Dispelling Hearing Protection Myths

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You’ve heard the excuses a dozen times ... the reasons why a worker doesn’t want to wear the required hearing protection in noise-hazardous areas. Some of the excuses ("they bother me" or "they’re uncomfortable") pale in comparison to the risk of losing hearing for life. But other excuses have just enough credibility to sound almost plausible. Is a worker justified in not wearing hearing protection when he claims it affects his work output or that he’s safer without the hearing protection? Let’s walk through some of the common reasons workers offer for not wearing their ear plugs and dispel some of the myths preventing good protection.

"I don't use ear plugs because...."

1. **They cause infections in the ear.** Research shows no higher incidence of new ear infections among ear plug wearers compared to the general population. A user is more likely to get an ear infection due to swimming in contaminated water than from ear plug use. However, if a wearer has an existing infection (or even an uninfected break in the skin of the ear canal), it is best to switch to ear muffs for awhile rather than aggravate the ear canal by inserting ear plugs.

The goal here is to always wear some type of protection when exposed to hazardous noise -- even short intervals of unprotected exposures can cause permanent damage to hearing. Keeping some ear muffs on hand as a temporary replacement for workers with acute ear infections is good hygiene practice. But avoiding the wearing of all hearing protection out of fear of contracting an ear infection is unfounded and dangerous.

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2. You can hurt your eardrum if you put them in too far. The human ear canal is about 35mm long, terminating at the eardrum. Even the longest ear plugs available on the market are well short of the eardrum when fully inserted in the ear canal. Indeed, very few of us have ever touched our eardrum ... and we would likely be jumping in pain if we even got close. The soft cartilage structure at the opening of the ear canal turns into a sensitive bony structure the closer you get to the eardrum. Any ear plug approaching the eardrum would cause us to startle before we ever touched the eardrum itself.

By the way, it’s normal for a well-inserted ear plug to cause a sensitive or tickling sensation during insertion. The textbook cross-section of an ear canal is shaped like an hourglass turned on its side, with a slight constriction in the middle. A well-inserted ear plug needs to pass through that middle constriction (the "bend" in the ear canal) to obtain an optimal fit. Because that bend is a part of the ear that is rarely touched, it may feel sensitive when inserting an ear plug, but is not damaging the eardrum, nor even close to it.

3. I can’t hear my co-workers when I wear them. In a NIOSH field study exploring why noise-exposed workers don’t wear their hearing protection, the primary reason given was the workers’ fear that it would interfere with communication and job performance. For workers with normal hearing, the signal-to-noise ratio actually improves when wearing ear plugs in loud noise, such that hearing a conversation is easier. But that’s not the case for workers with existing hearing loss. For them, wearing hearing protection produces a double hearing loss -- the attenuation of the ear plug overlaid on their existing hearing loss.

Fortunately, manufacturers have responded with a number of speech-friendly hearing protectors. Some have uniform attenuation across all frequencies, so that wearing the ear plug reduces volume without distorting conversations from a co-worker -- speech sounds more natural. Some electronic ear muffs are designed with amplification circuits to make speech easier to understand in intermittent noise, but they immediately revert to a noise-blocking passive ear muff when incoming sound above hazardous levels is detected. And some new intelligent technologies borrow from military applications, where incoming sound from a communication radio is enhanced to make speech more audible while background noise is electronically suppressed. These solutions run the gamut in terms of cost, from under a dollar per pair to several thousand dollars for the intelligent electronic protection.

4. I need to hear my machine noise and alarms. Like its cousin, "I’m safer without my seat belt," the excuse that hearing protection prevents one from hearing warning signals and alarms is myopic in its focus. The easy answer to this complaint is to simply fast-forward a few years: The unprotected worker won’t be hearing those
warning alarms very well in a few years after incurring noise-induced hearing loss. But it warrants attention to try to address workers’ concerns about overprotection.

Ideally, a worker should be wearing no more hearing protection than is needed to bring ambient noise levels below 80 dB(A) at the eardrum and still let the worker hear what he or she needs to hear. A valuable tool now available to safety managers is fit testing of ear plugs. Rather than relying upon published rating numbers (often de-rated in an attempt to estimate real-world protection), fit testing allows a safety manager to measure accurately how much noise is reaching a worker’s eardrum. A worker in 95 dB(A) of noise, for example, needs no more than 15 dB of real protection from his ear plugs to be safely protected yet still be able to hear warning signals and alarms. Fit testing allows the worker to select the most suitable ear plug, avoiding overprotection.

5. My ears have grown accustomed to the noise. This excuse is particularly tempting. Borrowing from a machismo that disdains protective equipment, some workers actually claim their ears have "toughened up" since their first week on the job, almost as if repeated overexposure has built up some measure of immunity from noise damage. Indeed, these workers are desensitized to loud noise -- but not for the reasons they think. It’s not due to immunity; rather, they have lost some hearing.

Detecting sound is a function of our ears working with our brain. The brain can indeed "tune out" certain repetitive sounds that don't require our immediate attention, such as the ventilation system in an office, street noise, or the continuous ticking of a clock. But the ears themselves don’t have this selective ability to tune out. The ears never turn off, even when we’re asleep. A worker who claims his ears have grown accustomed to the noise (and therefore doesn’t need the hearing protectors) often has lost hearing. This is one reason why annual audiograms are an essential part of a Hearing Conservation Program. Hearing loss is insidious in its slow progression, such that it's difficult for a worker to detect any drop in hearing from month to month, much less year to year. Audiometric testing detects those shifts in hearing which may be undetectable to the worker. It is not uncommon for a worker with a significant shift in hearing (compared to a baseline test) to respond, "My hearing is fine. I haven't noticed any change." But the audiometric results tell a different story and confirm a progressive loss.

6. If I lose my hearing, I can always get a hearing aid. In this spin on the old "pay me now or pay me later" rationale, some workers excuse their laziness to protect their hearing by claiming it will all be fixed (or at least fixable) in the end. But such workers fail to recognize that hearing aids do not restore normal hearing in the same way glasses restore normal vision. Noise-induced hearing loss doesn't just
make sounds softer; rather, it distorts them.

The most common complaint from the sufferer of a noise-induced hearing loss is, "I can hear you, but I just can't understand." The clarity of the message is gone. While hearing aids do a good job amplifying incoming sound, they never restore incoming sound back to normal. Hearing aids only can make use of the hearing a person has left. While many hearing aid users get tremendous benefit from their aids, few would suggest it's like having normal hearing again. And just a reminder: There is no known cure for a hearing loss due to loud noise. There is no surgery, no rehabilitation, no medication that returns a noise-induced hearing loss back to normal.

Dispelling the myths surrounding hearing protection can allay the fears and address the excuses that some workers use to avoid good protection. Workers who understand the "whys" as well as the "hows" of good hearing protection will take action, both on and off the job, to save their hearing.

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