Noise-Induced Hearing Loss Meeting Kit

Noise Induced Hearing Loss (NIHL) Safety Talk

Hearing is precious. Once we diminish or lose our hearing we can never fully recover it. Both on the job and at home there are many sources of noise which can damage our hearing. These sounds can damage sensitive structures in the inner ear and cause noise-induced hearing loss (NIHL). Approximately 26 million Americans have some type of noise-induced hearing loss. According to the CDC, over 22 million workers are exposed to hazardous noise levels at work each year. Occupational hearing loss is one of the most common workplace injuries today in the United States.

UNDERSTANDING HEARING DAMAGE

Hearing loss can occur when exposed to 85 decibels of noise averaged over 8 hours. Normal conversations typically occur at 60 decibels, well below the hearing loss threshold. Remember those headphones used as speakers? That music was probably playing at full volume, which can often register as 105 decibels. For every 3 decibel increase past 85 decibels, hearing loss can occur in half the amount of time. So it only takes 4 hours of exposure to 88 decibels for hearing loss to occur, and 2 hours of exposure to 91 decibels. Once noise levels exceed 100 decibels, a person can suffer hearing damage in as little as 15 minutes. The louder the noise, the faster hearing loss occurs.

WORKPLACE NOISE LEVELS

Where do the tools and environments where we work fit into this picture?

- Air compressors from 3 feet away register 92 decibels, which would take less than 2 hours to cause hearing loss
- Powered drills register 98 decibels, which would cause damage after 30 minutes
- Typical factories often register at 100 decibels – that’s 15

minutes of exposure
- Powered saws can reach 110 decibels from 3 feet away, which could cause permanent hearing loss in under 2 minutes

If workers are exposed to these noise levels without protection, then hearing loss is very likely. Some indications that noise levels may be this high are if employees complain about the loudness of the noise, if there are signs suggesting that employees are losing their hearing, or if the noise levels make normal conversation difficult.

HOW THE EAR IS DAMAGED BY NOISE

Hearing depends on a series of events that change sound waves in the air into electrical signals. Our auditory nerve then carries these signals to the brain through a complex series of steps.

To breakdown the process simply the sound waves travel to the ear and eventually move hair cells up and down in the air that cause channels to open up. This allows chemicals to rush into a cell that creates an electrical signal that translates the sound into something we understand.

Most noise induced hearing loss is caused by the damage and eventual death of these cells. Unlike bird and amphibian hair cells, human hair cells don’t grow back. They are gone forever.

SIGNS AND SYMPTOMS OF NOISE INDUCED HEARING LOSS

Most damage due to noise is gradual and over time. Because of this, many people ignore or do not realize that their hearing is being damaged.

Damage can also occur from a single loud impulse noise such as a gunshot or explosion. These types of noises can rupture the eardrum or damage the bones in the middle ear. This kind of NIHL can be immediate and permanent. Loud noise exposure can also cause tinnitus—a ringing, buzzing, or roaring in the ears or head. Tinnitus may subside over time, but can sometimes continue constantly or occasionally throughout a person’s life. Hearing loss and tinnitus can occur in one or both ears. Sometimes

temporary hearing loss can subside however the event that caused it can still cause long term damage to your hearing.

HEARING DAMAGE PREVENTION – IMPORTANCE OF PROTECTION

- The best way to protect yourself is to eliminate the exposure to the noise. That can be achieved through removing yourself from the area the noise is in or eliminating the excessive noise altogether.
- Engineering controls are the second best choice in protection from noise. Sound barriers, enclosures, and noise dampening systems are examples of engineering controls that will bring down the level of noise in an area.
- Administrative controls such as training on using hearing protection, job rotation, breaks, and routine maintenance programs are some ways that protect workers from being exposed to hazardous noise.
- PPE is the last line of defense. It is important to know the levels of noise that remain after applying the other techniques mentioned above. For noises between 85 decibels and 100 decibels on an 8 hour TWA, ear plugs will be enough to protect you if worn correctly. Over 100 decibels then double hearing protection is needed, an example is earplugs and ear muffs.

Ear plugs provide the greatest amount of protection as long as they are inserted correctly. Therefore, employees need to be trained to wear them correctly when they are used. Ear muffs can also reduce the decibel exposures, though not to the extent that ear plugs can. They are easier to wear correctly, though, which is why some workers prefer them.

FINAL WORD

Noise is unwanted sound. Noise can harm human hearing. Noise has at least two measurable effects on humans. **Hearing Loss** can be temporary or permanent and can be measured. **Physical Effects** that may include fatigue, increase blood pressure and stomach disturbances.