

TO YOUR HEALTH

A Handful of Prevention Can Last a Lifetime

For musicians, prolonged exposure to excessive decibel (dB) levels is an occupational hazard that can't be avoided. Whether on stage or in an orchestra pit, many musicians are regularly exposed to dB levels up to 120—just 5 dB below the threshold where sound causes pain. For unprotected ears, the maximum amount of exposure to 120 dB is 7.5 minutes, according to the Occupational Safety and Health Administration (OSHA). Many health professionals believe even that amount is too much.

So rather than find a new line of work, what's a musician to do?

Lose the Cotton Balls

Your first, best, and perhaps only line of defense for performances and rehearsals are earplugs. If you don't already have a set (or two), go get them now. Some musicians have shunned earplugs for years, either because of a preconceived notion that "earplugs are for wimps," or because of a concern for having "muffled" sound affect their performance.

But consider for a moment the alternative, which is to lose your hearing—and most likely your career—for good.

Types of earplugs—as well as their effectiveness—vary greatly. Over-the-counter earplugs can be purchased at most drug stores or sporting goods shops (in the gun department). They range from foam plugs to variations using wax, silicone, or rubber. They tend to be inexpensive, disposable, and comfortable.

But while these traditional plugs will provide some protection from dB exposure, they are often a less than ideal earplug choice for musicians. These plugs attenuate more than necessary when fitted properly, which can make both speech and music sound muffled and unclear. As a result, many musicians purposely wear their earplugs too loosely, enabling them to hear the music properly—but not protecting their hearing.

This is why many musicians are opting for custom earmolds. These custom plugs are created from an impression of the wearer's ear canal, taken by an audiologist. The impression is sent out to a lab, where the final earmold is made. Custom

plugs are extremely comfortable, easy to insert, and filter sound better than traditional plugs.

Also of interest to musicians is the ability to further personalize custom earmolds with filters that allow performers maximum control over sound input. Etymotic Research makes a series of these filters called the Musician's Earplugs™, which are buttons that can be attached to a custom earmold. These plugs have a frequency response that follows the shape of the natural frequency response of the open ear—but at a reduced level so that music can still be heard accurately. The filters are available in three levels of filtration, ER-9, ER-15, and ER-25. ER-25 filters, which offer at least 20 dB of protection, are recommended for environments above 105 dB. The use of filters has also been shown to reduce the fatigue often associated with noise exposure.

By the way, ditch the cotton balls and tissues. Their ability to reduce noise maxes out at about 7 dB.

Be Aware of the Signs

Initially, hearing loss may be temporary, and everything seems back to normal in a few hours. However, with repeated exposure to high dB levels, the ears eventually lose that ability to recover, resulting in permanent hearing loss. Be aware of other serious warnings signs like ringing or buzzing in the ears (tinnitus), slight muffling of sounds, difficulty understanding speech, and difficulty hearing conversations in groups of people where there is background noise. If you suspect that you are at risk, contact an audiologist immediately.

Whenever possible, give your ears a "rest" for as long as possible after performances or rehearsals, but also pay attention to noise levels you're exposed to when you're *not* playing. Turn down the car stereo, and remove yourself from noisy situations as much as possible. Most of all, bring your earplugs whenever you're planning to be at a high-noise function—whether it's a fireworks display on the fourth of July, a parade, a basketball game, or a political rally. Do everything you can to minimize your exposure to high dB, or "toxic noise." Your ears are your instruments, too.

"Could You Repeat That?"

There are four levels of hearing loss. Even if you have already experienced mild or partial hearing loss, it's not too late to start protecting your hearing.

Mild (25-40 dB). A person with a mild hearing loss will have difficulty following conversation if the speaker is more than six feet away or if there's noise in the background.

Moderate (40-70 dB). A person with moderate hearing loss would be able to hear if the speaker is speaking loudly and at no more than three to five feet away. They'll also have trouble hearing with background noise and will need to wear a hearing aid to hear conversation.

Severe (70-90 dB). A person with a severe hearing loss would be able to hear someone's voice if the speaker shouts and is one foot away. Without a hearing aid, the person would not be able to understand speech and only be able to hear some loud sounds (a siren, for example).

Profound (91 dB or more). A person with a profound hearing loss is only able to hear very loud sounds. With hearing aids they would probably be able to hear loud sounds—like a telephone ringing or a name being called—but it would be difficult to understand speech. With training, their ability for understanding some speech may improve.

Why Does Hearing Loss Occur?



Excessive sound exposure damages hearing by overstimulating the tiny hair cells (cilia) within the inner ear. There are between 15,000 and 20,000 of these microscopic sensory receptors in the inner ear. When these cells are damaged, they no longer transmit sound to the brain. Hearing loss produced by noise exposure is permanent.

D-I-Y Hearing Test

Here's a quick and easy "Do-It-Yourself" hearing test to check for signs of permanent hearing damage.

On the way to your next show, find a talk radio station on your car stereo and set the volume to where you can barely hear the words (but can still understand what's being said). After the show, leave the station and the volume at the same setting.

Can you still hear the words? Can you still understand them? If not, you're experiencing a form of short term hearing loss called temporary threshold shift. When this happens too often, the damage most often becomes permanent.

If you're experiencing this symptom, or having any other hearing difficulties, get your hearing checked by an audiologist or your family doctor. Other signs of potential or serious problems can be acute or chronic dizziness, pain, discomfort, or drainage from your ears. If you have any of these symptoms, consult an ear specialist.

—adapted from "Sound Check," as seen at www.hear.net.com, November 2000.