

Your hearing health journey

What you need to know

||| NUHEARA



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Purpose

If you are starting to think of your hearing health, you are not alone.

In the USA alone, it is estimated that 48 million individuals have hearing loss and contrary to popular opinion, the vast majority are not old. For people experiencing hearing loss in the US, approximately 62 percent are younger than 65. In fact, 1 in 6 baby boomers (ages 55-73), 1 in 14 Generation Xers (35-54), 1.4 million children (18 or younger), and 2-3 out of 1,000 infants have some form of hearing loss.¹

This Hearing Health Guide is designed to provide information on what you

need to know about your hearing health journey. It covers a broad spectrum of topics from types of hearing, degrees of hearing loss, how to test for hearing loss, steps you can take for prevention and other related subjects.

Whether you are concerned that your hearing is being impacted now or you are anticipating dealing with your hearing health at a later stage, it's never too early to educate yourself on this important health issue.

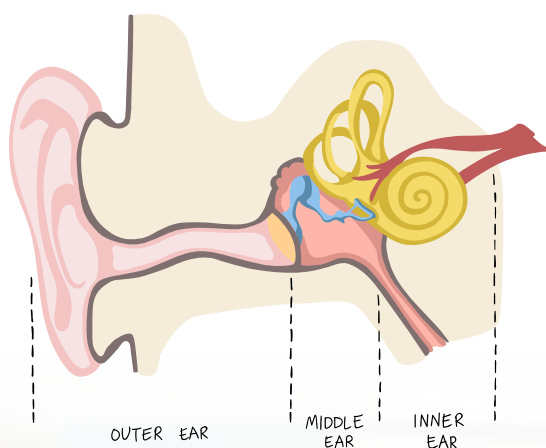
¹ <https://hearingmatters.biz/10-surprising-facts-about-hearing-loss/>



About Hearing Loss

Conductive Hearing Loss

Your ear is made up of three parts— the outer, the middle, and the inner ear. Conductive hearing loss may happen when sounds cannot get through the outer or middle ear systems. Impaired or occluding ear wax in the outer ear or a middle ear infection, may be causes of a conductive hearing loss.



Sensorineural Hearing Loss

This occurs in the cochlea, also known as the hearing organ or inner ear. Damaged or missing hair cells within the cochlea are classified as a sensorineural hearing loss. Types of sensorineural hearing loss can include: occupational noise induced hearing loss; be the result of head trauma; toxic exposure; and is also a common part of the ageing process.

Mixed Hearing Loss

Mixed hearing loss is a combination of both sensorineural and conductive hearing loss. It results from problems in both the inner and the outer or middle ear.

Neural Hearing Loss

When the auditory nerve is damaged or missing, this is known as a neural hearing loss. Hearing aids and cochlear implants cannot help because the nerve is not able to pass on sound information to the brain.





Signs of Potential Hearing Loss

Do any of the following situations sound familiar?

- It seems as though people are constantly mumbling
- You ask others to repeat themselves on a regular basis
- Conversations become muddled or indecipherable in noisy environments
- Others complain that the TV volume is too loud
- It's difficult to hear certain voices, particularly those of women or children
- You no longer hear noises like rustling leaves, footsteps or whispers
- Music sounds less rich or full-bodied than it used to

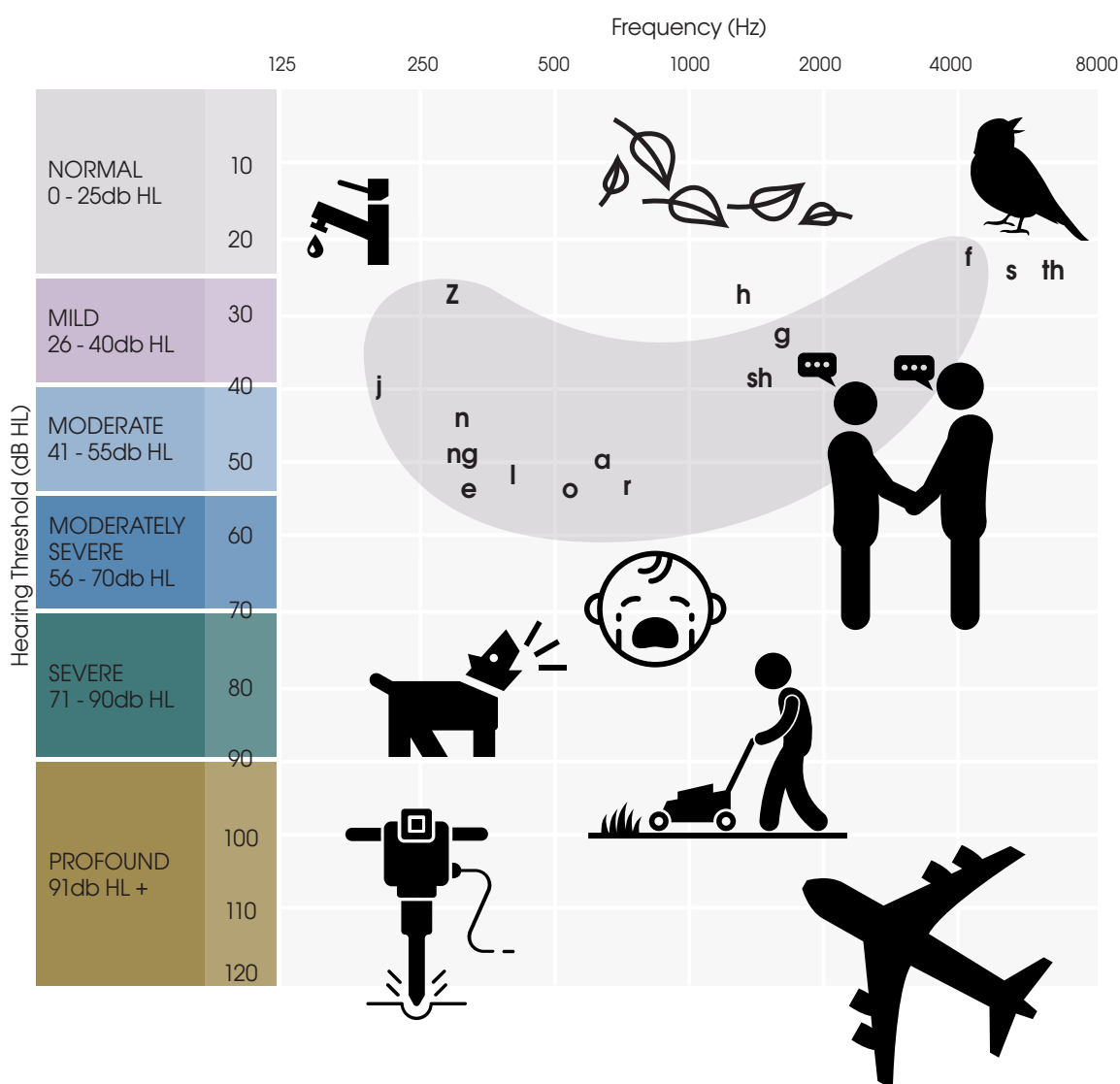
If so, it's possible you may have some degree of hearing loss. As mentioned earlier, it's an incredibly common health condition, and thankfully there are now ways you can hear better that are affordable and could improve the quality of your life. Treating hearing loss can provide significant benefits including enhanced mood, greater productivity, and even the potential to reduce risk of future cognitive decline.

Degrees of Hearing Loss

Understanding your degree of hearing loss is vital to identifying the right treatment.

For example, hearing buds may be right for someone with mild to moderate hearing loss, while hearing aids or hearing implants may be better for someone with moderate to profound hearing loss.

Look at the audiogram below. You'll see where sounds fall in loudness and frequency scales to help you understand what you may not be able to hear.



Approximately 48M Americans have some degree of hearing loss

There are several easy, natural things you can do on your own that may help hone your sense of hearing before professional intervention becomes necessary. Listen up to the following recommendations.

Get some exercise (No gym required)

Your ears detect sounds, but it's your brain that interprets them. Exercises that strengthen your brain's hearing comprehension skills might help make you a better listener. Here are two activities you can try:

1. Go for a walk in the woods, on the beach or in a similar setting with little man-made noise. Focus on your surroundings and write down everything you hear, from birds chirping to the wind blowing. Repeat this exercise several days in a row to gradually become more attuned to the ambient noise.
2. Have a partner read aloud to you from a book or magazine on an unfamiliar topic. After each sentence, try to repeat exactly what your partner said. Once you're able to consistently repeat the sentences word-for-word, try the exercise again with the TV on in the background or in a noisy restaurant.

Pass the vitamins

Several vitamins and minerals have been linked to ear function and hearing.²

- Folic acid may promote circulation to your ears, as well as energy production in the cells responsible for hearing.
- Magnesium aids healthy nerve function in the auditory system and could assist in preventing damage to the inner lining of your arteries.
- Zinc may protect the hair cells within your ear, which are responsible for emitting the vibrations that send electrical signals to your brain. Zinc also supports your body's immune system, helping prevent ear infections.
- B vitamins could offer a host of potential benefits for your ears, including regulation of fluid levels and optimization of oxygen use.

² <https://www.earq.com/blog/9-ways-to-protect-your-ears>



How does it happen?

Hearing loss can happen at any age and result from many factors outside of our control. While noise exposure is the most common threat, other preventable culprits pose threats as well.

The tips listed here can help identify risks and prevent hearing loss — or stop it from getting worse.

Preventive Tips to Keep Your Hearing Sharp

- Control the volume. Exposure to loud noises on a regular basis is one of the most common reasons for hearing loss — and the most preventable. If you can't reduce your exposure, be sure to protect your ears by using ear plugs or wearing noise cancelling headphones.
- Have a quiet break or giving your ears a rest from noise exposure can also help.
- Check prescription medications for side effects related to hearing loss. More than 100 medications, including antibiotics and cancer-fighting drugs, can damage hearing. Check with your doctor to make sure that any prescription medications you're taking won't impact your hearing.
- Protect your ears from extreme cold by wearing a hat or ear muffs.
- Never stick cotton swabs or other objects in your ear to remove wax or scratch your ear. Your ears are self-cleaning and will only require care by a healthcare professional.

Other hearing disorders

Tinnitus

Tinnitus is a hearing condition where people hear noises, hisses or hums that have no external source – this unreal sensation is often described as a ‘ringing in the ears,’ which can either be low or high-pitched. Can lead to stress and anxiety. It can be intermittent or continuous and can occur in one or both ears and is often most noticeable in quiet listening environments. In rare cases, the sound sensations produced by the condition can be in sync with an individual’s heartbeat. When this occurs, it is known as Pulsatile Tinnitus.

Auditory Processing Disorders

Auditory Processing Disorders (APD) occur when the brain has problems processing the information contained in sound, such as understanding speech and working out where sounds are coming from. APD is a hearing problem that affects about 5% of school-aged children. Children with this condition can’t process what they hear in the same way other children do because their ears and brain don’t fully coordinate.

As a result, APD sufferers experience difficulties in hearing and understanding conversations over background noise or have trouble locating certain sounds. Children who have APD can experience difficulty learning in a classroom environment. Unlike other more common hearing problems, APD can occur infrequently so that individuals can have no problems processing different sounds one day and the next day, they struggle to make sense of the sounds that surround them. The individual has normal hearing but the auditory pathways along the brain can’t process accurately.

Meniere’s Disease - Vestibular Hearing Condition

Meniere’s Disease, also known as Idiopathic Hydrops, is a condition of the Inner Ear, symptoms include fluctuating hearing loss, ringing in the ears and a feeling of fullness in the ears, dizziness and other balance problems.

Meniere’s Disease typically occurs as a series of episodic attacks where an individual experiences a combination of Hearing Loss, Tinnitus and Vertigo along with having the sensation of a full ear. These attacks, which can last anywhere from 20 minutes to a few days, can be debilitating. It can happen at any age.

While it affects each individual differently, a typical attack results in hearing loud distorted sounds coupled with a fluctuating hearing loss. The associated Tinnitus can occur during or before the periods of hearing loss. If left untreated, the attacks can evolve to include bouts of Vertigo and dizziness with the associated hearing loss becoming permanent.

How hearing loss is tested

The best, most reliable and recommended way to evaluate potential hearing loss is to schedule an appointment with a certified audiologist. In addition to a physical examination of your ears the audiologist will likely conduct a multi-step audiological evaluation. The results of this type of evaluation output to an audiogram, which will diagnose your level of hearing, severity and type of hearing loss.

Types of Hearing Tests

Pure Tone Testing

Known as pure tone audiometry, this test uses air conduction to measure your ability to hear various pitches and volumes. A series of sounds will be played and you will press a button when you hear the tone.

Bone Conduction Testing

This is another type of pure-tone test that measures your inner ear's response to sound. Using a behind the ear conductor tiny vibrations are sent through bone to the inner ear.

Speech Testing

This test is used to measure your ability to separate speech from background noise.

Tympanometry

This test measures the physicality of your eardrum using air pressure. It measures how your ear drum moves and the pressure in your middle ear cavity.

Acoustic Reflex Testing

Monitors the stapedial reflex and the tensor tympani reflex in the middle ear system in response to loud sounds.

Auditory Brainstem Response (ABR)

Using electrodes attached to the head an ABR is used to measure brainwaves at different intervals and intensities across the auditory pathways.

Otoacoustic Emissions (OAEs)

Measure the health or function of the outer hair cells.



Nuheara uses both Pure tone testing or Speech Testing in our EarID™ software and our online hearing check.

For those not ready to see an audiologist, whatever the reason may be, emerging technologies such as Ear ID™ offer a way for you to self-assess your hearing profile from the comfort of your home. After a simple 10-minute assessment, Ear ID™ generates a clinically-validated result.

IQbuds BOOST or IQbuds² MAX then auto-calibrate the speech and sounds of your world based upon your personal hearing profile. IQbuds use prescription formula (NAL-NL2) used by audiologists around the world to calibrate high-end hearing aids.

Should you have a hearing test? Use the check list below to see if you are due for a hearing check!

*This hearing check is not a substitute for an audiogram conducted by an audiologist or hearing professional. It is designed to provide a quick assessment of your hearing range as a first step in your hearing health journey.

SELECT THE ANSWER BELOW THAT MOST SUITS YOU.

I have problems hearing when I'm on the phone

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I have trouble following conversations when two or more people are talking at the same time.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I sometimes have trouble understanding things on TV.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I have to strain to understand conversations.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I sometimes worry about missing a telephone ring.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I have trouble hearing in noisy environments such as pubs and restaurants.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I get confused about where sounds come from.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree



I sometimes miss words in sentences, and need to ask people to repeat themselves.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I especially have trouble understanding the speech of women and children.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I have trouble understanding the speaker in a large room such as a meeting or place of worship.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

Many people I talk to seem to mumble (or don't speak clearly)

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

People get annoyed because I misunderstand what they say.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I misunderstand what others are saying and make inappropriate responses.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

Family members and friends have told me they think I may have hearing loss.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

I avoid social activities because I cannot hear well and fear I will reply improperly.

0	1	2	3	4
Strongly Disagree		Neutral		Strongly Agree

Add up your score Total: _____

If you scored mainly 0s and 1s or totalled 10 or below then you may have a normal hearing profile that could be enhanced with Nuheara products.

If you scored mainly 1s, 2s or 3s or had a total score between 11-32 you may have some hearing difficulty and better hearing could be enhanced with Nuheara products.

If you scored over 32 we recommend that you seek further advice from your doctor, ENT specialist or an Audiologist to find out more about specialized solutions for your

Are Nuheara Products an alternative for a hearing aid?

The IQbuds BOOST and IQbuds² MAX are not a hearing aid nor a medical device, but customer feedback has demonstrated that they help those with mild hearing difficulties hear speech much better in noisy environments.

They are intelligent earbuds with part of their functionality typically described as a Personal Sound Amplification Product (PSAP). They also have Bluetooth capabilities to allow you to connect to smart devices for phone calls and audio streaming.

IQbuds BOOST and IQbuds² MAX are designed to help those with mild to moderate hearing difficulties. They have SINC (Speech In Noise Control), as well as Ear ID™ - a hearing assessment that automatically adjusts the buds to your hearing frequencies. They may be a good starting point on your hearing healthcare journey.



What can Nuheara Products help with?

IQbuds are designed to help those with low to mild hearing difficulties.

IQbuds Boost are designed to help those with mild to moderate hearing difficulties.

The IQbuds and IQbuds BOOST are not intended to diagnose, treat, cure, or mitigate disease. It is not intended as an aid for a person with a persistent hearing impairment or who are experiencing the following medical conditions:

- Conductive hearing loss
- Asymmetric hearing loss (A difference between ears)
- Ear Pain
- Ear Drainage
- Sudden hearing loss
- Dizziness
- Tinnitus
- Vertigo

It has been down to the individual, however there have been some customers who report benefits from using our products.





IQbuds² MAX

IQbuds² MAX with Active Noise Cancellation and Ear ID personalization is the world's most advanced hearing bud.

True Personalization

Nuheara's Ear ID™ technology uses a convenient mobile app to assess a wearer's hearing and automatically calibrate the buds to their personal hearing profile. Ear ID™ uses the clinically-validated NAL-NL2 hearing test—a neural network-driven system that optimizes the hearing augmentation engine to the user's personal preferences. This provides research-grade hearing personalisation through our digital application.

Hybrid Active Noise Cancellation

With the most advanced form of ANC, IQbuds² MAX uses three microphones to analyze and process sounds both inside and outside the ear. Advanced filtering circuitry creates cancellation waves in the ear to reduce distracting sounds and in-ear occlusion. With the tap of a finger, users can block external noises. Working in combination with SINC, this feature delivers a premium dual noise-isolation experience for unparalleled noise mitigation and control.

Situational Sound

Nuheara's proprietary Speech in Noise Control (SINC) adds unique sound controls for each situation. With SINC, wearers can quickly toggle their earbuds to the most comfortable noise settings for their location—muting background noise and enhancing focus on their direct conversations in a noisy environment.

Advanced Digital Signal Processing

IQbuds² MAX triple-core DSP system delivers optimal hearing fidelity and reduces occlusion to deliver the most natural enhanced sound ever in a hearing bud. IQbuds² MAX have a 450MIPS signal processing engine in each earbud, offering an optimal natural sound experience.

Sonic Accuracy

A large 9.2mm dynamic driver with vented acoustical design provides pitch-perfect sound fidelity. This improves sound quality, especially bass, which can be an issue with smaller earbuds.

App Syncing

With iPhone and Android, Nuheara's user-friendly apps allow full control of the listening environment, including noise reduction and hearing processing. Users can adjust hearing preferences from the app and receive future developments and upgrades for the IQbuds² MAX.

Intelligent controls

Nuheara's smart sensors provide intuitive tap-touch and gesture control for seamless user experience.

Water and sweat-resistant

All of Nuheara's products are designed to maximize compatibility for an active lifestyle.



IQBuds BOOST

The world's first smart hearing buds.

All the best features of true wireless earbuds with advanced hearing technology that allow you to hear what you want to hear.

IQbuds BOOST use cutting edge hearing technology allowing you to self-assess and automatically calibrate your IQbuds BOOST using Ear ID™ from the comfort of your home, with Ear ID™, you can recalibrate your IQbuds BOOST at any time.

- Blend your audio streams & noise from the world around you for situational awareness.
- 20 hours of on-the-go Bluetooth Streaming.
- 32 hours of on-the-go Hearing Processing.
- Listen to your favorite music and audio streams with premium sound.
- Simply tap on the bud to turn the volume of the world on or off.





IQstream TV

Hear TV Better

IQstream TV gives you control of your own volume levels, allowing others with you to watch tv at comfortable levels. Stream high fidelity sound direct to your IQbuds² MAX or IQbuds BOOST for an immersive audio experience like no other.

- Receive wireless updates to your IQstream TV from the Nuheara app.
- Qualcomm® aptX™ Low latency technology for Hi-Fi sound.
- Our proprietary dual antenna technology ensures perfect audio wherever you sit in the room.
- USB power. Conveniently powered directly from the USB port on your TV.
- Digital and Analog outputs for high fidelity connection to external audio equipment.



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