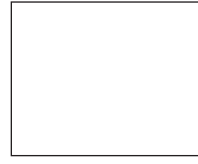


Learn more about better hearing solutions at backmountainhearing.com

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Hear for You

How does human hearing compare?

Human
20Hz – 20kHz



Bat
15kHz – 90kHz



Dolphin
75Hz – 150kHz



Moth
10kHz – 300kHz



Rat
900Hz – 79kHz



Bird
1kHz – 4kHz



Cat
55Hz – 79kHz



Dog
64Hz – 44kHz



Elephant
17Hz – 10.5kHz



Blue Whale
14Hz – 36Hz



Do you have a friend or family member who has hearing loss?

Invite them to our upcoming **Brain Hearing & Technology Lunch & Learn!**

Wednesday, October 5th at 11:30AM

Red Rooster Restaurant

2407 PA-118, Hunlock Creek, PA

Space is limited – please call our office at **(570) 733-3112** to reserve a spot



Contact Us:

2449 State Route 118, Hunlock Creek, PA 18621

(570) 733-3112

www.backmountainhearing.com



Kayla Bloom-Trosky, Au.D.



Kaitlin Mausteller, Au.D.

Features

- How Humans and Animals Hear
- The Truth About Hearing Loss
- The Sounds Around Us

How Humans and Animals Hear

Our hearing is an integral part of our lives. It affects our conversations professionally and socially, our enjoyment of recreational activities, and our safety and overall health. It is worthwhile, then, to understand how our ears work.

Sounds enter the outer ear first and then travel through the narrow passageway of the ear canal towards the eardrum. The sound waves then cause the eardrum to vibrate and send the vibrations to the three small bones in the ear. These bones are responsible for increasing the volume of the sounds and then sending them along to the fluid-filled cochlea, which is located in the inner ear. The vibrations create ripples in the cochlea's fluid that form a wave along the hair cells of the inner ear. The first hair cells detect higher pitches, while those further in detect lower frequencies. The movement of the hair cells begins a process that creates an electrical signal. That signal is then carried by the auditory nerve to the brain, where it can be translated from a sound we hear into something we understand.

This complicated process is what we rely on to understand friends, family, coworkers, and various forms of entertainment. If there is a problem anywhere in the process, it can impact our hearing and understanding.

While a human's hearing may seem remarkable, we can't use our hearing to find our way in the dark, to show our emotions, to keep ourselves cool, or to predict a volcanic eruption. There are animals, however, whose hearing is so advanced and unique that they do possess these features.

Our ability to hear is measured in Hertz, which are the units of frequency in cycles per second. The range of normal hearing is 20 Hz to 20 kHz, and higher frequencies are most commonly degraded with noise and age. Higher frequencies are more vital for speech understanding and are the most common range where people experience hearing loss.

Interestingly, the animal with the best hearing has some of the smallest ears around. The moth is ranked highest in hearing



ability, which contributes to why they are so difficult to catch if they come into your home. Moths can hear at an incredibly high frequency, which protects them from another hearing powerhouse: the bat. A moth can hear frequencies up to 300 kHz, while bats hear between 15 to 90 kHz.

In addition to hearing well, bats use their hearing to help them find their way around. This process, called echolocation, is used by other animals as well, such as dolphins.

Many animals have other unique features of their ears that humans don't. Owls' ears, for example, are positioned asymmetrically which gives them a greater range of hearing in order to discover the location of their prey.

Elephants, who can hear other elephants call up to two and a half miles away, use the immense size of their ears to keep them cool in desert climates.

Cats can rotate their ears 180 degrees to aid in their hearing ability, which is made possible by the many bones and muscles in their small ears, and they can hear up to 79 kHz. Horses can show their emotions through ear position -- if they pull their ears back, flat against their head, you may want to back away!

Pigeons are exceptional for their ability to hear long distances. They can tell if a storm is coming or if a volcano is going to erupt.

Hearing is a varied and complicated ability that greatly impacts the everyday lives of humans and animals alike. Each animal's hearing is unique to its lifestyle, needs, and abilities, and humans are no exception.

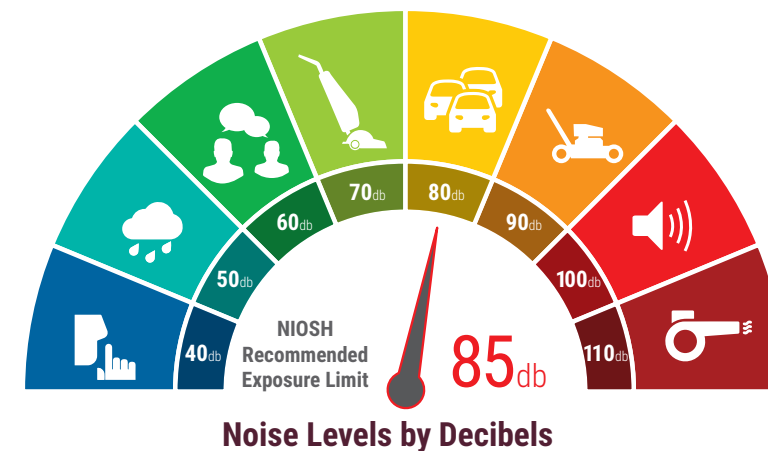
The Sounds Around Us

We know that one potential threat to our hearing health is the impact of loud sounds. Continued exposure to loud sounds at the workplace, or even one-time events such as visiting a shooting range or attending a concert, can cause temporary or permanent hearing loss and/or tinnitus (a sustained ringing in the ears).

Many common everyday sounds actually surpass a safe volume level. Awareness of these sounds can help you in preventing further damage to your hearing.

The first step to understanding which sounds are too loud is to gain an understanding of volume. Volume is a measurement of sound level, measured in units called decibels (dB). Most sounds fall within a range of 0 – 140 dB. If a sound is higher than that, it will immediately affect your hearing. Higher decibels can result in greater damage to your hearing, and even being exposed to a sound of 110 dB for only one minute can have a lasting effect on your hearing.

Determining if a sound is too loud is more than merely the volume – it also depends on the length of exposure and your proximity to the sound. For example, sounds in the 80 dB range can negatively affect your hearing if they are heard repeatedly over time. To give some context for this, here are the decibels of some common sounds:



- A whisper is approximately 20 dB
- Normal conversation about 60 dB
- Typical city traffic outside of your vehicle comes in around 85 dB
- A lawn mower is about 94 dB
- An ambulance siren is about 100 dB
- A leaf blower is about 115 dB
- Fireworks reach the dangerous level of 140 dB

Listening to the highest of these sounds can be harmful to your ears. The louder the sound, the less time is needed for it to cause damage to your hearing. Similarly, the closer you are to the source of the sound, the greater the impact will be on your hearing.

On an average day, you will probably encounter a number of sounds that can be damaging to your ears. From a drive to work through traffic to the sound of a blender at your favorite coffee shop, potentially harmful sounds are all around us. Think about your average day -- how many sounds do you encounter that may be harmful to your ears?

It is important to realize that even pleasant sounds can be harmful to our ears. You may enjoy a symphony, but listening to one for over two hours could harm your ears, and a sound can be harmful to your ears even if it doesn't feel painful or loud to you.

Thankfully, simple precautions such as wearing proper ear protection, listening to media devices at a safe volume, stepping outside for hearing breaks at noisy events, or covering your ears when loud machinery or vehicles pass by can help protect your hearing. If you are interested in custom hearing protection, contact us and we can show you what's available.



The Truth About Hearing Loss

When it comes to your hearing, we want you to know the facts. Understanding the truth about our ears and hearing can help us to make informed decisions about when to seek treatment or advice about our hearing health.

Here are some common misconceptions about hearing and the truths behind them:

Myth 1:

Only aging people experience hearing loss: While it is true that aging can impact hearing loss, it is not the only cause. Hearing loss can be related to genetics, physical problems with the ear, infections, and exposure to loud sounds. None of those factors are directly related to age.

Myth 2:

Hearing loss and deafness are the same: Deafness is an extreme form of hearing loss, but most people who experience hearing difficulties can hear some sounds easily while missing other sounds.

Myth 3:

If someone can't hear you, talk louder: Volume is not always the issue. Many times the listener can hear the sounds, but can't distinguish them correctly. Slowing down your speech is often more effective than increasing your volume.

Myth 4:

Hearing aids are funny looking: Today's hearing aid technologies come in many small and hardly noticeable shapes and sizes. Some are designed to fit inside your ear and others tuck invisibly behind them. They can even be customized to match your skin tone or hair color.

Myth 5:

Hearing loss isn't a "real" medical issue: Struggling to hear can affect your overall physical, emotional, and social health, and has been linked to cognitive decline. If you suspect you have hearing loss, it shouldn't be ignored.