DOES YOUR PARENT NEED NEUROTECHNOLOGY™ TO TREAT THEIR HEARING LOSS?

By Dr. Keith Darrow, PhD

Intermountain™ Audiology
Hearing Clinics

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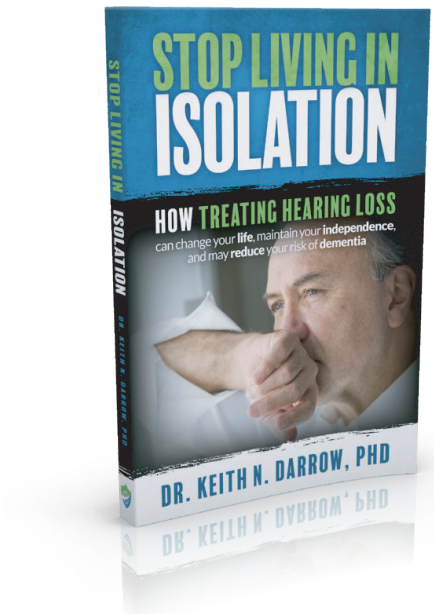

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ABOUT THIS SPECIAL REPORT

As a Neuroscientist and Clinical Audiologist, I get many questions from patients, and from their family members, who are not sure if their spouse, parent, or other family member needs to begin the process of treating their hearing loss – and if so, where do they begin?

In this special report, I want to address some of the most common concerns and questions that I get from seniors and their families about the medical treatment of hearing loss. Considering that hearing loss is the 3rd most common condition affecting today's seniors, nearly all families are impacted by it. Throughout the pages of this report, you will discover how soon we can tell if your loved one has hearing loss, requires medical treatment of their hearing loss, the importance of early treatment, why it is important to choose a specialist, and the many options available to help cover the cost of treatment, in the event your family member requires treatment.

As always, after reading this report, please feel free to contact my office with any questions or to schedule a FREE Hearing Evaluation for you and / or your loved one.

Sincerely,

Dr. Keith Darrow

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Northeastern University

Massachusetts Eye and Ear

BRIGHAM AND WOMEN'S HOSPITAL

HOW SOON CAN WE TELL IF HEARING LOSS IS AFFECTING YOUR LOVED ONE?

Many seniors want to know just how early we can tell if they have hearing loss. And many ask how they can tell if their spouse or loved ones may be suffering from hearing loss? Then, the most common follow-up question is always – if my loved one has hearing loss, how early should we begin treatment? Fortunately, with advances in diagnostic testing our comprehensive evaluation will be able to catch a patient's hearing loss at even the earliest stages **– when treatment is most important.**

The American Academy of Audiology (AAA), American Speech-Language-Hearing Association (ASHA) and American Medical Association (AMA) each consider hearing screenings at an early age, as early as 50, important for your overall health. The AMA promotes the importance of hearing screenings in older adults as 'effective treatments exist and are available for many forms of hearing loss."

I second the notions that hearing screenings are important and are the key to successful treatment of hearing loss. We recommend 50 years young as the perfect age to obtain an understanding of the status of your hearing and auditory system. Many changes occur in the brain as we age – and the impact of hearing loss on these changes can be detrimental – yet possibly reversible and avoidable if caught early. Perhaps this saying will help you remember **'Ears and Rears' – check 'em both when you turn 50!**

Even if the patient does not perceive a problem, this screening is a powerful tool to help catch **hearing disorder's early.**

Hearing loss, even at a mild stage, can be a serious problem because the research tells us that hearing loss can significantly increase the risks of developing cognitive decline, depression, social isolation and Dementia .

Starting early also allows the patient an opportunity to establish a meaningful relationship with their hearing health care specialist. Like most medical conditions, the patient-clinician relationship is a strong component for treatment success.

By bringing your loved one to a hearing health care specialist, at the age of 50, we can establish a baseline to be used to monitor and begin treatment of hearing problems as soon as they arise. At this age, seniors tend to be young, active, and healthy – and we want to keep it this way for **many** years to come. Our ability to communicate is our lifeline to our family, friends, co-workers and to our community.

Age-Related Hearing Loss is the fate of nearly all people - the only question is, 'When *will it happen to you and your loved ones?'.* Even in your 50's, there is a significant chance that you may require treatment of hearing loss. And as we continue to age, the chances only increase: nearly 50% of all seniors between 60-70 years young will experience hearing loss, almost 2/3 of people between 70-80 years young, and practically 80% of people aged 80 and higher.

IMPORTANCE OF EARLY TREATMENT

Age-Related Hearing Loss is a silent disorder that occurs gradually and slowly overtime – without most people really noticing, or accepting, that it is happening to them.

The most important factor for successful treatment outcomes of all medical conditions is: **'Catch It Early, and Treat it Early!'**. The consequences of untreated hearing loss are real and can be devastating to the patient and to the family. By addressing any hearing impairment issues early, we can help to alleviate social isolation issues, depression, and the impact on cognitive function.

An individual's hearing has a major impact on their wellbeing as they age. The medical treatment of hearing loss will help maintain a host of health benefits, including increase in brain function, reducing the increased risk of developing dementia, and overall improved physical and mental health.

> *A recent report (The Lancet, July 2017) found that early treatment of hearing loss is the* ***single most effective modifiable factor for the prevention of Dementia****.*

Unfortunately hearing loss, and it's symptoms, can be easy to overlook and go without being recognized. Here is a list of initial symptoms that people will experience in the beginning stages of Age-Related Hearing Loss.

- Difficulty Following a Conversation in Background Noise (e.g. in a restaurant)
- Tinnitus (i.e. ringing in the ears)
- Decreased Social Interaction with Others
- Increased Television Volume
- Development of Depression

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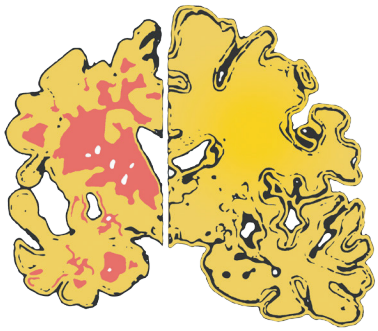
THE IMPACT OF HEARING LOSS ON YOUR BRAIN

Age-Related Hearing Loss is a progressive degenerative disorder that impacts much more than just your hearing! With Age-Related Hearing Loss there is a significant loss of the quantitative number of neurons connecting the ear and the brain, as well as a qualitative reduction in the ability of the remaining nerves to properly simulate the brain (making conversation more difficult to follow and understand). These reductions can have a significant impact on your overall cognitive function.

Hearing loss can increase the risk of developing Dementia by 200-500%. The links of hearing loss and this cognitive decline are thought to be the result of multiple factors that include:

Hearing Loss and Cerebral Atrophy (brain shrinkage):

The association of a shrinking brain, resulting from the loss of neurons, with Dementia has been long documented. Even people with MCI (Mild Cognitive Impairment) show signs of significant cerebral atrophy. In recent years, scientific studies using advanced brain imaging techniques (including fMRI – Functional Magnetic Resonance Imaging) have demonstrated that hearing impairment is associated with accelerated brain atrophy in both the overall brain, as well as even more advanced reductions in volume associated with the memory, hearing, speech and language portions of the brain.



Brain With Hearing Loss **Brain With Normal Hearing**

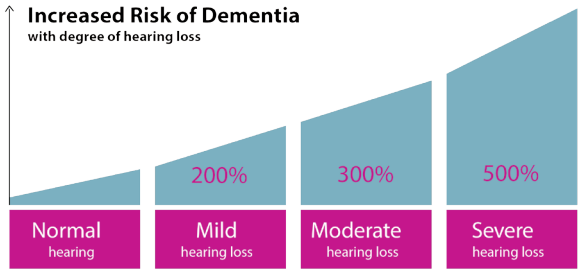
Schematic representing the potential cerebral atrophy in an individual with age-related hearing loss.

Hearing Loss and Cognitive Overload:

Hearing loss is not a normal part of aging, and neither is the excess strain that is puts on your brain. While hearing loss may be more common as we age, it is critical that hearing loss be treated. With hearing loss, the brain is constantly on 'overload' trying to fill in the missing pieces, and follow the conversation. Increased cognitive load is considered a risk factor for developing Dementia. Cognitive load, as measured by pupillometry (which tracks dilation of the eyes), is a measurement of how hard your brain is working to follow a conversation. Recent studies have found that individuals who treat their hearing loss do not work as hard to listen (i.e. have a reduced cognitive load) and have as much as a 20% increase in memory recall when following a conversation.

Hearing Loss and Social Isolation:

Withdrawal from social situations is common in individuals with hearing loss. Many studies cite feelings of embarrassment, fear of making mistakes in conversations, and feeling like you are not part of the conversation as the common rational for individuals with hearing impairment to separate themselves from family, friends and community. This retreat from social activity has even been found in individuals with a mild degree of hearing loss. In addition, individuals with hearing loss are less likely



Summary data of relationship of hearing loss and increased risk of developing dementia.

to engage in physical activity. Both increased social isolation and reduced physical activity are strong risk factors for the development of Dementia.

As you can see, hearing loss isn't just about 'having difficulty hearing others' – there is so much more that can go wrong, even at an early age. Taking yourself and your loved one to the Audiologist at 50 (or as close to it!) can give you the best head start on identifying and addressing any problems and to help ensure a healthy, active future!

BENEFITS OF EARLY TREATMENT

Many patients, and even some physicians, do not understand the medical benefits of early treatment of hearing loss. I suppose this explains why the average patient waits nearly seven years to begin the process. Unfortunately, for most of these patients, their progressive Age-Related Hearing Loss has reached the 'severe' category and treatment outcomes are significantly compromised.

It is known that hearing loss, when left untreated, can lead to emotional and social consequences, reduced job performance, and diminished quality of life. Untreated hearing loss also can interfere with cognitive abilities because so much mental effort is diverted toward understanding and following conversation. Thus, the longer the individual suffers from this **auditory deprivation**, the more difficult it is for the brain to respond to treatment and experience full stimulation and clarity.

A recent study (University of Texas El Paso, Dr. Desjardin; 2016) detailed improvements in cognitive function in individuals undergoing treatment of hearing loss. The subjects in this research, in their 50s and 60s, were found to experience significant improvement in several areas of memory shortly after beginning treatment of their hearing loss. After only two weeks of treating hearing loss, cognitive testing revealed significant increases in percent scores for recalling words in working memory and selective attention tests, and an increase in the processing speed at which participants selected the correct response was faster. By the end of the study, participants had exhibited significant improvement in their cognitive function.

Like most other health issues that can arise, being able to detect them early is the best way to address them. The only way you can detect your hearing loss early is with a comprehensive audiology examination. If you are concerned that you or your loved one has not yet seen the audiologist, now is the time!

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WHY CHOOSE A SPECIALIST?

Many people wonder why they should have their hearing evaluated by a specialist (i.e. the Audiologist), rather than just visiting with their primary care physician. While a primary care physician is a part of taking excellent care of you and your loved ones' health, it is simply not enough. Seeing the hearing care specialist is crucial to ensuring that nothing in the auditory and hearing system is overlooked and that the best possible treatments are effectively selected and carried out.

To understand why an audiologist is recommended, it is important to know what an audiologist is and what they do. Audiologists are **auditory system specialists** who have completed years of additional education beyond college to learn the proper way to diagnose and stimulate the auditory system and brain through restored hearing. This further training qualifies your audiologist to **identify**, **diagnose** and more importantly **treat** a broad spectrum of auditory concerns your family doctor may not, such as:

- Early treatment of hearing loss
- Restoring clarity of speech in quiet and noisy situations
- Decrease risk of developing cognitive decline and Dementia
- Understand hearing loss co-morbidities (i.e. other medical disorders associated with hearing loss including Diabetes, Coronary disease, kidney disease, thyroid disease, etc.) cognitive function Crowding, misplaced, or blocked-out teeth
- Advise on strategy to improve communication when on phone, watching TV or using other electronics
- Recommend proper hearing protection devices, i.e. noise protection, musician ear protection, hunting hearing devices, etc.

The nature of some of these issues grow increasingly serious with lack of proper treatment. Having a specialist identify, diagnose and treat such ailments is the # 1 reason for seeing an Audiologist.

Throughout the health community, you will find that there are specialists. The hearing field is no different. Audiologists are specialists, who are able to take a more in-depth approach at diagnosing and treating any hearing issues your spouse may have.

WHAT IS INVOLVED IN TREATMENT OF HEARING LOSS? AND HOW DO I PAY FOR IT?

Perhaps you or your loved one is concerned about hearing loss and has experienced some of the symptoms that have been mentioned in this report. By now, I'm confident you have come to realize the importance of early identification and treatment of hearing loss. But you may be wondering about your treatment options and how you can expect to pay for treatment.

NeuroTechnology™ is the most advanced hearing loss treatment technology designed to treat the cognitive (brain) aspects of hearing loss. Using complex stimulation patters, NeuroTechnology™ replaces diminished auditory input to the brain. Traditional hearing aids just make things louder, but today's hearing loss treatment options restore clarity and help you hear more clearly and more naturally, in all listening environments.... even in noisy restaurants!

Today's NeuroTechnology™ includes the following features:

- Enhanced Clarity – to help fill in the missing speech details
- Noise-Cancellation Technology – to filter speech in noisy environments
- Soft-Speech Booster – to help you hear the 'soft-speakers' in your life (i.e. children and grandchildren, your spouse, etc)
- Surround Sound Features
- Bluetooth connectivity to your smart devices

NeuroTechnology™

There are different types of NeuroTechnology™ – each custom designed and programmed to meet your hearing loss, and your hearing needs. Today's NeuroTechnology™ is the only proven hearing loss treatment options with a focus on enhancing brain function by providing enhanced clarity surround-sound with background-noise canceling features.

NeuroTechnology™ can be used to address the full spectrum of hearing difficulties, from people with audiometric 'normal hearing' having difficulty in background noise to those individuals with severe to profound hearing loss.

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How do I pay for treatment of my, or my loved ones, hearing loss?

How to pay for the treatment of hearing loss is one of the most common questions that I receive from patients and their family members. This is an understandable concern. However, there is no simple answer; so, I have two answers for you that address the actual costs and the hidden cost s.

Actual Cost of Treating Hearing Loss

Audiology procedures, like most other medical procedures, can cost several thousands of dollars, including the NeuroTechnology™. If you or your loved one requires treatment of hearing loss it can cost anywhere from $2,000 -$8,000. However, the good news is that there are options for those who do not have the funds readily available to pay for the treatment.

Flex Spending Accounts. Many people are able to afford audiology treatments through the help of a Flex Spending Account (FSA). These accounts are set up through your place of employment and allow you to take pre-tax dollars to set aside and use for medical expenses. Because you never know when you may need this additional financial assistance, it's a good idea to get the FSA account started now. That way when you need it, the funds will be there.

Financing. Third party financing for audiology treatment may also be a solid option. Whether it is a loan with family and friends or a personal loan obtained through a financial institution, you may be able to qualify for low interest loans that allow you to get the work done that your spouse needs, and you can spread the payments out over a comfortable period of time.

Insurance. Many insurance plans now offer subsidies and coverage of hearing treatment also. Since every insurance plan is different, it is important that you contact your insurance carrier for more details.

Always be sure to ask if there will be any future costs associated with your hearing loss treatment plan. I suggest you only work with a local Audiologist that has NO hidden costs. Ever.

Hidden Cost of Not-Treating Hearing Loss

Patients often ask 'what can happen if I put off treating my hearing loss?'. There is strong evidence that untreated hearing loss can significantly increase the risk for a host of other chronic medical conditions, including diabetes, kidney disease, dementia and falls.

Hearing Loss and Dementia: Hearing loss increases the risk of developing dementia by 200-500%. Every day, 10,000 people turn sixty-five years young. This trend is expected to continue for at least the next fifteen years. And it is almost a guarantee that over the next fifteen years, science will continue to reduce the mortality rate and increase the average life expectancy. As a result, our health care system will be pushed to its capacity. Perhaps the most prevalent, most costly, and most disabling of all diseases we will see sharply rise over the ensuing decades is dementia—the mind-robbing mental disease that interrupts and interferes with every aspect of life. Dementia is not a normal part of aging.

Every three to four seconds, another patient is diagnosed with dementia. Rates of dementia are estimated to triple in the next thirty years. Unlike the other diseases listed above, a physical body with dementia is estimated to outlive the individual's mental capabilities by ten or more years! **It is estimated that the average cost, per family, to manage and treat a patient with dementia can exceed $54,000.00 per year.**

There is no cure for this catastrophic disease, but there are treatments available, including several ways to decrease your risk of developing dementia. **In fact, a recent study published in The Lancet journal has indicated that the treatment of hearing loss may be the single most effective means of preventing dementia.**

Hearing Loss and Falls: Hearing loss increases the risk of falls in seniors; and this risk increases by nearly 140% for every degree of hearing loss (e.g. mild vs. moderate vs. severe). The good news is that treating hearing loss can significantly reduce the risk of falling. Given the relationship of untreated hearing loss and the increased risk of falling, it is practical to calculate the cost of treating a patient who falls and compare it to the cost of treating hearing loss. Falling over the age of sixty-five is the number one cause of injury related deaths. And once a person falls, he or she is much more likely to fall again. **The Center for Disease Control and Prevention (CDC) estimates that the average medical cost associated with a fall that results in hospitalization is over $30,000.00 (and this cost of treatment increases with age).**

When choosing an audiologist to work with, I recommend you opt for one that has plenty of experience, has worked with many seniors, and one that you and your family feel comfortable with. Depending on the treatment needed, you are likely to see the audiologist regularly for years to come.

I hope that you have found this special report helpful in answering some of your questions regarding the importance of treating hearing loss for you and your loved ones. While I can provide some answers here to the most common questions, the best thing is to always see your local hearing care specialist and ask to schedule a complimentary evaluation.

Thank you.

Dr. Keith Darrow

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CONSUMER NOTICES

Excellence In Audiology is a professional association of selected audiologists who have agreed to a Code of Clinical and Service Standards and Ethics. Excellence In Audiology exercises no managerial control over and bears and accepts no responsibility for any aspect of the relationship between a patient and the doctor, nor will Excellence In Audiology mediate any disputes between a patient and their doctor. For more information, visit ExcellenceInAudiology.org

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