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On the Teen Scene: Enjoy, Protect the Best Ears of Your Life

by Rebecca D. Williams

Rock musician Kathy Peck had been playing bass guitar for several years. But when her three-piece band, The Contractions, opened for Duran Duran at the Oakland Coliseum in California in 1984, Peck, then in her mid-20s, heard more than the echo of applause.

"My ears were ringing for days afterward," she remembers. Eventually Peck found she had destroyed 40 percent of her hearing from years of playing loud music.

"I was basically deaf for three years. It was very frustrating, very isolating," Peck says. It took her several years to learn to manage her handicap with hearing aids and lip reading.

"People in the music industry told me not to let anyone know about my condition, because they wouldn't listen to my records or anything," she says. "People were afraid, like I had leprosy."

Peck is just one of 23.3 million Americans who have hearing loss, according to a 1990 survey by the National Center for Health Statistics. About 1.3 million of them are 18 or younger. Although statistics are lacking, anecdotal evidence suggests more young people are losing their hearing today than ever before.

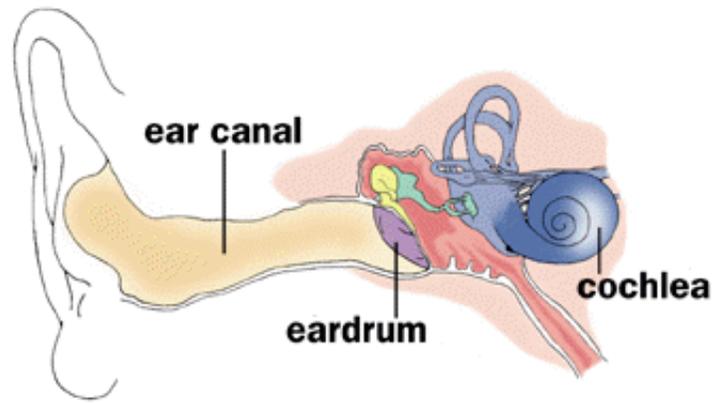
According to the National Institutes of Health, one-third of all hearing loss cases stem at least in part from the loud noises of modern life: power lawn mowers, jet engines, city traffic, loud appliances, rock music, stereo headsets.

Some 59 million Americans are exposed to urban traffic noise, 16 million to aircraft noise, and 3.1 million to highway noise, according to the U.S. Environmental Protection Agency.

Loud noises destroy the tiny hair cells in the inner ear that signal the auditory nerve to send sound messages to the brain. Once those cells die, they never grow back.

The result is a kind of deafness called "sensorineural hearing loss." This affects both volume and clarity, first at high pitches, then later at lower pitches where speech is heard.

Noise may also cause "tinnitus," a ringing in the ears. Besides being a constant annoyance, tinnitus often signals impending hearing loss. Although both conditions are permanent and incurable, they can be improved with hearing aids.



FDA regulates those devices, as well as equipment to diagnose hearing loss. But the agency hopes you choose an easier path to better hearing--protecting your ears while they're young.

"One of the things that bothers me is that [young people] are aging their ears before their chronological time," says audiologist David Lipscomb, who has researched hearing loss in students at the University of Tennessee.

In the fall of 1969, he tested the hearing of entering freshmen and found about 60 percent of them had hearing loss. Fourteen percent of the young men tested had hearing similar to the average 65-year-old. By comparison, only 3.8 percent of sixth-graders had hearing loss, suggesting that something--probably noise--was damaging hearing during the teen years.

"We know that the average 70-year-old will have some impairment from aging," says Lipscomb. "But for young people [exposed to loud noises], the aging process is speeded up. They're blowing their spare tires."

Modern Life: A Pain in the Ear

In the absence of loud noises, hearing doesn't appear to deteriorate much with age.

For example, deep in the Sudan bush, a primitive tribe lives in a quiet environment, surrounded by swamps and the White Nile River. A study done in the early 1960s found that people of any age in the tribe had hearing superior to that of a comparison group of American farmers. Furthermore, the old people heard as well as the young.

Modern life is much harder on hearing. According to the American Speech-Language-Hearing Association (ASHA), an estimated 20 million Americans are regularly exposed to noise at dangerous levels.

Noise is measured in decibels. Anything 80 decibels or louder, such as a loud buzzer alarm clock, is potentially dangerous, according to ASHA. The higher the decibel, the louder the noise. The accompanying noise scale shows the loudness of common sounds.

The louder the noise, the shorter the time it takes to hurt your hearing. Your ears can endure 90 decibels of noise, such as a lawn mower, for about eight hours before damage occurs. For every 5 decibels above that, it takes only half as much time for damage to begin.

A noise at 95 decibels will hurt your ears in four hours. An arcade full of video games could cause damage in two hours. The average rock concert or stereo headset set at full blast (about 110 decibels) could damage your ears in a half hour.

Like Peck, most people don't notice they've lost any hearing until they develop tinnitus or they can't understand speech.

But the damage begins long before that. An individual concert, hunting trip, lawn mower, or power tool may not hurt your ears at the time, but added together over the years, they can be disastrous.

Have you ever walked away from a construction site or loud concert and everything sounds as if you're under water? Or you feel a fullness or buzzing in your ears?

That's called a "temporary threshold shift." Although it goes away, it's a signal that you've damaged some hair cells in your inner ear. The cells will probably heal, but additional damage may permanently destroy them.

Want Better Hearing? Shhhh!

The best way to safeguard your hearing is to avoid loud noises as much as possible.

How do you know if you're in danger? Lipscomb gives four clues:

- if your ears are ringing
- if things sound muffled, as if you're in a barrel
- if sounds are distorted, as if they're coming through a poor-quality speaker
- if you find yourself shouting to communicate.

The rule of thumb for listening to music is to keep it low enough so that you can hear other sounds above the tunes. If you're listening to a Walkman portable radio or similar headset, no one else should be able to hear your music.

When loud noise can't be avoided--such as when you're mowing the lawn, working in shop class, or attending a concert--guard your ears with hearing protection devices.

Stuffing cotton in your ears will not do the trick. Good hearing protection is available with a number of devices, the most common and least expensive of which are earplugs.

Earplugs are available at most drug, hardware, music, and sporting goods stores, and custom-made plugs are available through an audiologist.

Made of foam rubber or plastic, earplugs come with a noise reduction rating on the label established by the Environmental Protection Agency.

The Occupational Safety and Health Administration, which regulates hearing safety in the workplace, recommends using earplugs with a rating twice as strong as you need to ensure protection.

For instance, if you're going to be mowing the lawn (90 decibels), you'd need to reduce the noise by about 15 decibels to be in a safe range, so buy earplugs with a 30-decibel rating.

For a rock concert (110 decibels), you'd need 45-decibel plugs. These are usually only available from an audiologist. If you can't get them, buy the strongest rating available in a drugstore (about 30 decibels). The most important thing is that you wear something to block out the sound.

"Most people say that hearing protection devices distort sound," says John Steelnack, an industrial hygienist with OSHA. "They really don't," he says. "They just reduce the intensity."

For those who have already suffered damage, hearing aids can help, but they still cannot restore normal hearing.

People are rarely as satisfied with their hearing aids as with their eyeglasses because many older hearing aids can't clarify sounds. Newer hearing aids are better at picking up certain sound frequencies, screening out much unwanted background noise.

"Basically, a hearing aid is an audio amplifier that provides amplification in the frequency range where the patient has the greatest hearing loss," says Harry Sauberman, chief of the ear, nose and throat division at FDA's Office of Device Evaluation.

"One of the concerns about hearing aids is that many of them amplify ambient [background] noise. That may be the reason people leave them on the dresser. They just don't find them desirable."

Sound Advice

Rock musician Peck cherishes what's left of her hearing. To educate others about noise-induced hearing loss, she helped establish a nonprofit organization called [HEAR](#), for Hearing Education and Awareness for Rockers, with the Haight-Ashbury Free Medical Clinic in San Francisco.

HEAR has garnered a lot of publicity and support in the music industry, including a \$10,000 donation from musician Pete Townsend of The Who, who also has hearing loss.

HEAR sponsors free hearing screening in the San Francisco Bay area and has a 24-hour hot line for information about noise-induced hearing loss. For more information, write HEAR at P.O. Box 460847, San Francisco, CA 94146.

For a free pair of 30-decibel earplugs, write to the "Hearing Is Priceless" Program of the House Ear Institute, 2100 West 3rd St., Fifth Floor, Los Angeles, CA 90057.

While Peck doesn't play in a band anymore, she is still a rock music fan. However, now when she goes to concerts, she wears custom-made earplugs. Some are decorated with dangling earring-like ornaments.

She encourages other music fans to take precautions as well. "We're not against music, we're not anti-rock 'n' roll," says Peck. "I just want them to protect their hearing."

Rebecca D. Williams is a staff writer for FDA Consumer.

A Range of Noises

Here, listed by category, are an assortment of noises and their decibel levels:

Painful

- 140--firearms, air raid siren
- 130--jackhammer
- 120--jet plane takeoff

Extremely Loud

- 110--rock music
- 100--snowmobile, chainsaw
- 90--lawnmower

Very Loud

- 80--alarm clock
- 70--busy traffic, vacuum cleaner
- 60--conversation, dishwasher

Moderate

- 50--moderate rainfall
- 40--quiet room

Faint

- 30--whisper

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