

## TeensHealth.org

A safe, private place to get doctor-approved information on health, emotions, and life.



## 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.

Hearing loss from earbuds is an example of a condition called noise-induced hearing loss (NIHL). This kind of hearing loss is becoming more of a problem among kids and teens.

### How Does Noise Cause Hearing Loss?

The ear is made up of three parts that work together to process sounds: the outer ear, the middle ear, and the inner ear. Part of the inner ear called the cochlea contains tiny hair cells. These hair cells help send sound messages to the brain. But loud noise can damage the hair cells. When this happens, the cochlea can't relay sound messages to the brain as well.

Unlike damage to other parts of your body, inner ear damage never heals. Over time, as more and more hair cells get damaged, your hearing will get worse and worse.



**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!

## 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.

Signs you may have hearing loss are:

- ringing, buzzing, or roaring in your ears after hearing a loud noise
- muffling or distortion of sounds

What should you do if you think you have signs of hearing loss? Call your doctor. The doctor may examine you and send you to see an **audiologist**. The audiologist will most likely give you a series of tests to determine how much your hearing has been affected.

The audiologist can also answer any questions you might have about using earbuds and about protecting your hearing.

## 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.

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.

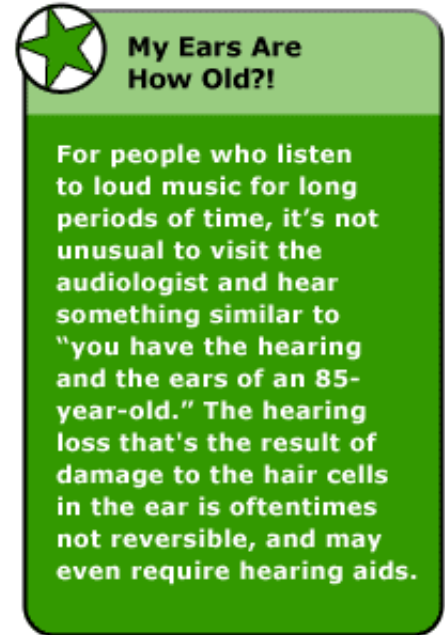
Most electronics stores have entire sections devoted to headphones. The best headphones, noise-canceling headphones, help block out other noises. That way, you don't have to turn up the volume on your music as loud to hear it well. Noise-canceling headphones may be good for staying focused on studying 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.

Reviewed by: Danielle Inverso, AuD, PhD

Date reviewed: January 2015



Note: All information on TeensHealth® is for educational purposes only. For specific medical advice, diagnoses, and treatment, consult your doctor.

© 1995-2015 The Nemours Foundation. All rights reserved.

Images provided by The Nemours Foundation, iStock, Getty Images, Corbis, Veer, Science Photo Library, Science Source Images, Shutterstock, and Clipart.com