



Holladay Physical Medicine

4211 Holladay Blvd. – Holladay, UT 84124 – (801) 272-8471

Bruce Gundersen, D.C., DIANM

www.holladayphysicalmedicine.com

This Information is about this condition in general. Every individual has a unique presentation. Once you understand this information, consult the doctor on any specific questions about your condition.

HEARING LOSS and TINNITUS from OSTEOSCLEROSIS

Hearing loss exists when there is diminished sensitivity to the sounds normally heard. The term hearing impairment is usually reserved for people who have relative insensitivity to sound in the speech frequencies. The severity of a hearing loss is categorized according to the increase in volume above the usual level necessary before the listener can detect it.

Deafness

Deafness is defined as a degree of impairment such that a person is unable to understand speech even in the presence of amplification. In profound deafness, even the loudest sounds produced by an audiometer (an instrument used to measure hearing by producing pure tone sounds through a range of frequencies) may not be detected. In total deafness, no sounds at all, regardless of amplification or method of production, are heard.

Speech perception

Another aspect of hearing involves the perceived clarity of a sound rather than its amplitude. In humans, that aspect is usually measured by tests of speech perception. These tests measure one's ability to understand speech, not to merely detect sound. There are very rare types of hearing impairments which affect speech understanding alone.

Causes

The following are some of the major causes of hearing loss.

Age

There is a progressive loss of ability to hear high frequencies with increasing age known as presbycusis. This begins in early adulthood, but does not usually interfere with ability to understand conversation until much later. Although genetically variable it is a normal concomitant of aging and is distinct from hearing losses caused by noise exposure, toxins or disease agents.^[4]

Noise

Main article: Noise-induced hearing loss

Noise is the cause of half of all cases of hearing loss, causing some degree of problems in 5% of the population globally

Populations living near airports or freeways are exposed to levels of noise typically in the 65 to 75 dB(A) range. If lifestyles include significant outdoor or open window conditions, these exposures over time can degrade hearing. The U.S. EPA and various states have set noise standards to protect people from these adverse health risks. The EPA has identified the level of 70 dB(A) for 24 hour exposure as the level necessary to protect the public from hearing loss and other disruptive effects from noise, such as sleep disturbance, stress-related problems, learning detriment, etc. (EPA, 1974).

Noise-induced hearing loss (NIHL) typically is centered at 3000, 4000, or 6000 Hz. As noise damage progresses, damage spreads to affect lower and higher frequencies. On an audiogram, the resulting configuration has a distinctive notch, sometimes referred to as a "noise notch." As aging and other effects contribute to higher frequency loss (6–8 kHz on an audiogram), this notch may be obscured and entirely disappear.

Louder sounds cause damage in a shorter period of time. Estimation of a "safe" duration of exposure is possible using an *exchange rate* of 3 dB. As 3 dB represents a doubling of intensity of sound, duration of exposure must be cut in half to maintain the same energy dose. For example, the "safe" daily exposure amount at 85 dB A, known as an exposure action value, is 8 hours, while the "safe" exposure at 91 dB(A) is only 2 hours (National Institute for Occupational Safety and Health, 1998). Note that for some people, sound may be damaging at even lower levels than 85 dB A. Exposures to other ototoxins (such as pesticides, some medications including chemotherapy agents, solvents, etc.) can lead to greater susceptibility to noise damage, as well as causing their own damage. This is called a *synergistic* interaction.

Some American health and safety agencies (such as OSHA-Occupational Safety and Health Administration and MSHA-Mine Safety and Health Administration), use an exchange rate of 5 dB. While this exchange rate is simpler to use, it drastically underestimates the damage caused by very loud noise. For example, at 115 dB, a 3 dB exchange rate would limit exposure to about half a minute; the 5 dB exchange rate allows 15 minutes.

While OSHA, MSHA, and FRA provide guidelines to limit noise exposure on the job, there is essentially no regulation or enforcement of sound output for recreational sources and environments, such as sports arenas, musical venues, bars, etc. This lack of regulation resulted from the defunding of ONAC, the EPA's Office of Noise Abatement and Control, in the early 1980s. ONAC was established in 1972 by the Noise Control Act and charged with working to assess and reduce environmental noise. Although the Office still exists, it has not been assigned new funding.

Many people are unaware of the presence of environmental sound at damaging levels, or of the level at which sound becomes harmful. Common sources of damaging noise levels include car stereos, children's toys, transportation, crowds, lawn and maintenance equipment, power tools, gun use, and even hair dryers. Noise damage is cumulative; all sources of damage must be considered to assess risk. If one is exposed to loud sound (including music) at high levels or for extended durations (85 dB A or greater), then hearing impairment will occur. Sound levels increase with proximity; as the source is brought closer to the ear, the sound level increases.

In the USA, 12.5% of children aged 6–19 years have permanent hearing damage from excessive noise exposure.^[6]

Genetic

Hearing loss can be inherited. Both dominant and recessive genes exist which can cause mild to profound impairment. If a family has a dominant gene for deafness it will persist across generations because it will manifest itself in the offspring even if it is inherited from only one parent. If a family had genetic hearing impairment caused by a recessive gene it will not always be apparent as it will have to be passed onto offspring from both parents. Dominant and recessive hearing impairment can be syndromic or nonsyndromic. Recent gene mapping has identified dozens of nonsyndromic dominant (DFNA#) and recessive (DFNB#) forms of deafness.

- The first gene mapped for non-syndromic deafness, DFNA1, involves a splice site mutation in the formin related homolog diaphanous 1 (DIAPH1). A single base change in a large Costa Rican family was identified as causative in a rare form of low frequency onset progressive hearing loss with autosomal dominant inheritance exhibiting variable age of onset and complete penetrance by age 30.^[7]
- The most common type of congenital hearing impairment in developed countries is DFNB1, also known as Connexin 26 deafness or GJB2-related deafness.
- The most common dominant syndromic forms of hearing impairment include Stickler syndrome and Waardenburg syndrome.
- The most common recessive syndromic forms of hearing impairment are Pendred syndrome, Large vestibular aqueduct syndrome and Usher syndrome.
- The congenital defect microtia can cause full or partial deafness depending upon the severity of the deformity and whether or not certain parts of the inner or middle ear are affected.
- Mutations in PTPRQ Are a Cause of Autosomal-Recessive Nonsyndromic Hearing Impairment.^[8]

Illness

- Measles may result in auditory nerve damage
- Meningitis may damage the auditory nerve or the cochlea
- Autoimmune disease has only recently been recognized as a potential cause for cochlear damage. Although probably rare, it is possible for autoimmune processes to target the

cochlea specifically, without symptoms affecting other organs. Wegener's granulomatosis is one of the autoimmune conditions that may precipitate hearing loss.

- Mumps (Epidemic parotitis) may result in profound sensorineural hearing loss (90 dB or more), unilateral (one ear) or bilateral (both ears).
- Presbycusis is a progressive hearing impairment accompanying age, typically affecting sensitivity to higher frequencies (above about 2 kHz).
- Adenoids that do not disappear by adolescence may continue to grow and may obstruct the Eustachian tube, causing conductive hearing impairment and nasal infections that can spread to the middle ear.
- People with HIV/AIDS frequently experience auditory system anomalies.
- Chlamydia may cause hearing loss in newborns to whom the disease has been passed at birth.
- Fetal alcohol syndrome is reported to cause hearing loss in up to 64% of infants born to alcoholic mothers, from the ototoxic effect on the developing fetus plus malnutrition during pregnancy from the excess alcohol intake.
- Premature birth results in sensorineural hearing loss approximately 5% of the time.
- Syphilis is commonly transmitted from pregnant women to their fetuses, and about a third of the infected children will eventually become deaf.
- Otosclerosis is a hardening of the stapes (or stirrup) in the middle ear and causes conductive hearing loss.
- Medulloblastoma and other types of Brain Tumors can result in hearing loss, whether by the placement of the tumor around the Vestibulocochlear nerve, surgical resection, or platinum-based chemotherapy drugs such as cisplatin.
- Superior canal dehiscence, a gap in the bone cover above the inner ear, can lead to low-frequency conductive hearing loss, autophony and vertigo

Neurological disorders

Neurological disorders such as multiple sclerosis and strokes can have an effect on hearing as well. Multiple sclerosis, or MS, is an autoimmune disease where the immune system attacks the myelin sheath, a covering that protects the nerves. Once the myelin sheaths are destroyed there is no possible way at present to repair them. Without the myelin to protect the nerves, nerves become damaged, creating disorientation for the patient. This is a painful process and may end in the debilitation of the affected person until they are paralyzed and have one or more senses gone. One of those may be hearing. If the auditory nerve becomes damaged then the affected person will become completely deaf in one or both ears. There is no cure for MS.^[9] Depending on what nerves are damaged from a stroke, one of the side effects can be deafness.^[10]

Medications

Some medications cause irreversible damage to the ear, and are limited in their use for this reason. The most important group is the aminoglycosides (main member gentamicin) and platinum based chemotherapeutics such as cisplatin.

Some medications may reversibly affect hearing. This includes some diuretics, aspirin and NSAIDs, and macrolide antibiotics. According to a study by researchers at Brigham and

Woman's Hospital in Boston, the link between nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen and hearing loss tends to be greater in women, especially those who take ibuprofen six or more times a week.^[11] Others may cause permanent hearing loss.^[12] Extremely heavy hydrocodone use is known to cause hearing impairment. On October 18, 2007, the U.S. Food and Drug Administration (FDA) announced that a warning about possible sudden hearing loss would be added to drug labels of PDE5 inhibitors, which are used for erectile dysfunction.^[13]

Chemicals

Ototoxicity

In addition to medications, hearing loss can also result from specific drugs; metals, such as lead; solvents, such as toluene (found in crude oil, gasoline^[14] and automobile exhaust,^[14] for example); and asphyxiants.^[15] Combined with noise, these ototoxic chemicals have an additive effect on a person's hearing loss.^[15] Hearing loss due to chemicals starts in the high frequency range and is irreversible. It damages the cochlea with lesions and degrades central portions of the auditory system.^[15] For some ototoxic chemical exposures, particularly styrene,^[16] the risk of hearing loss can be higher than being exposed to noise alone. Controlling noise and using hearing protectors are insufficient for preventing hearing loss from these chemicals. However, taking antioxidants helps prevent ototoxic hearing loss, at least to a degree.^[16] The following list provides an accurate catalogue of ototoxic chemicals:

Treatment

Ozone insufflation and drops

PREMISE

In order to recover from many of today's chronic health disorders, a basic premise must be understood on which all other treatments and remedies depend. The body must be fed the proper ingredients to heal and it must not be fed or exposed to harmful or toxic elements. Go to our web page www.holladayphysicalmedicine.com. Scroll down to the Absolute Health Clinic on the right and click on Learn More. Review each of the following completely: Things to Avoid or Eliminate, Things to Do, Detoxification, Preferred Foods, Forbidden Foods, and Cleaning Products Substitutes.

Each of these items is necessary for you to overcome this disorder. It is not likely that a cure is readily achievable and management is our initial goal. Depending on how long your body has suffered from this disorder, it may take at least half that long to gain control of the condition and manage it in such a way as to not completely interfere with your daily routine. Expectations should be largely based on your individual history with this condition.

USE OF PRESCRIPTION DRUGS

We do not prescribe drugs nor recommend their use if harmful side-effects are associated with your complaints. We also do not, in any case, recommend changes in the use of prescription drugs that a licensed physician has given you. If you believe alterations in those prescriptions

are in the best interest of your health, always consult with the prescribing physician before making any changes.

SUPPLEMENTATION:

The ideal situation for nutrition in any injury or disease is first to eat whole foods, and to avoid processed foods, fast foods preservatives, refined carbohydrates and sugar. We have much information on our web page under Absolute Health Clinic. The physical medicine modalities we will provide you will help reduce the symptoms in the time we have projected. If you want to heal, this step is something you will need to take.

Nowadays, even if you do all of those things, you need to realize that our food supply has been gradually depleted. The pure ingredients needed to maintain body function, metabolism and immunity have been drastically reduced. We recommend only whole food supplements. Studies are clear that synthetic vitamins and mineral supplements are not only not helpful to the body in most cases, but can be toxic. Don't expect them to take the place of what we recommend here. They will not help you sufficiently to heal properly. The following list has been prioritized to help you gradually begin to supplement your improved diet and provide your body with the ingredients it needs to restore or improve your immune response and then provide the raw materials in usable form to repair the damaged or diseased tissue. The degree to which you can implement these items will largely determine how fast you recover and more importantly whether or not you have a recurrence or relapse of the symptoms again soon.

These products are all produced by Standard Process. You may obtain them on line from Amazon or other distributors if you like or we can order them for you and save you an average of \$5 per bottle plus you can avoid shipping charges.

GENERAL DAILY SUPPLEMENTS

- Catalyn
- Tuna Omega-3 oil
- Calcium Lactate
- Trace Minerals B12
- Cataplex D
- Prolamine Iodine

SPECIFIC FOR THIS CONDITION

- Thymex
- Drenamin
- Chlorophyll Perles
- Cataplex F
- Biost
- Cataplex ACP

Specific dosages will be provided by the doctor.

We have many other specific items for a variety of health deficient conditions. Consult our web page or ask the doctor.

HOMEOPATHIC REMEDIES

GENERAL INSTRUCTIONS

When using homeopathic preparations, take as directed and as soon as the symptoms are gone and you feel very well, stop the use of this product and store it(not less than 6 feet from microwave). Should the symptoms return, follow the instructions for use again. If symptoms do not remit within 4 days, consult your doctor of chiropractic. Homeopathic combinations and liquids intended for sublingual absorption should be preceded with a distilled or filtered mouth rinse and followed by nothing by mouth for 4 minutes.

When using herbal and food supplementation, continue usage for at least three months before attempting to determine or assess the outcome.

Any patient following a nutritional homeopathic or dietary form of treatment should see the doctor at least every 30 days.

By following the prescribed usage excellent clinical results and relief of symptoms have been realized for the indicated condition and related complaints. Following these instructions will help to attain natural health as a gradual process. You may expect some symptomatic relief within a few days but permanent results may come from following this process for at least 6-12 weeks.

IMPORTANT NOTE: Homeopathic medication is safe and has no hazardous side effects. You may experience some "proving" on first using this in the form of mild skin or mucosal lining irritations. There is also a toxic release action to this remedy which may give you some unusual temporary symptoms. Do not be alarmed as this is an indication that your body will react to the medication by stimulating your immune system. Should this reaction alarm you or persist, contact your doctor of chiropractic.

Specific Combination

CALCAREA

EXERCISE

Begin a daily walking routine of 1 minute on the first day. Add 1 minute each day until you are at 45 minutes of continuous walking. Make this a specific time and walking around stores, work or home does not count.

MAINTENANCE:

Regular spinal adjustments and mild forms of physical therapy are important to reduce the symptoms on a regular basis. Patients who receive monthly spinal manipulation and therapy report fewer complications and improved life style. It is important that you follow your chiropractic physician's advice about the frequency of treatment for your particular condition.

OTHER INFORMATION:

We offer a wide variety of health information at our web site.

www.holladayphysicalmedicine.com All patients are welcome to use our information to improve your life and maintain your spinal health.

This information is provided to you as a health service by Dr. Bruce Gundersen, DC, DIANM. He is board certified by the International Academy of Neuromusculoskeletal Medicine and currently serves as chairman of the examination board for the Academy. He is also the President of the Utah College of Chiropractic Orthopedists and clinical director and chief clinician at Holladay Physical Medicine. He has practiced physical and regenerative medicine for over 40 years.