Three Steps to Effective Hearing Protection

An important and often overlooked part of an effective hearing conservation program is the fitting of hearing protection devices (HPDs). Although some expandable foam earplugs come close, there is really no such thing as a one-size-fits-all HPD. Each person must be individually evaluated to determine the best match of HPD for their environment, noise exposure, anatomy, and hearing ability.

1) Selection.
Offer a variety of hearing protectors, including a minimum of two types of premolded earplugs; two types of formable foam earplugs; and expansion rumble-type earplugs. The selection should be based on noise level, work environment, and the wearer’s convenience, communication needs, and pre-existing hearing loss.

2) Fit the Individual.
Not every suitable device will fit the individual comfortably. Starting with the wearer’s choice of HPDs, check the fit in each ear to see if the device is a good match for the individual’s anatomy. The two ear canals may differ, so check the fit for both ears. If the device comes in multiple sizes, determine the best size for each ear separately. The individual attention given to the worker at this point will help ensure that the HPDs chosen are comfortable and can help the worker accept the need to wear HPDs. The best fit for HPDs is the fit that the worker prefers; this will be the fit that the individual will accept and use over time. The best fit is the one that is used.

3) Train, train, train.
Don’t just tell the individual how to wear the HPDs— have the wearer demonstrate correct placement of the device. Stress the need to use HPDs at all times in noise. Teach the wearer how to replace the HPDs by the wearer, and can help the user get more protection by hearing the noise of devices other people use. Teach the wearer how to care for HPDs and when they need to be replaced.

One Size Does Not Fit All!

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The mission of the National Hearing Conservation Association is to promote hearing loss due to noise.

The best fit is the one that is used...

...the best HPD is the one that gets used...

comfort is the key!
Tips for Fitting Earplugs and Semi-Inserts

How Do I Know If It's Working?

Before fitting earplugs or semi-inserts, examine the employee's ear canals to determine whether any obvious indications of possible medical problems are present. Check for access to ear canals (e.g., wax) before fitting the HPDs. If these conditions exist, the employee should wear earmuffs until the problem is corrected.

Examining the ear also enables the fitter to give the employee two additional vital pieces of information: the orientation of the ear canal (so the wearer will know which direction to start inserting the plug) and whether there is a gap in the canal (which might be pushed further into the canal by the insertion of an earplug—in a few instances complete blockage of the ear canal may have occurred). If these conditions exist, the employee should wear earmuffs until the problem is corrected.

Use these field tests to check fitting:

The Tug Test

The fitter can very gently tug back and forth on the handle of the plug. If there is resistance and if the employee feels a pull when the plug begins to rotate, then the plug has probably achieved a seal. In contrast, if the plug pulls out easily, an adequate seal was not achieved.

The Hum Test

After the fitter has inserted just one earplug, ask the employee to hum or “say ahhh.” If one ear is properly sealed, the employee will hear a different pitch in the stopped ear canals. However, if the earplug does not seal the ear canal, the voice will be perceived evenly in both ears. The employee should then be asked to insert the plug into the other ear. If the voice is perceived equally in both ears, the plug is properly sealed. If the voice is perceived differently or if there is a gap, then the plug is not properly sealed.

The Loudness Test

While in a noisy environment with plugs inserted in both ears, cup both hands over the ears. If there is a difference in volume heard, then the plug does not have a seal. This test is useful for checking both ear canals at the same time and can be performed quickly.

Although earmuffs can successfully fit a large percentage of hearing protector wearers, the fitter must still check the fit of each individual.

• Does the headband extend or retract enough to position the earmuff cups securely over the pinnae (outer ears)?
• Can the entire pinna comfortably fit inside the earmuff cup?
• Does the cushion seal against the head all the way around the ear, or are there excessive gaps caused by bone structure, bulky eyeglass temples, or hair?
• Does the cup cushion compress or flatten over the pinna?

Although earplugs can successfully fit a large percentage of hearing protector wearers, the fitter must check for gaps in the fit of each individual.

Features of earplugs can cause leaks, decreasing the level of noise reaching the ear canal. If gaps are present, earmuffs are needed.