# SEEING AND HEARING: HOW YOUR SENSES LEAVE YOU AT RISK FOR DEMENTIA

*Dr. Thomas A. McCarty*
*Board Certified Audiologist*

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# Introductory Letter from Dr. McCarty

Dr. Thomas A. McCarty, Doctor of Audiology, founded Audiology Associates in 1991.

Dr. McCarty and his team of specialists have created a dynamic award-winning Audiology/Hearing Aid Practice, located in Anchorage, that utilizes the latest in high tech devices and stresses personalized patient services. He has been voted "Best Audiologist." The team became an Audigy Certified practice in 2009. As the only Audigy Certified Practice in Alaska, they are committed to providing the highest level of patient care.

Dr. McCarty received his Doctor of Audiology degree from the University of Florida in 2000. He was one of the first Doctor of Audiology recipients in Alaska. Dr. McCarty attended the University of Maryland, having received a Boy Scout Scholarship, while an Eagle Scout. He earned both his Bachelor's and Master's degrees at the University of Maryland.

His first patient was his mother, who he fit with hearing aids after she had been advised that "nothing would help."

He worked as a Public Health Audiologist in Alaska from 1977-1991, providing Audiology and Hearing Aid Services to remote villages outside Bethel, Dillingham, McGrath, Kodiak, St. Paul, and the Aleutians. Dr. McCarty feels that it is important to raise Audiology awareness in the community. He and his team have volunteered on an annual Hearing Mission Trip that has fit thousands of hearing aids to an underserved population in the Dominican Republic. He has run in the Boston Marathon with the Dana-Farber Team, raising funds for cancer research at Harvard.

Dr. McCarty has lectured on hearing, taught classes at the University of Maryland, and given presentations locally in Anchorage, and has received the Academy Scholar Award for continuing education from the American Academy of Audiology.

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# VISION LOSS AND DEMENTIA: THE SCIENCE

Recent reporting in major scientific journals, including reports from the National Institute of Health, has made significant strides in understanding the links of vision loss and cognitive decline. Although much work is still to be done, scientists and medical clinicians accept data that indicates people with distance vision problems are **2-3 times more likely to develop cognitive impairment** (compared to those with normal vision).

The prevalence of blindness and vision impairment increases rapidly with age among all racial and ethnic groups. Cases of early age-related macular degeneration and diabetic retinopathy are expected to double and quadruple, respectively, in the next 20-30 years.

National studies indicate that vision loss is associated with higher prevalence of chronic health conditions, death, falls and injuries, depression, social isolation **and cognitive decline**. When combined with chronic health conditions such as diabetes, vision loss is associated with overall poorer health among people aged 65 or older. Vision loss compromises an individual's quality of life because it reduces their capacity to read, drive a car, watch television or keep personal accounts. Often, it isolates older people and keeps them from friends and family.

Elderly people with untreated poor vision are significantly more likely to suffer from Alzheimer's disease and other forms of Dementia than their normal seeing counterparts, according to a study published in the American Journal of Epidemiology. According to Dr. Mary Rogers of the University of Michigan, "Visual problems can have serious consequences and are very common among the elderly, but many of them are not seeking treatment." Poor vision, like poor hearing, can reduce the amount of social and physical activities in adults – thus increasing the risk of developing Dementia.

In addition, according to the American Optometric Association, significant near-vision loss in older age may correlate with increased Dementia risk. According to this study from researchers at the Univ. Bordeaux in France, moderate to severe near vision loss can double an individual's chances of developing Dementia.

EARLY TREATMENT OF VISUAL PROBLEMS MAY DELAY THE ONSET OF DEMENTIA.

*(*Including reports from the National Institute of Health, the Journal of American Medical Association Ophthalmology and the American Journal of Epidemiology)*

# EARLY SIGNS OF VISION LOSS AND DEMENTIA – WHAT TO *LOOK* FOR.

It is often hard to separate the signs of vision loss from those of Dementia – as the two can mask each other. Having difficulty with any of the following may suggest a person is having problems with their vision:

- Reading.
- Recognizing people.
- Coping with low light, bright light or both.
- Finding things.
- Avoiding obstacles.
- Locating food on their plate.
- Seeing well even with glasses on.

Note – many of these issues are common in both vision loss and in individuals living with Dementia. Despite the many cognitive difficulties associated with Dementia, vision testing can be adapted for individuals with such cognitive decline.

# MANAGING DEMENTIA AND VISION LOSS

People living with both Dementia and vision loss are more susceptible to experiencing disorientation, greater problems with mobility and an **increased risk of falls**. They are also likely to have more difficulties with communication, understanding and learning new tasks, loss of activities and **increased social isolation.**

Living with these conditions in tandem can also make it harder to use some of the coping strategies and techniques that can help people with communication or memory problems, such as visual prompts or notes.

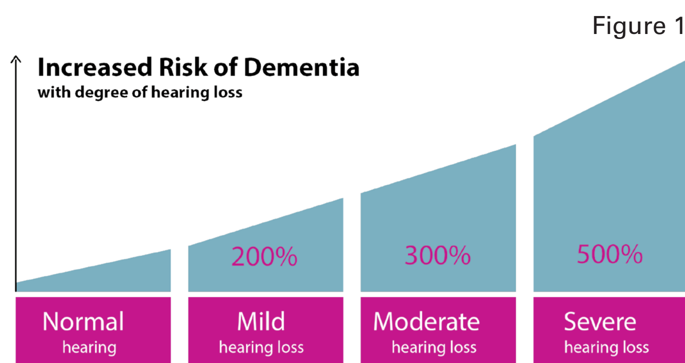
Given the difficulty of managing the two disorders, there are a number of strategies that can help the person, and his or her family, manage both vision loss and Dementia, including:

- Proper eye care (regular eye exams, maintaining up-to-date vision prescriptions and ensuring glasses are clean).
- Adjusting living surroundings, including improved lighting (preferably automatic lighting), removing clutter and removing area rugs (they can be easy to trip and fall over!)
- Improving communication – for example, getting the person’s attention before speaking to them, introducing yourself, letting them know what is happening (e.g. ‘I’m leaving the room now’).
- Enroll in vision rehabilitation courses.

# HEARING LOSS AND DEMENTIA: THE SCIENCE

Hearing Loss impacts over 48 million people in the U.S. and is listed by the Department of Health and Human Services as the 3rd most common chronic disorder affecting today's seniors. Unfortunately, for most of us, age-related hearing loss is inevitable; impacting nearly 50% of seniors between the ages of 60-70, almost 2/3rd of people between the age of 70-80 and nearly 80% of individuals over the age of 80. Age-related hearing loss is characterized by the progressive loss of receptor (hair) cells in the ear that consequently reduces the quantity and quality of neural connections from the ear to the brain. This slow onset degenerative disease can have a significant impact on several key brain areas including the memory, hearing, speech and language portions of cognition. Several key research studies have pointed to the potential links of hearing loss and Dementia, including the groundbreaking work from Dr. Lin and his colleagues at Johns Hopkins Medical Center that indicate hearing loss can increase the risk of Dementia by 200-500% (see summary data in Figure 1).

Figure 1




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

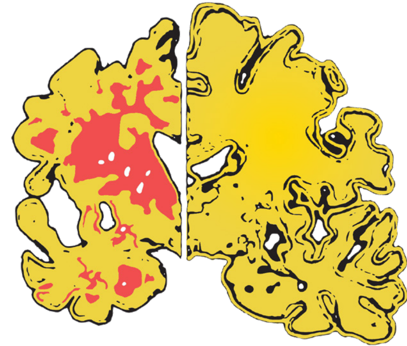
***"A lot of people ignore hearing loss because it's such a slow and insidious process as we age. Even if people feel as if they are not affected, we're showing that it may well be a more serious problem."***

– Dr. Frank Lin, Johns Hopkins Medical Center.

## Three risk factor associated with hearing loss and Dementia include social isolation, cerebral atrophy and cognitive overload.

1. **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. This retreat from social activity is a significant risk factor for the development of Dementia.

**2** **Cerebral Atrophy (aka 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 cerebral atrophy. In recent years, scientific studies using advanced brain imaging techniques 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.*

**3** **Cognitive Overload (i.e. Working Your Brain Too Hard to Hear).** Hearing loss is not normal, and neither is the excess strain that it puts on your brain. 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.

## EARLY SIGNS OF HEARING LOSS AND DEMENTIA – WHAT TO *LISTEN* FOR

Hearing loss and Dementia typically follow a slow, gradual onset that is often hard for the patient and family to pick up on. Most people who experience the initial symptoms of both disorders do not even realize it is happening. It is far easier to blame the acoustics of the room, the volume of the background noise or the person speaking (i.e. "they mumble") than it is to accept that one is dealing with memory and/or hearing loss problems. It is also difficult for many patients to rationalize the need for medical treatment because it seems like 'a normal part of aging.' **Neither Dementia nor hearing loss are a normal part of aging.**

The first symptom of hearing loss for most patients is difficulty hearing in complex listening environments. If you take the time to reflect truly and deeply on your communication breakdown, I believe you will begin to recognize some of the initial symptoms of hearing loss. Are you having any difficulty when there are a few people at the kitchen table? Or when the kids come over?

Or when communicating with your grandchildren? Or when you are at a social gathering (i.e. sharing a meal with friends) and you can't seem to follow the conversation, yet all the other people seem to be sitting around enjoying and following the conversation? It is in these types of scenarios when hearing loss can really start to rear its head and you realize that you are no longer an active part of the conversation. The result is a slow retraction from contributing to the conversation because you may feel embarrassed, and thus you continue to further isolate yourself and find yourself not truly engaging in conversations and relationships. This is how even a mild hearing loss can really begin to impact your quality of life and relationships with others. Many of these issues of social isolation and retraction from others are found in patients with both hearing loss and Dementia.

## MANAGING DEMENTIA AND HEARING LOSS

A recent report published by a European Dementia commission has determined that the treatment of hearing loss is the single most modifiable factor for preventing Dementia.

Both Dementia and hearing loss place a significant strain on the ability to communicate with loved ones. They can also both lead to increased social isolation, loss of independence and problems with everyday activities and as a result make the person's Dementia seem (and even be) worse.

However, there are things that can help.

- Having regular hearing evaluations, starting at the age of 50 years young, is important.
- Following a treatment plan as laid out by the hearing care specialist.
- Improving the environment, for example, by reducing background noise and distractions and making sure the area is well lit.

***"The benefits of correcting hearing loss on cognition are twice as large as the benefits from any cognitive-enhancing drugs now on the market. It should be the first thing we focus on."***

– Dr. Doriaswamay, Duke University

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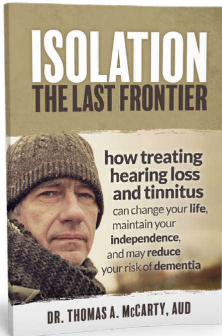


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