

COMORBIDITIES OF HEARING LOSS

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WHAT'S INSIDE THIS ISSUE:

A look at eight conditions associated with hearing loss ranging from diabetes to falls.



Dr. Rory Cernik

"Approximately 18% of individuals diagnosed with hearing loss seek treatment and proper care. For perspective, over 80% of those diagnosed with cancer seek chemotherapy, when applicable. Yes, hearing loss is not immediately life threatening. But it is important to understand that untreated hearing loss increases your risk factor for cognitive decline, falling, depression, and social isolation. These consequences of hearing loss may happen over time, but they, for many, will become quite serious. Each patient that visits our offices should gain a thorough understanding of their hearing loss. In terms of the cause as well as their risk factors for developing a concomitant disorder. A recent survey suggested that, when asked, nearly 60% of those diagnosed with hearing loss believe their hearing loss is age related. And let me tell you; this is a misnomer and for most people this is simply not true. We have patient's in their 90's who have normal hearing! For the majority, their hearing loss is secondary to other health conditions. Sure medications like chemotherapy can cause hearing loss, head trauma and noise exposure too, but it is more common that your hearing loss is related to a systemic disorder. This is why it is important to discuss the comorbidities of hearing loss. And we have created an eBook to do just that!"

General hearing loss is a highly prevalent, chronic condition affecting over 48 million Americans. Hearing loss shares similar characteristics to other chronic conditions or diseases. For example, diabetes, a chronic disease, is similar to hearing loss in that both are invisible, progressive, and often incurable, but treatable. Both require front loaded care, between the healthcare provider and patient, which includes heavy education and counseling; however, when properly treated patients see benefit in their quality of life.

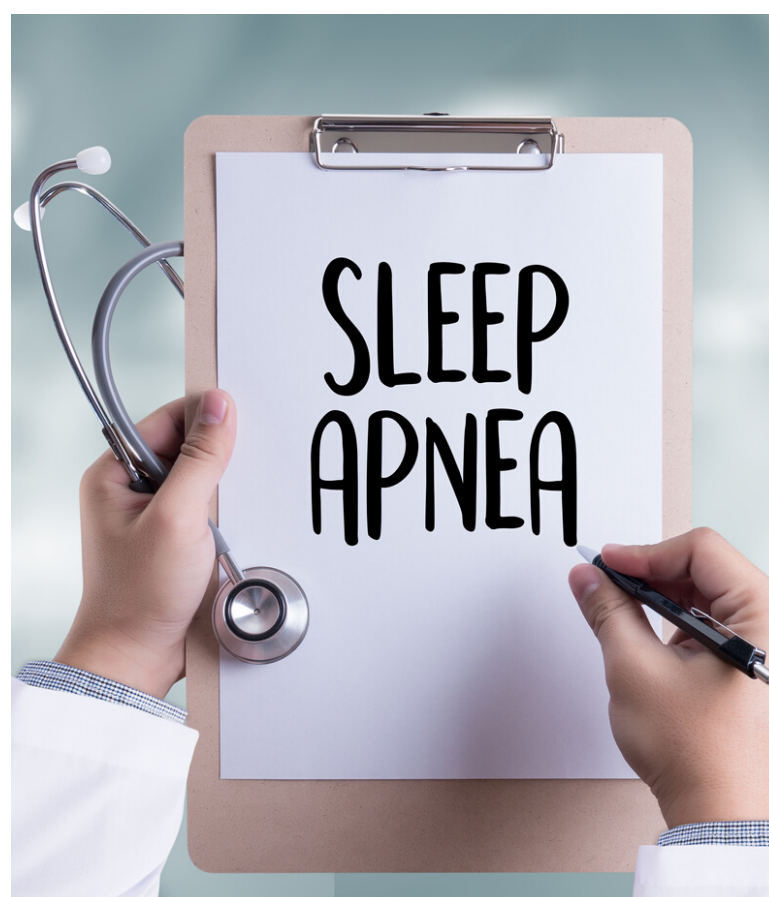
Hearing loss is the **third most common chronic condition** among older adults. Many people believe hearing loss is a result of getting older, and although the aging process can take a toll on your ears, recent evidence has linked hearing loss to other disabling conditions, such as cognitive decline, diabetes, cardiovascular disease, and many more. Our responsibility at Hearing Assessment Center (HAC) is to *educate* our community on the comorbidities associated with hearing loss.

BUT...WHAT IS A COMORBIDITY?



The term comorbidity, can be defined as the presence of two or more chronic conditions or diseases in a single individual. A chronic condition is a health condition or disease that is persistent or has long-lasting (greater than 12 months) effects. In the United States, 80% of Medicare spending is devoted to patients with four or more chronic conditions. The most sinister or significant condition is termed the primary or index condition. Hearing loss is rarely an index condition.

Let's take a look at the many different conditions and illnesses that are associated with hearing loss. Beyond the ones discussed here, there are other comorbidities linked to hearing loss, including but not limited to fibromyalgia, anemia, psoriasis, and sleep apnea. Giving the pure numbers of those who suffer from hearing loss, our government, military and private institutions spend millions of dollars annually researching this complicated condition. Will we ever see a cure for hearing loss? No, very doubtful, not in this lifetime. But I do think we will see progressive work on how to prevent a noise-induced hearing loss!



EIGHT COMORBIDITIES LINKED TO HEARING LOSS

1. Diabetes

Diabetes is a metabolic disease that affects over 30 million Americans. It occurs when your blood glucose, also called blood sugar, is too high. Blood glucose is your main source of energy and comes from the food you eat. Insulin, a hormone that originates in the pancreas, helps glucose from food get into your cells to be used for energy. Sometimes your body has an insulin deficiency where it does not make enough or any insulin. When this happens, glucose then stays in your blood and cannot reach your cells. Having too much glucose in your blood can cause serious health problems. Although diabetes has no cure, there are steps that can be taken to manage your diabetes and stay healthy.



What are the different types of diabetes?

The most common types of diabetes are type 1, type 2, and gestational diabetes.

Type 1 diabetes is when your body does not make insulin. Your immune system destroys the insulin producing cells in the pancreas, hindering the production of insulin. Type 1 diabetes is usually diagnosed in children and young adults, although it can appear at any age.

Type 2 diabetes is the most common type of diabetes. Here your body does not make or use insulin well. You can develop type 2 diabetes at any age; however, it is commonly diagnosed among middle aged and older people. It is often treated via pharmaceutical intervention and lifestyle change. The aim is to keep the blood glucose levels within the normal range within the body. For both types, dietary changes and exercise is the first line of defense.

Gestational diabetes may develop in women who are pregnant. Most of the time, this type of diabetes goes away when the baby is born; however, if you had gestational diabetes you are at a higher risk of developing type 2 diabetes later in life.

THE HEARING LOSS AND DIABETES CONNECTION

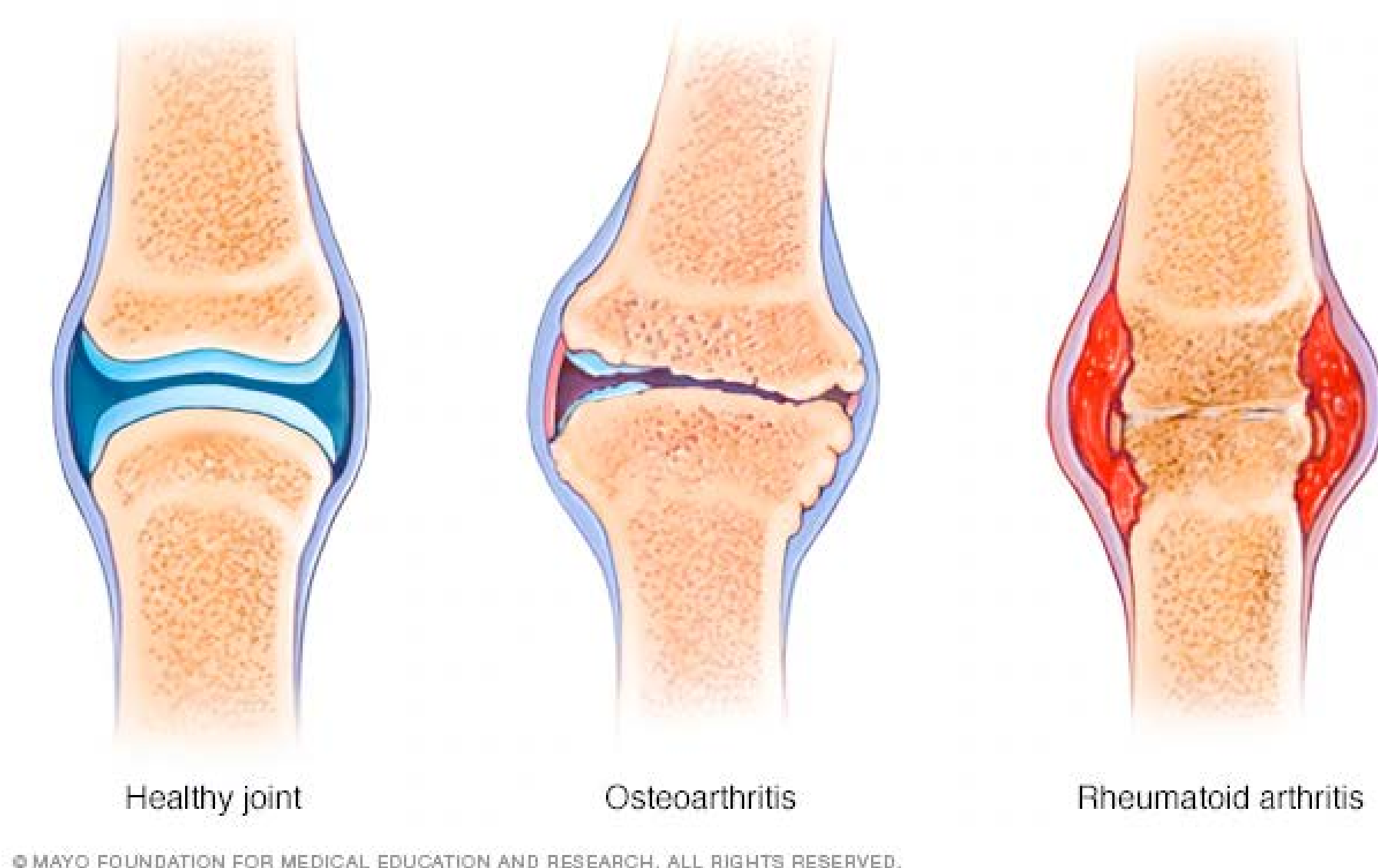
If you are pre-diabetic or diabetic, you are at an increased risk for developing hearing loss. The prevalence of hearing loss in people with diabetes is twice that in those without diabetes.

Diabetes can lead to metabolic and vascular changes in the body. For example, high blood sugar can damage blood vessels throughout the body, including the ears. Those changes can negatively affect the ears, and cause hearing loss. It has also been found that diabetes may result in nerve damage, thus it is possible when there is diabetes there may be damage to the auditory nerves which could lead to hearing loss. The typical test results we see in patients with diabetes is a broad-spectrum hearing loss, which means their hearing is compromised across frequencies/pitches.

2. Arthritis

Arthritis is inflammation of one or more joints. The main symptoms of arthritis are joint pain and stiffness, which typically worsens with age. The most common types of arthritis are osteoarthritis and rheumatoid.

Osteoarthritis arthritis causes cartilage to break down. Rheumatoid arthritis is a disease in which the immune system attacks the joints, beginning with the lining of joints. Treatments vary depending on the type of arthritis. The main goals of arthritis treatments are to reduce the symptoms and improve quality of life.



THE HEARING LOSS AND ARTHRITIS CONNECTION

If you have arthritis, regardless of the type, there is an increased risk of developing hearing loss. Although the physiological mechanism connecting hearing loss and arthritis is not fully known yet, there is evidence suggesting that arthritis treatment may alter the cochlear (sense organ of hearing) function which may result in hearing loss. Another theory is arthritis and hearing loss are created by the same immune response. However, like all related mechanisms or comorbidities, we do not have a clear consensus.

3. Cardiovascular disease

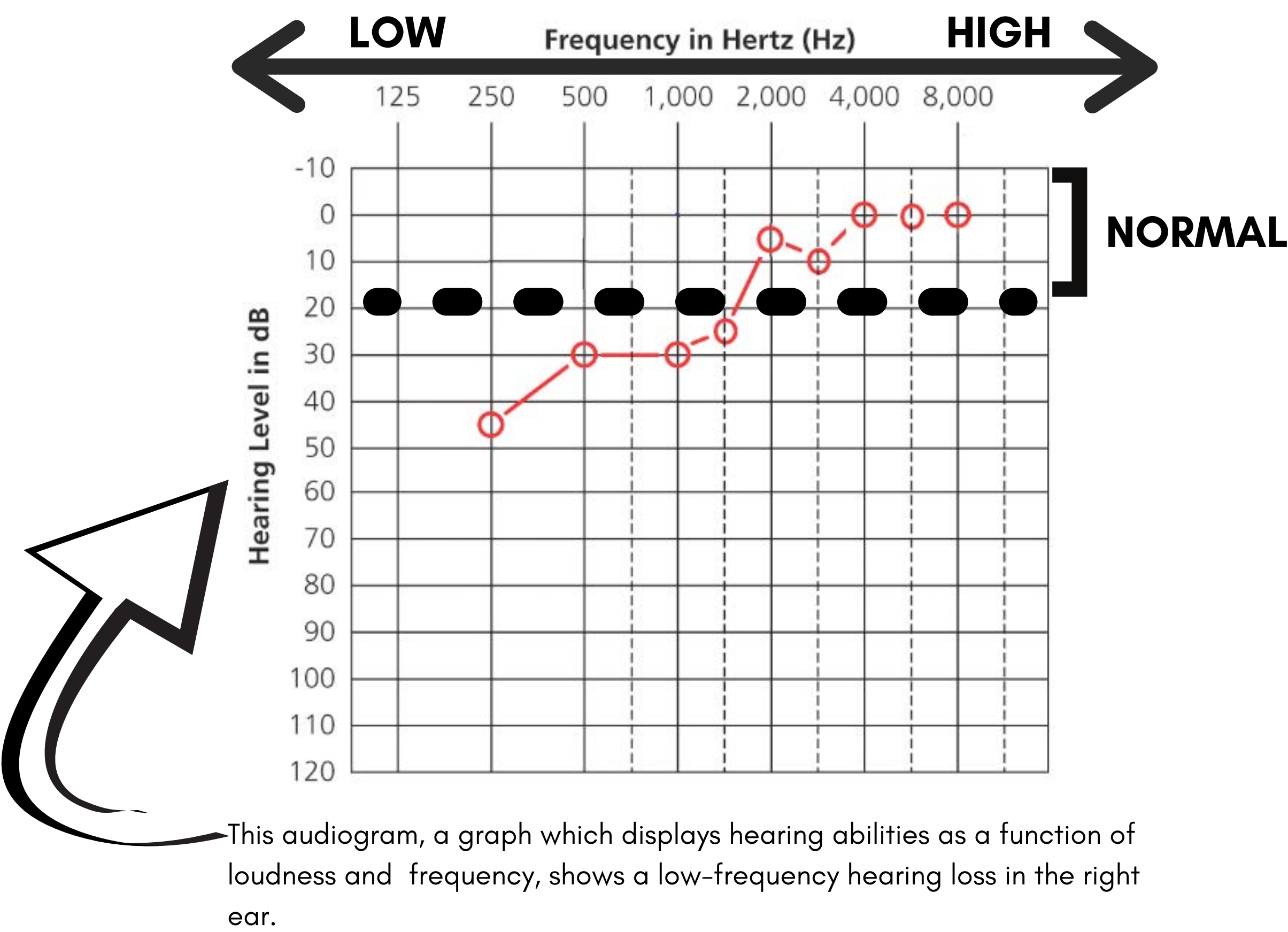
According to the Centers for Disease Control (CDC), heart disease is the leading cause of death in both men and women, killing nearly 610,000 people every year in the United States. Those with cardiovascular disease can have a variety of medical issues affecting the structure and vessels of the heart. The most common issues include those, with narrow or blocked vessels leading to chest pain, or a heart attack or stroke.

THE HEARING LOSS AND CARDIOVASCULAR DISEASE CONNECTION

Individuals with cardiovascular disease are at a higher risk for hearing loss. We do not fully understand the physiology of cardiovascular disease and hearing loss, but our suspicion is that high-blood pressure or disruptive blood supply might negatively impact the capillary system within the cochlea and in particular the high vascular area within the cochlea. Research has found higher rates of low frequency/pitch hearing loss, as well as flat hearing loss in people who have a cardiovascular disease (see picture of audiogram below). We recommend to all our patients to get daily exercise to reduce the likelihood of developing cardiovascular disease. Simply walking or getting the equivalent of 2-miles of exercise per day may significantly reduce the risk of heart disease.

4. Stroke

Approximately 85% of people who have had a stroke also have hearing loss. Their hearing is often a flat or low frequency/pitch loss, much like with cardiovascular disease (see picture of audiogram below). This is because cardiovascular disease and strokes can both cause vascular damage in the ear.



5. Falling

Falls are the leading cause of fatal and non-fatal injuries among the elderly leading to significant health, social, economic, and emotional consequences. Falls often lead to fatal outcomes within the first 12 months of a fall with injury in the senior population. Falling is a very common reason for hospitalizations in the US.



THE HEARING LOSS AND FALLING CONNECTION

Hearing loss increases a person's risk for a fall. In fact, much like with cognitive decline (discussed below), as hearing loss worsens, the risk of falling increases. For every 10 dB decrease in hearing, your risk for falling increases by 1.4 times. The risk of falls can be decreased in people who choose to wear hearing aids. After thirty days, those odds are reduced!

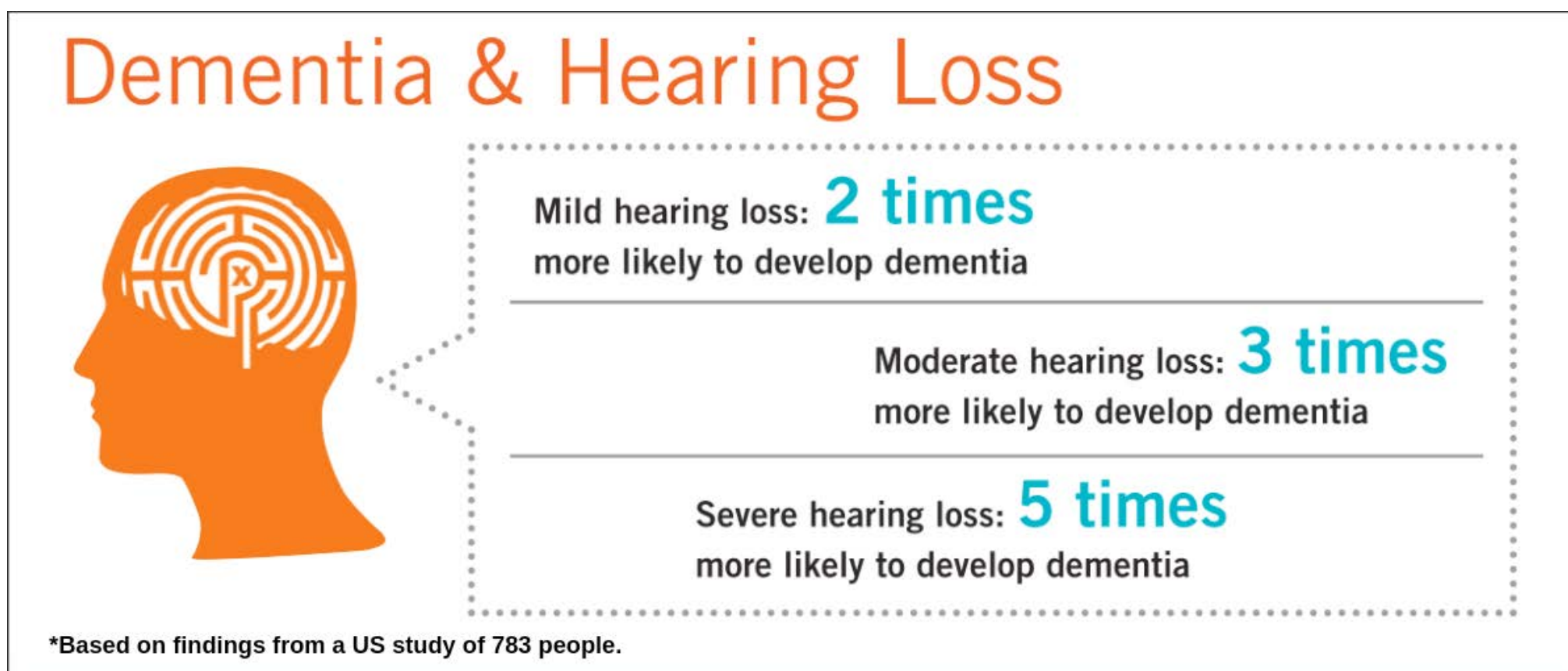
There are a few hypotheses as to why with hearing loss you are more likely to lose your balance and fall:

1. Hearing loss makes people less aware of their environment, so you do not notice other people or activities going on around you.
2. Hearing loss can decrease your spatial awareness, so being able to gauge where your body is in relation to objects around you gets harder.
3. Lastly, hearing loss causes the brain to use more resources for hearing and interpreting speech and sound, so fewer resources go toward gait or balance.



6. Cognitive Decline and Dementia

Over the past several years, there have been many studies published that look at the connection between hearing loss and cognitive decline. Researchers have found that having hearing loss increases your risk for developing cognitive decline. In fact, the risk increases with more severe degrees of hearing loss. For example, if you have a mild hearing loss your risk for developing dementia increases by about 200%. Similarly, if you have a severe hearing loss your risk for developing dementia increases by about 500%.



Another study has shown that hearing loss is the single-most modifiable risk factor for developing a degenerative brain disease. Some factors, like genetics, cannot be modified, but hearing loss can be. Studies have shown that cognitive function can be improved after three months of hearing device usage. This is only applicable when using premium or highest-level hearing technology. Individuals with hearing loss who choose to treat their hearing loss with hearing devices can increase their cognitive abilities.

For more information about cognitive decline/ dementia and the link to hearing loss, see our [Dementia eBook](#).

7. Smoking

Cigarette smoking harms nearly every organ of the body, causes many diseases, and reduces the general health of smokers. It is the leading preventable cause of death in the United States. Smoking causes more deaths each year than HIV, illegal drug and alcohol use, motor vehicle injuries, and firearm-related incidents combined.



THE HEARING LOSS AND SMOKING CONNECTION

Smokers are more likely than nonsmokers to develop heart disease, lung cancer, and hearing loss. Heavy smokers are significantly more likely to develop hearing loss from high-level noise trauma. This is an interesting fact; so, smokers who are, for example, in the construction trade are at a higher risk for developing hearing loss. The mechanism behind this is that noise exposure leads to the formation of reactive oxygen species that result in the necrosis/death of the hair cells in the hearing organ.

8. Psychosocial health

Psychosocial health is defined as a state of mental, emotional, social, and spiritual well-being. Hearing loss and mental health have been linked for many years. Greater levels of anxiety and depression are observed in those with, more significant/severe, hearing loss. Hearing loss is an independent risk factor of depression regardless of age, sex, and other health factors. Furthermore, hearing loss can create isolation which causes sleep deprivation and poorer executive function. Dr. Cernik, in an earlier video, drew the connection between hearing loss and COVID-19. In terms that both may follow this course: social isolation – loneliness – depression. So, in theory from a mental health perspective, the consequences of hearing loss and COVID-19 can be quite similar!

Why We Do What We Do - Our Core Story

We know it is difficult for our patients to hear that if they smoke, have cardiovascular disease, or diabetes, they are at an increased risk for developing hearing loss. But, in our offices, our **#1 goal** is to provide education and value to our community. We want our patients to know why they can't hear as well as they did 10 years ago. We want our patients to understand the risks of not properly treating hearing loss.

"Our pledge is simple, using education-based practice, we will improve the patient's communication disorder and reduce your likelihood of developing cognitive decline as it relates to your hearing loss. All of this starts with the understanding of what causes hearing loss. We hope this eBook provides you value."



Dr. Rory Cernik



Visit our **website** for more information and **E-books** about **hearing loss** and Dementia.

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