VITALS
A Weekly Safety Newsletter For Medical Transport Professionals

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Can You Hear Me Now?

No, it's not a cell phone commercial. A recent Insurance Journal article described the effects of years of exposure to rock concerts, iPods and cell phones on hearing loss in Baby Boomers, Gen Xers and Millenials. Studies indicate that 40 million baby boomers are experiencing hearing loss. That's about twice the expected number. Hearing loss of this type is referred to as recreational noise induced hearing loss (NIHL) or sociocusis.

NIHL is the result of exposure to sound levels or durations that damage the hair cells of the cochlea. Recreational, environmental and occupational noise all affects the ear in the same manner. Combined exposures to noise, physical and chemical agents (vibration, organic solvents, carbon monoxide, ototoxic drugs (like aminoglycoside antibiotics), and some metals) have a synergistic effects on hearing loss. Noise may also increase stress and hypertension.

How sound affects the ears depends on the sound characteristics amplitude, frequency and duration. The sound pressure level (SPL) in decibels (dB) is a measure of the amplitude of pressure change that produces sound. The frequency (described as Hertz, HZ, or cycles per second) determines pitch. Sound durations can be classified as either continuous or impulsive. The difference between continuous and impulsive noise is that impulsive noise has a steep rise in sound level to a high peak followed by a rapid decay. BAM! (Impulsive) versus BRRRRRRR! (continuous).

Prolonged exposure to sounds above 85 dB may cause permanent hearing loss. Here are some examples:

Motorcycle/Hair Dryer/ Lawn Mower /Leaf Blower	85-90dB
Wood Shop/Chainsaw/ Firecrackers(small)	100-110dB
Rock Concerts	100-120dB
Ambulance Siren/Jet Engine at Take-off /Pneumatic Drill	119-140dB

NIOSH has published guidelines for time-weighted averages (TWA) of sound pressure on a daily basis. A rule of thumb is that if someone must be told to speak up to be heard, the environment is too loud.

What Are The Warning Signs & Symptoms That You've Been Over-exposed To Sound?

- Temporary Threshold Shift (For a little while a sound, like a voice, needs to be louder for you to hear it than it was before your exposure)
- Ear discomfort after exposure to noise
- Ringing or buzzing sensation in ears
- Difficulty hearing in noise

What Can Employers Do?

- Conduct baseline audiogram hearing tests for new employees to discover pre-existing hearing loss
- Implement annual hearing tests
- Implement employee hearing conservation training
- Evaluate equipment for noise control features
- Provide hearing protection as appropriate

What Can Employees Do?

- Avoid hazardous sound environments- If you must raise your voice to be heard, you are in a dangerous sound environment
- Use hearing protection devices when mowing, shooting, etc.
- Musicians should avoid practicing at "concert hall levels"
- Take 15 minute quiet breaks every few hours
- Move away from monitors or amplifiers, at least don't be directly in front of them, when performing or listening
- Know side-effects of medication (ototoxic)

Some level of hearing loss occurs with aging (presbyacusis). There is no need to make it worse.