## Transition Toolbox Meeting - Week 5, Day 1: *Stress & Its Effects on Safety*

There are countless clichés about stress, some of them disparaging. In reality, though, stress – physical or mental – is a potent factor in human performance, and nowhere is this better demonstrated than in workplace safety.

### *What is Job Stress?*

*Taber's Cyclopedic Medical Dictionary* defines stress as "the result produced when a structure, system, or organism is acted upon by forces that disrupt equilibrium or produce strain." Stress comes in two forms: *positive* and *negative*. Positive stress provides us with the energy and motivation to meet our daily challenges – both at home and at the workplace. In fact, some people would not consider this challenge a type of stress because, having met the challenge, we are satisfied and happy. However, as with most things, too much stress can have negative impacts. When the feeling of satisfaction turns into exhaustion, frustration, or dissatisfaction, we begin to see negative signs of stress.

***Negative job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker.***

***Consider the following statistics:*** *{According to the National Institute for Occupational Safety and Health (NIOSH)}*

- 40% of job turnover is due to stress.
- 60 to 80% of accidents on the job are stress related and some, like the Three Mile Island and Exxon Valdez disasters, can affect untold thousands many miles away.


### *Looking more closely at the role of stress in accidents…*

**Stress causes a narrowing of attention, preoccupation, and fatigue - a sure recipe for workplace injuries.** Stressed-out employees trying to do more with less are also likely to take shortcuts which lead to accidents…, less likely to take safety precautions, use proper equipment, and implement appropriate body mechanics. Workers who report high stress are 30 percent more likely to have accidents than those with low stress. Stress-related accident claims are, on average, two times more costly than non-stress-related cases, reports the Harvard Business Review.

### *Errors of Judgment and Action*

When people are under stress, they become preoccupied with the issues troubling them. Stress also causes attention to narrow, creating a sort of "tunnel vision." **This makes the stressed-out employee more susceptible to missing environmental cues and information required to make both effective and safe decisions.** Stress also dulls the thinking process. This is because endorphins - nature's painkillers - are released under stressful situations. Besides killing pain, these natural chemicals also dull our ability to think and feel. Under extreme or unremitting stress, people become intellectually, emotionally, and interpersonally dull. This can result in costly - and sometimes life-threatening – errors.

### *Causes of Workplace Stress?*

A multitude of circumstances: organizational dynamics, personalities, changes in work complexity, demands of new organizations and systems, excessive workload/inadequate staffing, lack of control over work, job insecurity, perception of low pay or low status, unclear reporting lines, lack of recognition or promotion, over-promotion, lack of participation in decision-making – all exacerbated by off-the-job stressors.

High Demands + Low Control = **Stress**
High Effort + Low Reward = **Stress**
High Demands + High Effort + Low Control + Low Reward = **Greatest Stress**

***Is there anything I can do to help myself deal with the stress I am experiencing?***

In many cases, the origin of the stress is something that cannot be changed immediately. Therefore, finding ways to help maintain overall good health – physical and mental – is essential. There are many ways to be proactive in dealing with stress. In the workplace, you might try some of the following as suggested by the Canadian Mental Health Association:


Take charge of your situation by taking 10 minutes at the beginning of each day to prioritize and organize your day. Be honest with your colleagues, but be constructive and make practical suggestions.

Laughing is one of the easiest and best ways to reduce stress. Share a joke with a co-worker, watch a funny movie at home with some friends, read the comics, and try to see the humor in the situation.

Learn to relax, take several deep breaths throughout the day, or have regular stretch breaks. Stretching is simple enough to do anywhere and only takes a few seconds.

Be realistic about what you can change.

(From: Canadian Mental Health Association, "Sources of Workplace Stress" Richmond, British Columbia)

For more information on this topic…

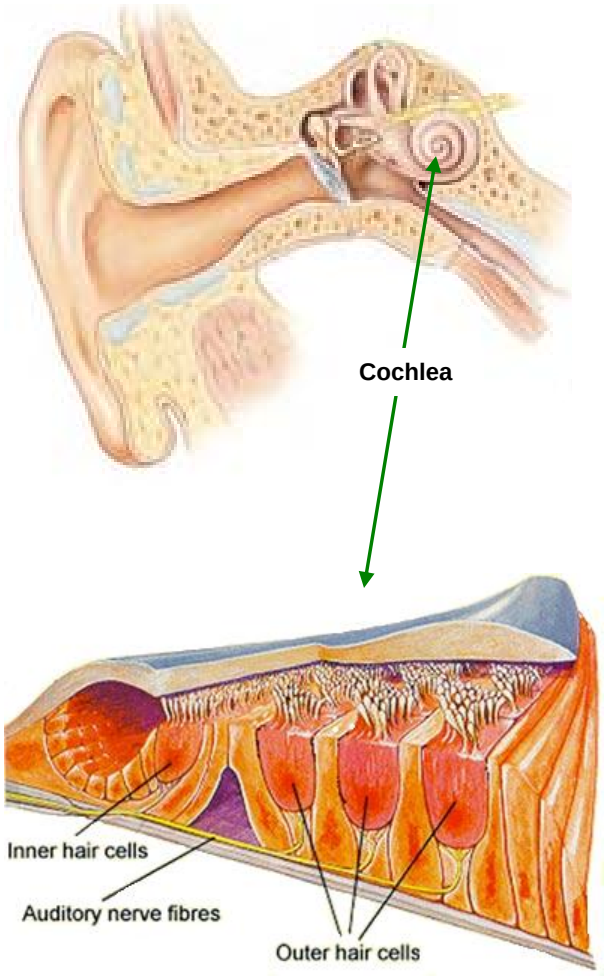
http://www.cdc.gov/niosh/atwork.html

www.job**stress**help.com/DV_job**stress**.htm

# Transition Toolbox Meeting - Week 5, Day 2: *Noise-Related Hearing Loss*

**Worker:** ***"Naw, that noise don't bother me none. I'm used to it."***
**Safety Person:** ***"That's because you're deaf."***

**EH&S Manual Chapter 6640 *Hearing Conservation***




### Here are the facts.

1. Noise-induced hearing loss is the most common workplace disorder and the second most self-reported occupational illness or injury.
2. Thirty million workers are at risk for noise-induced hearing loss and 10 million Americans already have it.
3. Forty-four percent of carpenters and 48% of plumbers report having a hearing loss.
4. By age 25, the average carpenter has the same hearing as a 50-year-old person who does not work around hazardous noise.
5. Noise-induced hearing loss adds to the inevitable age-related hearing loss (***presbycusis***).
6. Noise-induced hearing loss is permanent. Excessive noise damages the hair-like neural receptors in the inner ear (*Organ of Corti*), and these do not heal.
7. Noise not only affects hearing. It affects other parts of the body and body systems. It is now known that noise…
   - Induces physical stress
   - Increases blood pressure
   - Has negative cardiovascular effects such as changing the way the heart beats
   - Increases breathing rate
   - Disturbs digestion, can cause an upset stomach or ulcer
   - Can negatively impact a developing fetus, perhaps contributing to premature birth
   - Makes it difficult to sleep, even after the noise stops
   - Intensifies the effects of factors like drugs, alcohol, aging and carbon monoxide

### How can you tell if a noise situation is too loud?

Two rules of thumb: If you have to raise your voice to talk to someone who is an arm's length away, then the noise is likely to be hazardous. Second, if your ears are ringing or sounds seem dull or flat after leaving a noisy place, then you probably were exposed to hazardous noise.

### Protect Your Ears.

- This is a situation where you need assistance from EH&S. They will determine which noise sources are capable of causing damage.
- Once high-noise areas are identified, they should be posted. Anyone working within needs to abide by the posting notice (e.g. use PPE).
- Your ears make no distinction between recreational noise sources and those at work. Harmful exposure can occur anywhere. Protect your hearing on and off the job.

- You and your supervisor should inform Medical Services if you are potentially exposed to harmful noise levels.

| Exposure Duration (hrs/day) | Sound Level in Decibels (dB,A-weighted scale) | | | | | | |
|---|---|---|---|---|---|---|---|
| | ACGIH (JLab) | NIOSH | OSHA | Real-World Sources | | Effects | |
| | | | | 170 | Shotgun | | |
| | *** | | ** | 150 | Jet aircraft take-off (at 20m), rifle shot | 140+ | Instantaneous hearing damage |
| | | | | 120 | Ambulance siren, car stereo (OEM) | 120+ | Pain |
| | | | | 110 | Chainsaw, rock concert | 110 | Regular exposure of more than 1 minute risks permanent hearing loss. |
| | | | | 105 | Personal stereo system (ear phones) at maximum level | | |
| 1/8 | 103 | 103 | --- | | | | |
| 1/4 | 100 | 100 | 115* | 100+ | Gas-powered leaf blower | | |
| 1/2 | 97 | 97 | 110 | | | | |
| 1 | 94 | 94 | 105 | 95-110 | Motorcycle, outboard motor | | |
| 2 | 91 | 91 | 100 | 90-100 | Home lawn mower | | |
| 4 | 88 | 88 | 95 | | | | |
| 8 | 85 | 85 | 90 | 85 | Heavy city traffic, curbside | 85 | Prolonged exposure to any noise above 85 decibels can cause gradual hearing loss. OSHA mandated noise monitoring for affected workers |
| 16 | 82 | 82 | 85 | | | 80+ | Discomfort level for most people |
| | | | | 60 | Normal conversation | | |
| | | | | 40 | Refrigerator humming | | |
| | | | | 30 | Whispered voice | | |

* No exposure to continuous or intermittent noise in excess of 115 dB (A).
** Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.
*** No exposure to continuous, intermittent, or impact noise in excess of a peak C-weighted level of 140 dB.

***Want more information?***

***Ten Ways to Recognize Hearing Loss*** (on-line questionnaire)

http://www.cdc.gov/niosh/topics/noise/default.html
http://www.hearingconservation.org/
http://www.nonoise.org/