

# Noise Induced Hearing Loss (NIHL)

Exposure to harmful noise can happen at any age. People of all ages, including children, teens, young adults, and older people, can develop NIHL. According to the Center for Disease approximately 15 percent of Americans between the ages of 20 and 69—or 26 million Americans—have hearing loss that may have been caused by exposure to noise at work or in leisure activities. It also reports as many as 16 percent of teens (ages 12 to 19) have hearing loss that could have been caused by loud noise especially from listening to music.

## What are the effects and signs of NIHL?

When you are exposed to loud noise over a long period of time, you may slowly start to lose your hearing. Because the damage from noise exposure is usually gradual, you might not notice it, or you might ignore the signs of hearing loss until they become more pronounced. Over time, sounds may become distorted or muffled, and you might find it difficult to understand other people when they talk or have to turn up the volume on the television.

## Hearing Loss and Music

Adults and children are commonly exposed to loud music. Listening to loud music through ear buds connected to devices like iPods or MP3 players or at music concerts can cause hearing loss.

The inner part of the ear contains tiny hair cells (nerve endings).

- The hair cells change sound into electric signals.
- Then nerves carry these signals to the brain, which recognizes them as sound.
- These tiny hair cells are easily damaged by loud sounds.

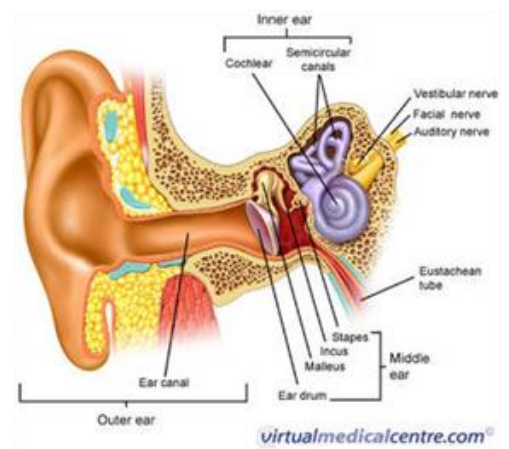
## Decibels of Sound and Hearing Loss

The decibel (dB) is a unit to measure the level of sound.

- The softest sound that some humans can hear is 20 dB or lower.
- Normal talking is 40 dB to 60 dB.
- A rock concert is between 110 dB and 120 dB, and can be as high as 140 dB right in front of the speakers.
- Headphones at maximum volume are 105 dB.

## The risk of damage to your hearing when listening to music depends on:

- How loud the music is
- How close you may be to the speakers
- How long and how often you are exposed to loud music
- Headphone or earbud use



- Family history of hearing loss
- Children who play in bands can be exposed to high decibel sounds, depending on which instruments they sit near or play.

### *Hearing Loss and Earbuds*

Chances are that all you know about earbuds is that they're easy to carry around and they sound good. Earbuds are useful little devices as long as they're used at low volumes. But they're basically a pair of tiny speakers that you wear inside your ears. And loud music playing that close to your eardrum can cause permanent hearing loss.



### *How Earbuds Damage the Ears*

Believe it or not, earbuds can damage your hearing in the same way that things like chainsaws and motorcycles can. That may seem weird because earbuds are so small. But the damage is all in the volume.

Chainsaws and motorcycle engines create about 100 decibels of sound. That much sound can start to damage a person's ears after less than half an hour. An MP3 player at 70% of its top volume is about 85 decibels. Turning the volume up and listening for long periods of time can put you in real danger of permanent hearing loss.

### **What to Do**

Noise-induced hearing loss from using earbuds usually takes a while. Because it happens gradually, a lot of people don't know they have a problem until it's too late.


See your health care provider for signs of hearing loss if:

- Some sounds seem louder than they should be
- It is easier to hear men's voices than women's voices
- You have trouble telling high-pitched sounds (such as "s" or "th") from one another
- Other people's voices sound mumbled or slurred
- You need to turn the television or radio up or down
- You have ringing or a full feeling in your ears

### *Using Earbuds the Right Way*

Noise-induced hearing loss due to earbuds is 100% preventable if you use them in moderation.

You've probably heard the saying, "All things in moderation." Not overdoing things is true whether you're eating chocolate cake or using earbuds. The more cake you eat, the faster you'll gain weight. The louder the volume, the faster hearing loss can happen.

 **Top Things to Know About Earbuds**

- You're more at risk of hearing loss if you use earbuds than if you use over-the-ear headphones.
- Because earbuds play in your ear canal they can increase a sound's volume by several decibels.
- To stay safe, follow the 60/60 rule: No more than 60% of maximum volume for no more than 60 minutes.
- If you're using earbuds and people around you can hear your music, it's loud enough to be causing permanent hearing loss!

So, what does moderation mean when it comes to using earbuds? Doctors recommend the **60%/60-minute rule**:

- Listen to music or play a movie or video game at no more than 60% of the maximum volume.
- Limit the amount of time you spend with earbuds in your ears to 60 minutes.

Here's another trick you can use to find out if your earbuds are at a safe volume: Ask people sitting near you if they can hear your music. If they can, it's a sign that your hearing is being damaged. Turn the volume down until other people can no longer hear it.

Hearing loss isn't the only problem that earbuds can cause. Listening to music at a loud volume can make you unaware of what's going on around you. That increases your chances of an accident. If you're running on a bike path, for example, it's hard to hear a cyclist shout, "Heads up!" when your music drowns out all other sounds.

#### *Are There Other Options?*

It might feel like every phone or music player comes packaged with a tiny pair of earbuds. After all, they're cheap to manufacture and easy to use.

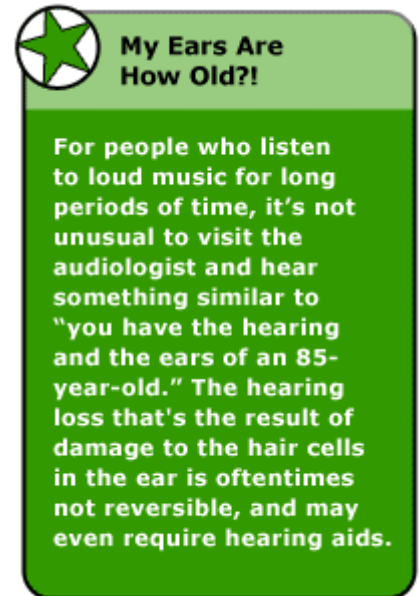
So, what can you do? Go retro with headphones. There's a reason they're making a comeback. Sometimes old-school is better.

Most electronics stores have entire sections devoted to headphones. The best headphones, noise-canceling headphones, help block out other noises. That way, you don't have to turn up the volume on your music as loud to hear it well. Noise-canceling headphones may be good for staying focused on studying or homework, but they're not great choices if you need to hear the world around you.

Headphones that go over your ears can also damage your hearing if you use them too long or play music too loudly. They're just not as much of a risk as earbuds are: Having the source of the sound in your ear canal can increase a sound's volume by 6 to 9 decibels — enough to cause some serious problems.

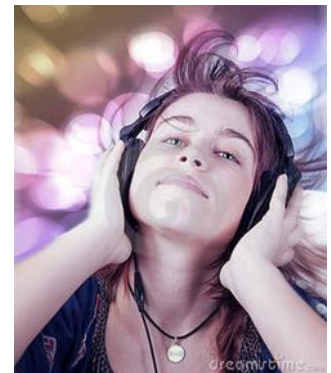
Earbuds exist because so many of us love music. So, you probably want to protect your hearing so you can continue to appreciate music. That's why it helps to know about the risks of earbuds (and other noise hazards) so you can take steps to be safe.

**If you have any questions about this topic, please reach out to CompassionLink at [info@compassionlink.org](mailto:info@compassionlink.org). We will be happy to answer your questions.**



**My Ears Are How Old?!**

For people who listen to loud music for long periods of time, it's not unusual to visit the audiologist and hear something similar to "you have the hearing and the ears of an 85-year-old." The hearing loss that's the result of damage to the hair cells in the ear is oftentimes not reversible, and may even require hearing aids.



---

#### Sources:

<https://www.nlm.nih.gov/medlineplus/ency/patientinstructions/000495.htm>

<https://www.cdc.gov/ncbddd/hearingloss/noise.html>

<http://www.nidcd.nih.gov/health/hearing/pages/noise.aspx>