thresholds greater than 90 dB. Profound hearing loss is sometimes referred to as "deafness". People with profound hearing loss can typically only hear very loud environmental sounds. In almost all cases of severe and profound hearing loss, hearing aids or cochlear implants are recommended.



Diagnosis and Evaluation (cont)

Type Of Hearing Loss

The type of hearing loss – conductive, sensorineural, or mixed – can be determined by comparing air and bone conduction thresholds. A sensorineural hearing loss exists when both air and bone conduction thresholds are essentially equal, and are outside the normal hearing range. A conductive hearing loss exists when bone conduction thresholds are within the normal range, and air conduction thresholds are not. A mixed loss exists when both air and bone conduction thresholds are outside the normal range, and air conduction thresholds are significantly worse than bone conduction thresholds.

I Can Hear, I Just Can't Understand

This is one of the most common symptoms of hearing loss. But why? In most cases of hearing loss, there tends to be greater degree of hearing loss for high frequencies than for low frequencies. This results in persons being able to hear the low-frequency vowel sounds, but unable to hear the high-frequency consonant sounds. Consonants carry important information for speech understanding. Here is a visual example. Imagine reading your newspaper and someone has cut out almost all the consonants from the news stories! You can see the paper, but you can't read it. The same happens with hearing loss, you can hear someone talking, but you can't understand them clearly.

Recommendations

Following your comprehensive hearing evaluation, recommendations may be made for further testing, medical referral, and/or treatment, depending on the outcome of your testing. Any questions or concerns you (or your loved one) have are addressed. In addition, you may be given more information regarding your specific needs - whether it's how to protect your hearing if you're exposed to noise on a regular basis, or strategies for improved understanding in difficult listening environments. You'll be referred to a physician for evaluation and treatment if an underlying medical condition is suspected, or if hearing aids are recommended, for medical clearance. In most cases of hearing loss, (including more than 95% of sensorineural hearing losses), hearing aids or cochlear implants are the treatment of choice.

Hearing Loss and Quality of Life

A study released by the National Council on Aging (NCOA) in 1999 found that untreated hearing loss was associated with other quality of life issues. Issues - such as sadness, depression, anxiety, insecurity, and irritability - that have a negative impact on our overall well-being. Not surprisingly, the study also indicated that hearing loss affects both the individuals with the loss, as well as their families. These findings were right in line with those of other smaller studies that linked untreated hearing loss to reduced social activity, diminished sense of well-being, lowered self-esteem, and an overall negative effect on quality of life.

Better Hearing Is Better Living

The NCOA study also looked at the benefits of treating hearing loss. Fortunately, treating a hearing loss was found to have a very significant positive impact on quality of life. People who treated their hearing loss with hearing aids reported improvements in their relationships, feelings about themselves, self-confidence, independence, and overall quality of life. Their families also reported similar improvements. A summary of these findings is seen in Table 1.

Improvement	% All Users	% All Family
Relationships at home	56	55
Feelings about myself	50	60
Life Overall	48	62
Mental Health	36	39
Self-confidence	39	46
Relationships w/ children, grandchildren	40	52
Willing to participate in grop activities	34	44
Sense of safety	34	37
Ability to play card/board games	31	47
Social life	34	41
Physical health	21	24
Dependence on others	22	31
Relationships at work	26	43
Ability to play sports	7	10
Sex life	8	n/a

Table 1. Percentage of users and family members reporting improvements from using hearing aids. (Table adapted from Kochkin & Rogin, 2000).

Hearing Loss and Quality of Life (cont)

The NCOA's (1999) findings confirmed what professionals who treat hearing loss have known for decades, and what people who have treated their hearing loss have learned from personal experience. Simply, that treating a hearing loss means much more than better hearing. It means a better life for the people with hearing loss, as well as for their friends and families. This benchmark study and its conclusions are still relevant today.

More good news: *A 2005 Marketrak survey of more than 1500 people who wear hearing aids found that 90% were satisfied with the benefit of newer models, and over 90% were satisfied with their service provider (Kochkin, 2005a).*

Hearing Aids

The Good News - Hearing Aids

Today, hearing aids are smaller, more comfortable, and more effective than ever before, which explains why satisfaction with newer hearing aids is at an all-time high of 90%. Almost all hearing aids today are digital microcomputers that can automatically adjust to ensure sounds are both audible and comfortable. And there's a whole host of twenty-first century features available that make them easy – and even fun – to use. Features such as voice alerts to tell you that it's time for a check-up, and self-learning technology that actually learns and adapts to your hearing preferences. Even basic models today are light years ahead of the most advanced models of just a few years ago. There are usually several style and technology options for each person. Which hearing aids are best for you depend on your audiogram, the types of settings where you have difficulty hearing, your preferences for various styles, your previous experience (if any) you've had with hearing aids, and your expectations. Demonstration models may help you see what hearing aids will look like on your ears, and in some cases, you may be able to try them in the office to get an idea of what they'll sound like. Read Chapter 2 on Hearing Aids for more details.

Oticon Agil

Set yourself free. Don't let hearing loss hold you captive
Image courtesy of Oticon US.

Use It or Lose It

Research shows that the "use it or lose it" principle may apply to our ears as well. Delaying amplification use, which essentially deprives the ear(s) of auditory stimuli at normal levels, can lead to a degradation of word recognition (Silman, Silverman, Emmer & Gelfand, 1992).

In other words, an ear that hasn't been stimulated due to untreated hearing loss loses some of its ability to understand. Fortunately, this same research indicates that this degradation may be reversible in some cases with hearing aids, demonstrating yet again the positive effects of amplification.

Don't Wait!

Since the negative affects of untreated hearing loss are well-documented, the benefits of seeking treatment are proven, and amplification not only helps you hear better but also improves the quality of your life – why wait? As with most health conditions, earlier diagnosis and treatment of hearing loss leads to the most successful outcomes. If you suspect that you or a loved one may have hearing loss, don't wait. A comprehensive hearing evaluation is recommended whenever a hearing loss is suspected.

Hearing loss can be very frustrating. If you are reading this book, you have already decided to Get HAPPY™ and filled out a comprehensive hearing profile at www.healthyhearing.com. We encourage you to review all of this information (including a list of hearing health professionals in your area) and strongly recommend that you share it with your physician, an audiologist or a hearing instrument specialist in your area (or a cochlear implant center, for cochlear implant information). A local professional is the best source of information and is the key to a successful outcome.

If you think that you may have a hearing loss, be sure to read the rest of this guide regarding Hearing Aids (Chapter 2) and Cochlear Implants (Chapter 3). If you have a loved one who may have a hearing problem, be sure to read about Helping A Loved One with Hearing Loss (Chapter 4).

Chapter 2

A Guide to Hearing Aids

Introduction

What comes to mind when you hear these words:

'Cool', 'High tech', 'Sleek', 'Stylish' and 'Hip'?

How About Hearing Aids?

Today, hearing aids are smaller, more comfortable, and most importantly - more effective - than ever before, which explains why satisfaction with new hearing aids is at an all-time high of 90%. Hearing aids today are digital microcomputers that can automatically adjust to ensure sounds are audible and comfortable. And with a whole host of twenty-first century features, they're easy – and even fun – to use. Even basic models today are light years ahead of the most advanced models of just a few years ago.

That's great news, because in over 90% of cases of hearing loss, hearing aids are recommended. In fact, for most hearing loss, hearing aids are the only treatment. And research has proven that hearing aids not only help you hear better but can actually improve the quality of your life.

It's no wonder today that Boomers, Gen Xers, teens – as well as seniors – with hearing loss now include hearing aids among their collection of must-have tech accessories.

Hearing Aid Basics

What's A Hearing Aid?

Hearing aids are miniature electronic devices that sit in or on the ear, and selectively amplify and process sounds. All hearing aids contain one or more microphones to pick up sound, an amplifier that amplifies and processes sound, a receiver or speaker that sends the signal from the amplifier into your ear, and a battery, or power source. All these components are packaged into various styles to fit people's cosmetic needs and power requirements.

Image courtesy of Oticom US.

Sound Processing

Hearing aids today are digital, meaning incoming signals are converted into a series of numbers, which is then processed using mathematical equations. Digital processing enables very complex manipulation of signals, for example, to separate speech from noise. Many hearing aids today have more processing power than your desktop computer – gone are the days when hearing aids were mere amplifiers. Complex algorithms separate sound into different frequency regions and amplify each region selectively, depending on the wearer's prescription. Algorithms also enable different amounts of amplification for soft, moderate, and loud sounds, so sounds are audible, but loud sounds are not uncomfortable or over amplified. And, digital processing ensures a precise replication of the original signal with minimal distortion, resulting in excellent sound quality for even the most discriminating audiophiles.

Programmable Adjustment

Hearing aids today are programmable, meaning the amplification can be precisely fine tuned and the special features can be adjusted for each wearer, using special hearing aid software on a PC. Hearing aids are customized for both the hearing loss and the preferences of the person who wears them.

Styles

Hearing aids are available in more styles and sizes than ever before; thanks to miniaturization of electronics and a new focus in the hearing industry on style and design. Now, more and more people can wear tiny, nearly invisible models, or sleek styles that are much less conspicuous than the latest Bluetooth headsets.

Image courtesy of Oticom US.

In-the-Ear Styles

Hearing aids worn in the ear are usually custom-fit, based on a cast or impression of the ear. They're available in different skin tones to camouflage with the outer ear. There are several styles – each is listed below, ranging from smallest to largest.

Completely-In-The-Canal (CIC)

The smallest custom style, CIC instruments fit deeply and entirely within the ear canal. They fit mild to moderate hearing losses and offer high cosmetic appeal as they're nearly invisible when worn.

In-The-Canal (ITC)

ITC instruments sit in the lower portion of the outer ear bowl, making them comfortable and easy to use. Because they're slightly larger than CIC and MC models, they have a longer battery life, and can host additional features such as directional microphones for better understanding in noisy environments, and controls such as volume controls. They fit mild and moderate hearing losses.

Low Profile

Low Profile instruments range from half shell designs which fill half the bowl of the outer ear to low profile in-the-ear (ITE) designs which fill in most of the outer ear bowl. Like ITC models, low profile designs enable the addition of features such as directional microphones, volume controls and push buttons to activate special settings for different listening environments. Because of their slighly larger size, they may be easier than smaller models to handle for some people. This hearing aid style looks similar to the ITC hearing aid when worn on the ear, but is slightly larger.

Images Courtesy of Oticon US

Behind-the-Ear Styles

Behind-the-Ear (BTE) models sit behind or on top of the outer ear, with tubing that routes sounds down into the ear that connects to an ear tip or ear mold to secure them in the ear canal. BTEs come in colors to blend with hair or skin tones, and even chrome colors, leopard print and other funky designs to suit personal styles. Different BTE sizes accommodate different features, controls, battery types and degrees of power (larger instruments generally have more power than smaller ones). While many people choose discreet BTEs that are unnoticeable when worn, others are tempted to show off the cool designs!

Mini BTE With Slim Tube And Tip

Mini BTEs are designed to hide behind the outer ear, and have ultra-thin tubing to discreetly route sound into the ear. The tubing connects to a soft tip that sits in the ear canal but doesn't occlude it. The result is a natural, open feeling as airflow and sound enter the ear naturally around the tip, while amplified sound enters through the tip. This is known as "open fitting" and is recommended for mild to moderate high frequency losses.

Receiver In The Ear (RITE)

RITE models, also known as RIC (receiver-in-canal) models, are mini BTEs that have the speaker of the instrument incorporated in the ear tip, instead of in the main body of the instrument. RITE instruments fit mild to severe hearing losses.

BTE With Earmold

BTEs with earmolds fit mild through profound hearing losses. They're longer shape, following the contour behind the outer ear, generally can house more features, controls, and power than custom models. The earmold color and style, as well as the wearer's hairstyle, determine exactly how they'll look on each person.

Images Courtesy of Oticon US

Technology

A broad range of digital technology and a whole host of features are available in each hearing aid style. The cost of hearing aids generally depends on the type of technology and the number of features the instrument has, and not necessarily on the style selected.

Basic Technology

Basic digital hearing aids generally require the wearer to make some manual adjustments in certain listening situations – such as turning a volume control up or down, or pushing a button on the aids in order to reduce noise coming from behind. The processor may separate incoming signals into two or more channels and process each channel separately. For example, a basic two-channel instrument may give more amplification for high frequency v. low frequency sounds if required based on the hearing test results. By contrast, advanced technology hearing aids may have 16 channels or more, and therefore offer a higher resolution of signal processing. Basic hearing aids may be computer programmable, but may have fewer or more limited adjustments available for digital finetuning and customization as compared to advanced technology. Today's basic hearing aids offer the benefits of better hearing to many people with hearing loss.

Advanced Technology

In addition to basic hearing aid technology, each major hearing aid manufacturer offers several levels of **advanced digital technology.** As the level of technology increases, hearing instruments become more automatic, and are equipped with more sophisticated features for people who regularly encounter dynamic listening situations.

Technology (cont)

Advanced Features

A sampling of current features available in today's hearing aids (not an exhaustive list!) has been provided in the table below. The number and type of features in an instrument determine the level of technology, with advanced instruments having a greater number of, and more sophisticated features.

Directional Microphone Systems - Gives preference to sounds coming from the front of the wearer, and reduces sound coming from other directions. Proven to improve speech understanding in background noise, when the wearer can position himself/herself to face the person speaking, with his/her back to the noise, such as parties, restaurants, etc. Basic systems may require the wearer to push a button to activate. Advanced systems work automatically and can reduce multiple moving noises simultaneously. Satisfaction is higher for hearing aids with directional microphone systems, than for hearing aids without (Kochkin, 2002).

Digital Noise Reduction (DNR) - Determines if signal contains unwanted noise and reduces level of noise if present. The background noise is less annoying and listening comfort is increased. Research supports the use of DNR when it comes to wearer preference and effectiveness (Burton, Smaka, Powers, 2006).

Impulse Noise Reduction - Smooths quick impulse noises such car keys rattling, typing on a keyboard, and dishes rattling. Designed to improve listening comfort.

Wind Noise Reduction - Reduces the whooshing noise of wind blowing across the hearing aid microphone(s). Designed to improve listening comfort for people who spend time outdoors - golfers, boaters, walkers, etc.

Feedback Management - Reduces or eliminates whistling that can sometimes occur. Designed to improve comfort from annoying whistling. Basic feedback systems may cut amplification in attempt to get rid of whistling. Advanced systems reduce or eliminate it electronically, with no or little effect on the overall hearing aid amplification.

Telecoil / Autotelecoil - Picks up signal from a compatible telephone. Wearers can listen to telephone without feedback (whistling). Standard telecoil requires wearer to activate with a switch or button; autotelecoils activate automatically. Telecoils may also be used in public facilities utilizing a "loop" amplification system and with other assistive listening devices.

Bluetooth Interface - Enables hearing aids to wirelessly connect to cell phone or other Bluetooth devices. Designed for better use with cell phones without distortion or interference; enables audio streaming from other devices such as MP3 players, computers, etc.

Data Logging - Stores data in the hearing aids about the listening environments and adjustments made while worn. Data can be viewed by hearing care professional and used for more precise and objective fine tuning.

Learning / Training - Hearing aids learn based on changes made by the wearer, such as to the volume, and then automatically make these changes. More precise personalization of the instruments for a more accurate, individual fitting.

Technology (cont)

Technology In Action

What are the real-world benefits of all these features? Imagine you're in a typical busy restaurant, having dinner with friends. Sounds are coming at you from all directions – dishes clanging, people at other tables talking and laughing, waiters rushing about. You're wearing your advanced hearing aids, and listening to your friend across the table tell a joke. Your hearing aids are simultaneously reducing impulse noises like silverware clacking on a plate (feature = Impulse Noise Reduction), reducing the whir of the ventilation system overhead (feature = DNR), suppressing the voices of the people at the tables behind you (feature = Directional Microphone System), and storing information about the listening environment to be saved for later fine tuning (feature = Data logging). They're doing all this automatically while amplifying your friend's voice, while you relax and enjoy the punch line. These are just a few of the possibilities with today's hearing aid technology.

Selection

Which Hearing Aids Are Right For Me?

The right hearing aids for you depend on your hearing test results, your lifestyle, your expectations, personal preferences, and previous experience with hearing aids, if any. There is often more than one option at different price points for each person. Note that your Healthy Hearing HAPPY™ profile has some of this information and you should share it with your hearing care professional as a way to start the process of finding the best solution for you.

Hearing test results

The degree of your hearing loss will determine which styles may work best for you, with smaller models generally suited for less significant losses and larger styles suited for any degree of hearing loss, including severe and profound. The shape of your hearing loss may also determine the best model for you – an open-fit mini BTE fits well for gently sloping losses with normal low frequency hearing, while standard BTE models are generally recommended for steeply sloping losses.

Lifestyle

Generally, more advanced digital hearing aids are designed for people who encounter many different listening situations with varying degrees of background noise. Advanced hearing aids that offer the most advanced and automated features are designed for people who want the best possible performance in many different listening environments, and prefer not to have to adjust their instruments throughout the day. For sedentary people who are mostly at home with little background noise, basic models may be recommended.

Preferences

Do you want hearing aids that are nearly invisible, or are you not so concerned about how they look? Do you prefer to have control over the volume and setting of your aids, or would you prefer automated models with "hands free" operation? Do you prefer a small model that may require more frequent battery changes, or would you prefer a larger style will less frequent battery changes? These are just a few things to consider when it comes to personal preferences.

Previous experience

If you loved your last pair of hearing aids think about what you loved - was it the style, the sound quality, the convenience? Where would you want improvements with new hearing aids? Asking yourself these types of questions will help determine what you need in new instruments to give you the same level of, or even greater, satisfaction.

Cost

The cost of hearing aids has actually decreased relatively over time, when compared to the rate of inflation. Today, hearing aids range from approximately $1,000 to $4,000 each, depending on the technology selected.

Several factors contribute to the cost of hearing aids, including: research and development costs; customization of each device to fit the needs of the wearer; manufacturing costs; and time spent with the professional who fits and services the instruments.

Averaged over the lifetime of the instruments (3 – 5 years or more), the cost per day of a pair of highly featured, advanced instruments is about $3 – less than a large latte at your favorite java joint. And hearing aids are proven to not only help you hear better, but to actually improve the quality of life for people with hearing loss and their families.

Your provider may offer payment plans. There are also funding options available from a variety of sources for people who qualify. As a part of the Healthy Hearing HAPPY™ you were provided with The Guide to Funding for Hearing Aids and Cochlear Implants. This is one of the most comprehensive resources of its kind and is a great way to begin researching your options as well as to start a discussion with your provider.

Why Two?

If two aids are recommended, don't settle for one. Results of more than fifty years of research in acoustics and the auditory system have proven clear advantages of wearing two instruments, and serious disadvantages of wearing one when two are needed. All animals with ears have two of them, because the auditory system is wired to use input from both ears.

Some of the benefits of using two hearing aids include:

Better localization ability
The ability to tell where sounds are coming from requires equal input from both ears.

Better hearing in noise
Two hearing aids are needed to focus on sounds you want to hear, and squelch unwanted sounds like background noise.

Better sound quality ("stereo" v. "mono")

Better hearing for soft sounds

More relaxed listening
With two hearing aids, you won't be "straining to hear". With only one aid trying to do the job of two ears, you're likely to get fatigued.

Balance
You won't have to turn your "good ear" toward what you want to listen to.

Higher satisfaction with hearing aids!
Studies show that people who wear two are more satisfied with their hearing aids than people who wear one.

Research shows that children with normal hearing in one ear and total hearing loss in the other, are ten times more likely to repeat a grade in school, indicating yet again that two ears (or two hearing aids) are required for optimal hearing. There's also research that indicates that delaying amplification use, such as not wearing a hearing aid when it's needed, can lead to a degradation of word understanding in that ear.

Because of all these known advantages, most people being fit with hearing aids today choose to wear them in both ears.

What to Expect

Knowing what to expect from hearing aids can ensure your maximum satisfaction with them.

>> With hearing aids, you should be able to hear many sounds that you can't hear without them. You should notice improved hearing in many situations important to you.

>> Hearing aids help many people hear better, but they don't restore normal hearing.

>> Hearing aids should always be comfortable. Re-fitting may be needed, at times, to get a perfect fit.

>> Hearing aids won't allow you to hear everything in every situation. Even people with normal hearing miss things at times!

>> Hearing loss occurs gradually. Learning to hear sounds again with hearing aids is also a gradual process.

>> At first, sounds may seem unnatural. As the brain adjusts to hearing again, over time, things will sound more natural.

>> The adjustment period usually lasts a few weeks, and can take up to a few months.

>> Part of the fitting process is fine tuning your instruments to your particular hearing needs. This usually happens over several sessions, after you've had opportunities to wear the aids in different environments and provide feedback to your provider about your experiences.

Common Questions

Are hearing aids easy to care for?

Yes! They need to be kept dry, and put in a safe place when you're not wearing them (i.e. – while sleeping) – that's about it! While most are water resistant, none are yet fully waterproof, so you'll want to avoid showering or swimming with them. When they're not in your ears, keep them somewhere safe so they won't get misplaced, lost or carried off by the dog. No special cleaning is required other than wiping them with a dry cloth, or using a tool from your professional to brush earwax off them from time to time.

How often do I need to change batteries?

Larger models with larger batteries may go 30 days between changes while smaller models may require batteries be changed every 5 – 7 days. Many hearing aids will indicate the need for a battery change by emitting a soft signal in your ear. A few models even run on rechargeable batteries and include a convenient charger. Hearing aid batteries are inexpensive – costing approximately one dollar each.

Do hearing aids include a warranty?

Yes! New hearing aids come with a manufacturer's warranty that usually includes repair and a one time loss replacement (a deductible for loss usually applies). The length of the warranty varies. Your audiologist or hearing instrument specialist can provide you with the details of the warranty and services provided with your instruments.

Can I try before I buy?

Styles requiring a custom fit or a custom ear mold can't be effectively demonstrated without having them manufactured for your ear. Additionally, since new technology emerges at a rapid pace, keeping a large inventory of many makes and models for demonstration isn't practical for most providers. To ensure your satisfaction with hearing aids, most states require a cancellation period - a specified time period within which you can return the hearing aids for a refund (usually a fee applies for the professional's services). But remember - returned hearing aids can't help you hear better, so give yourself every opportunity to succeed with your aids by working closely with your professional for follow-up and fine-tuning and ensure your satisfaction.

Can you provide me a list of the leading hearing aid companies?

Visit our web site at www.healthyhearing.com and select the tab titled, "Hearing Aid and Cochlear Implant Companies. You will see a list there and be able to research each company and even request additional information from them.

Getting Hearing Aids

The first step to better hearing is a comprehensive hearing evaluation with a professional who specializes in hearing aids and amplification. If a hearing loss is diagnosed, recommendations will be made for treatment. For most hearing loss, including nearly 95% of sensorineural hearing loss, hearing aids are the recommended course of treatment. You'll be referred to a physician for medical treatment, if indicated, or for medical clearance for hearing aids to begin the process. A comprehensive hearing evaluation is a safe, painless, and inexpensive test that measures the level of hearing in each ear and helps determine the course of treatment.

Hearing loss can be very frustrating. If you are reading this book, you have already decided to Get HAPPY™ and filled out a hearing profile at www.healthyhearing.com. This has allowed us to send you this personalized information package, including a listing of hearing care professionals in your area. Take the next steps and get your hearing evaluated as soon as possible. We encourage you to review all of this information and strongly recommend that you share it with your physician, an audiologist or a hearing instrument specialist in your area (or a cochlear implant center, for cochlear implant information). A local professional is your best source of information and is the key to a successful outcome.

Personal Quotes

Our web site at www.healthyhearing.com contains many stories from successful hearing aid wearers. We wanted to share with you a few quotes from them:

"The best feature is the automatic function is enabled when talking on a telephone that is hearing aid compatible. You can hear the feature turn on. After using the telephone, the hearing aid goes back to normal mode. I can activate this feature manually if needed on some telephones."

"I have been wearing hearing aids for over 20 years, and my hearing has improved unbelievably with these new instruments! I am very pleased at how well I am hearing sounds that I haven't heard very well before."

"I tell people not to wait until your hearing loss becomes a problem. From my experience, I know that if you're saying you're "borderline" – you are already having a problem hearing. You may not be missing out on television or music where you can compensate by turning up the volume. But you can't turn up conversation."

"I am hearing things I haven't heard in years. Listening to the birds chirping is wonderful, something I didn't realize I was missing. Conversation with family and friends isn't as difficult with the hearing aids as it has been in the past. No more lip reading!"

"Family and friends comment on the way they look. They seem to like them. I like the idea of being able to pick the color you want."

"I notice a difference and my colleagues notice a difference. We have an executive meeting in a solarium type room that doesn't have good acoustics. There's a slate floor and sounds are just bouncing all over the place. It was very difficult to hear discussions. If you asked my colleagues what they've notices since I've had my new hearing aids, they would tell you that they have a much reduced degree of repeating themselves!

After so many years of hearing loss, I automatically lip read. Now even when I'm in situations where I'm not looking at someone, I can hear what they are saying. I can also hear people who are speaking behind me."

"My audiologist asked me what it was like to wear a hearing aid. I told her it was like having a beautiful painting hanging over my sofa. It hangs there for years, looking fine, and as the owner of the painting, I was content with it. Then, one day, I saw the same painting hanging in a gallery. The painting in the gallery was the same as mine, except the color yellow had been added. Suddenly -- the painting in the gallery looked so beautiful with yellow in it, that I was disappointed when I went home and looked at my own painting without the yellow."

Please note: Everyone's experience with hearing aids is different. Help others and share your experiences with us at HealthyHearing.com.

CHAPTER 3

Helping a Loved One

Introduction

Hearing loss can significantly compromise quality of life. Studies show that untreated hearing loss is associated with depression, anxiety, lowered self-esteem, irritability and other issues that affect our ability to live life to the fullest. Hearing loss affects both the individuals with the loss, as well as their families.

If you know someone with untreated hearing loss (and chances are you do given the prevalence of hearing loss), you know its negative effects firsthand. The good news is that new and more effective treatments for hearing loss are now available, thanks to advances in health care and medicine. Treating hearing loss has been proven to have very positive effects on quality of life. Yet, in many cases hearing loss remains untreated – either due to denial, misinformation or a lack of knowledge about available solutions and how to benefit from them. Loved ones play a critical role in ensuring that people with hearing loss seek and benefit from the remarkable advancements in hearing loss treatment. The payoff is much more than better hearing - it's a better life for those with hearing loss and their families.

Symptoms of Hearing Loss

Could It Be A Hearing Problem?

Hearing loss manifests in many different ways. With mild hearing loss and high frequency hearing loss, the only symptom may be subtle difficulty with word understanding, especially in situations where there is competing noise. Certain voices or conversations may sound garbled, as if others are mumbling. With severe and profound hearing losses, most conversational speech is inaudible and even loud safety signals may not be heard. With some hearing loss, the overall volume of all sounds is reduced. The television and radio are played at louder than normal volume levels, and hearing on the telephone is difficult. Some people with hearing loss also experience a distortion of sound, especially speech. Music may also sound distorted, even when the overall volume of the music is comfortable, leading to a decreased enjoyment of music.

Other symptoms of hearing loss may include asking people to repeat what they say, perception of people mumbling or not speaking clearly, and difficulty hearing when the person speaking is at a distance. In general, in situations where there is background noise – such as in restaurants, family gatherings, parties, etc. - hearing is much more difficult for people with hearing loss.

The impact that hearing loss has on everyday activities is determined by one's lifestyle and belief system. Even mild degrees of hearing loss can have a significant impact on people's lives.

The Nature Of Hearing Loss

Why is it that people with hearing loss may seem to hear everything at times, while at other times they have difficulty? To loved ones, it may seem that the person with hearing loss "hears when he wants to". This is usually because hearing loss acts like a filter, filtering out some sounds more than others. Often high frequency (or high pitch) sounds such as consonants are more affected than low frequency sounds. So, a person with a high frequency hearing loss hears some – but not all – speech sounds. They hear an incomplete version of what was said, as if some of the consonants are missing or distorted. At times, it may be easy to predict or guess to fill in the gaps when they don't hear all the information, based on knowledge of the speaker, the context, and the topic of conversation. If the speaker's face is visible, our natural lipreading ability also makes it easier to understand what is said. At times like these, the person with hearing loss appears to "hear" everything. At other times, particularly in situations with background noise, when the person speaking is turned away or is at a distance, or when the topic of conversation is unfamiliar or changes rapidly – the person with hearing loss may miss much or all of what was said.

Obstacles

Seeking Treatment

Untreated hearing loss negatively affects quality of life. New, effective solutions for hearing loss are available. Treating a hearing loss has been associated with improvements in self-confidence, relationships, social life, and physical and mental health (Kochkin & Rogin, 2000). So why do less than half of all people who need hearing aids have them? The answer to this question can be useful in understanding how to help a loved one with hearing loss.

Obstacles

A recent study investigated why people who need hearing aids don't get them (Kochkin, 2007). Among the top reasons were those related to the hearing loss – "hearing loss not severe enough" or "loss too mild". These reasons were surprising given that many of the people surveyed reported significant hearing loss and difficulties with communication due to their hearing loss. Other top reasons indicated a lack of need – "I hear well in most situations" or "Hearing loss is not disruptive to my life" – even with people who reported very significant hearing losses. Yet other top reasons can be categorized into financial issues ("can't afford"); negative attitudes about hearing aids (they're a "hassle"); and lack of knowledge about hearing loss and hearing aids.

Can loved ones influence these obstacles? Absolutely. Hearing loss directly affects one's family and social network, and treatment benefits the entire family as well. Loved ones can help motivate people with hearing loss to get the help they need. In fact, this same study looked at people with an intent to purchase hearing aids, and what influenced that decision. "Family recommendation or pressure" was cited as one of the top motivating factors, with 62% of those surveyed indicating that this was a driver in their decision. With support, patience and information you can motivate your loved one to seek treatment.

For adults with hearing loss, the first step in seeking treatment is recognizing the hearing problem. Hearing loss has been called an "invisible" health condition as there are no outward physical signs associated with it. It usually occurs gradually, and may be noticed by close friends and family members before it's noticed by the person who's affected. With a hearing loss, you don't always know what you missed, because you didn't hear it. Sometimes, things may sound loud enough, but not be clear. For the person with hearing loss, this can lead to the perception that he's hearing fine, if other people would just stop mumbling.

Obstacles (cont.)

In addition to not noticing the hearing loss, denial can also occur. Denial can take the form of denying the loss altogether, or understating its impact. In some cases, statements such as "I hear well in most situations" or "Hearing loss is not disruptive to my life" may be a minimization of the effect of hearing loss.

Denial is a common reaction to stress (Mayo Clinic, 2007). It can help allay fear and frustration for people with hearing loss, while they get the information needed to find productive solutions.

Whether your loved one doesn't notice the hearing loss or denies it, patience is key. Give your loved one the opportunity to obtain objective data (such as a comprehensive hearing evaluation) in a supportive environment.

Provide examples of friends who've been successful with amplification. If your loved one minimizes the impact of the hearing loss, share with him or her how the loss affects you and others close to you both. It may take some time, but with patience and support, you can help your loved one as he or she comes to term with the loss and takes the first steps toward treatment.

Do's and Don'ts

Do's and Don'ts – When your loved one has hearing loss

Do... accompany your loved one to appointments and visits to professionals. You can provide valuable information to assist in the diagnosis and treatment of the hearing loss, as well as invaluable emotional support to your loved one.

Do... speak openly to your loved one about how the hearing loss affects you and your family. Speak compassionately, not when angry or frustrated, and you'll get a better response.

Do... ask others to help you help your loved one. Your children, close friends and family doctor can help you motivate him or her to seek treatment.

Do... obtain information on financial assistance for hearing loss treatment. Financial concerns may dissuade a loved one from getting needed help. Healthy Hearing's 2008 Guide to Funding for Hearing Aids and Cochlear Implants provides the most comprehensive and up to date information available.

Do... set an example. Have your hearing tested on a regular basis.

Do... get information on hearing solutions. Many people with untreated hearing loss report a lack of knowledge about available solutions.

Do... speak with others who've treated their hearing loss with a positive outcome. Share this information with your loved one.

Do... practice good communication techniques. Remember communication is a two-way street, and you need to do your part.

Do's and Don'ts (cont.)

Don't... threaten or use guilt to persuade your loved one to seek treatment. Confrontation can lead to feelings of defensiveness and resentment, and can be a roadblock to seeking treatment.

Don't... interpret for your loved one when he or she is having difficulty hearing or understanding. This enabling behavior gives your loved one another reason to delay or avoid seeking a solution.

Don't... purchase hearing aids on the Internet and/or without seeing a hearing professional. Offers that promise "super hearing" and other schemes that seem too good to be true usually are. A negative experience with an unregulated device can lead to a rejection of trying a customized, individual solution that would have worked.

Don't... withdraw from social situations due to your loved one's hearing loss or you'll end up feeling resentful. Encourage your loved one to seek treatment so that you both can enjoy social activities together once again.

Don't... lose hope. Research shows that "family recommendation or pressure" is a top factor in influencing the decision to purchase hearing aids. With support, patience and information you can motivate your loved one to seek treatment.

Tips for Better Communication

Practicing good communication techniques can improve conversations and reduce the frustration that hearing difficulty can create. It may take some time to change old habits, but a better relationship is well worth the effort! Remember, communication is a two-way street.

Reduce background noise. It's always harder to hear and understand when competing noises are present, especially when there's a hearing loss. Whenever possible, turn off the tv or radio and minimize background noise when you're having a conversation. This may mean moving to a quieter area of the house or changing tables at a restaurant.

Face your loved one when you're speaking. It's always easier to understand when you can see the speaker's face, especially if you have a hearing loss. We all have some natural lip reading ability, even if we've never had formal training. Refrain from trying to have conversations when you can't see one another – such as from different rooms of the house, when one person's back is turned, or from the front to back seats of the car.

Turn on the light. We can maximize our natural lip reading ability when the speaker's face is fully visible. Dim lighting makes it difficult to see not only lip movements, but also facial expressions and gestures that can also aid in understanding the speaker's message. Beware of back lighting that can obscure a speaker's features.

Pay attention to seating. Sit close to one another when having a conversation. Distance greatly diminishes the volume and clarity of sound. Sitting across from one another is sometimes preferable to sitting next to one another, so you can get full view of the other person, and your voice is directed equally to both ears.

Rephrase rather than repeat. Some sounds and words are more difficult to hear depending on your loved one's hearing loss. If your loved one asks you to repeat something, consider saying it in a different way.

Speak at a normal volume. Shouting distorts sounds and words so that they are less likely to be understood, and you'll likely get fatigued and frustrated by the extra vocal effort. Speak at a normal volume level, but slow the pace slightly if your loved one has difficulty understanding what you're saying.

Take turns. In group conversations, encourage people to speak one at a time. When more than one person is speaking at the same time, speech becomes background noise that can be difficult to distinguish for people with hearing loss.

Get Help Now

Don't wait! Family and loved ones can be the primary driver in motivating people with hearing loss to seek help. As with most health conditions, earlier diagnosis and treatment of hearing loss leads to the most successful outcomes. If you suspect that your loved one may have hearing loss, don't wait. Hearing loss can be very frustrating.

Image courtesy of Oticon US

If you are reading this book, you have already decided to Get HAPPY™ and filled out a hearing profile for your significant other at www.healthyhearing.com. This has allowed us to send you this personalized information package, including a listing of hearing care professionals in your area. We encourage you to review all of this information with your significant other and strongly recommend that you encourage him or her to get a comprehensive hearing evaluation and take the next steps toward Healthy Hearing.

Thank you!

Learn More at **www.healthyhearing.com**

The most comprehensive consumer resource on hearing aids.

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