

NOISE INDUCED HEARING LOSS

Hearing loss is one of the top 3 chronic disabilities in the United States. 10% of Americans have a hearing impairment.

HOW DO WE LOSE OUR HEARING?

We can lose our hearing through several ways

Toxic Noise Exposure:

Sudden- explosion

Long term- work environment or loud hobby

Aging

Loss of Tissue Flexibility

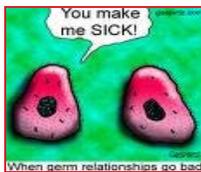
Wear Out From Constant Use

Less Efficient Metabolism

Infection

Viral

Bacterial



WHAT HAPPENS WHEN WE LOSE HAIR CELLS?

When we lose hair cells many things could happen.

Hearing Loss

Tinnitus- Often described as a ringing or buzzing sound.

Reduced Verbal Memory Performance

Loss of Auditory Nerve Fibers

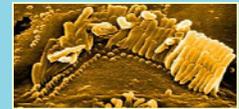
Auditory Cortical Reorganization

Below is a picture of normal outer hair cells and a picture of outer hair cells that have been damaged by noise.

NORMAL



NOISE



HOW TO PREVENT HEARING LOSS

Based on OSHA's standard 1910.95, the University of Arizona requires employees exposed to noise levels at or above the action level to be included in a Hearing Conservation Program (annual training, annual audiograms, and hearing protection). Additionally, a monitoring program and quieting efforts must be implemented to assess and reduce noise levels at the worksite.



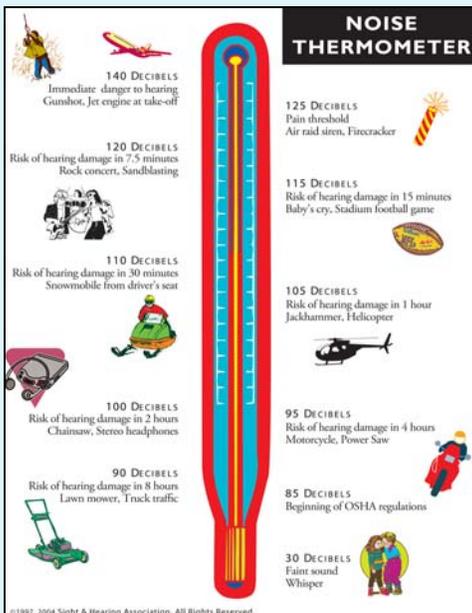
TYPES OF HEARING PROTECTORS

Ear Plugs- are inserted to block the ear canal. They may be preformed or moldable (foam ear plugs). Ear plugs are sold as disposable products or reusable plugs. Custom molded ear plugs are also available.



Ear Muffs- consist of sound-attenuating material and soft ear cushions that fit around the ear and hard outer cups. They are held together by a head band.

Allowable Exposures



Exposure Duration	NIOSH, ACGIH, and U of A
8 hours	85 dBA
4 hours	88 dBA
2 hours	91 dBA
1 hour	94 dBA
30 minutes	97 dBA
15 minutes	100 dBA
7 minutes 30 seconds	103 dBA
3 minutes 45 seconds	106 dBA

Use the Noise Thermometer to the far left to determine the decibels of sound you are exposed to on a daily basis at your work and during personal activities at home.

When the measurement of sound increases, the amount of time exposed to that activity decreases!

The table to the left is what the U of A abides by. It is the American Conference of Industrial Hygienists (ACGIH) standards for exposure limits. Exposure to 94 dBA is limited at one hour. The rest of the work day needs to be 85 dBA or less! Exposure to 103 dBA is limited to 7 minutes and 30 seconds. The rest of the work day needs to be 85 dBA or less!

Keep in mind the activities you do when you go home. Are the activities you do in your free time causing you to exceed the exposure limits?

If you have any questions please ask the IH intern at 621-8763

