HEARING CONSERVATION

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Noise Induced Hearing Loss

Loud noise is hazardous to your health, can lead to permanent hearing loss, and is the leading cause for loss of hearing in the United States. However, noise induced hearing loss is preventable by wearing proper hearing protection. As noise levels increase, the amount of time you can be exposed without being harmed decreases. Other factors that impair the hearing are age, ear trouble, or time and distance from the source of sound. Hearing effects are cumulative; the more noise your ears are exposed to (on and off the job), the more hearing you may lose. Hearing loss progresses very slowly and is not obvious at first. The problem is that by the time you're aware of the hearing loss, it's too late. The damage occurs to the delicate *hair cells* in the inner ear.

Hearing loss due to noise exposure is permanent and cannot be corrected by surgery or medicines. Hearing aids just amplify distorted sounds heard without the hearing device. To determine if hearing protection is required, a good guide to follow is the 3-foot rule. It is a method of identifying if noise levels are loud enough to cause harm. You can be certain you are in a hazardous noise environment if you have to shout at a distance of 3 feet (arms length) or if you have to raise your voice at 1 foot to be understood. You should always use earmuffs or properly fitted earplugs to reduce the noise getting into your inner ear.

If you are exposed to a hazardous noise area at work, your supervisor is required to provide you with form fitted earplugs, adjustable earmuffs, or foam earplugs. Fitted earplugs can be obtained from the Occupational Medicine section within your local Public Health office on base.

About Hearing Protection

Proper use of hearing protection can prevent hearing loss. Be aware and simply avoid being exposed. However, when exposure is unavoidable, use earplugs or earmuffs to protect your ears from most common noise sources. An exception is for personnel working immediately adjacent to aircraft while on high power settings; in this case, earplugs and earmuffs should both be worn.

Sound is measured in decibels (dBA).
For example:

Whisper - - 30 dBA
Conversation - - 60 dBA
Average Background - - 80 to 90 dBA
Power Tools - - 100 dBA
Jet Engines - - 130 to 140 dBA

Levels greater than 85 dBA are considered hazardously loud.

Earplugs should be worn whenever exposed to hazardous noise, both on and off duty. If earplugs are worn daily, they should be washed daily. Wash in warm soapy water, rinse and air dry. Do not use rubbing (isopropyl) alcohol for cleaning. In addition, if you lose your earplugs, just drop by the Public Health office anytime and get more. You don't need an appointment or audiogram to receive them.

Some Common Questions About Noise

Question - How much noise is hazardous?
Answer - You can develop hearing loss if you are exposed to 85 dBA for 8 hours per day.

Question - Are all kinds of noise equally hazardous?
Answer - No. The most hazardous is pure tone noise in which you can distinguish a single tone. The next is broad band noise, where you cannot distinguish one particular tone.

Question - Is off-duty noise hazardous?
Answer - Yes. For instance, a rock concert, model aircraft flying, weapons firing, motorcycling, or even mowing the lawn can be harmful to your hearing. Remember, the more noise you add, the more hearing you subtract.

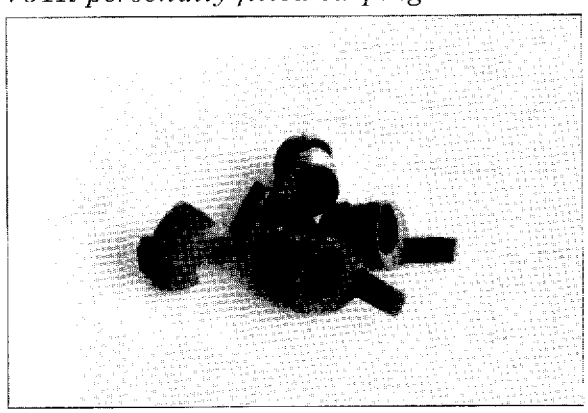
Question - How can I protect myself?
Answer - Be aware of your surroundings, and avoid being exposed. When exposure is unavoidable, wear proper hearing protection.

Question - Are there any symptoms of overexposure?
Answer - Yes. You will most likely experience a "ringing" in your ears. This is due to trauma to the ears. This is normally temporary, but repeated exposure can make this permanent.

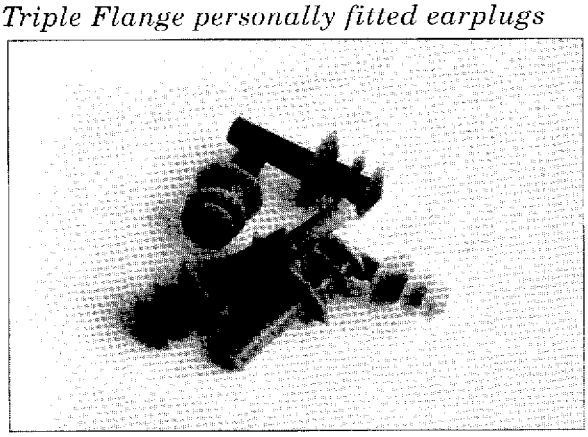
Types of Earplugs

V51R and Triple Flange personally fitted earplugs have two advantages over the E-A-R single use foam earplugs. The benefits of personally fitted earplugs are that they are good for use up to 6 months and are inserted quicker and easier than E-A-Rs. To insert E-A-R plugs, you must roll them in between your fingers until they are the thickness of a pencil. They are then inserted into the ear and held until the plugs expand (usually 1-2 minutes in warm weather and 2-4 minutes in cold weather). The directions are also on the E-A-R container. To properly place the V51R earplug, simply insert it into the ear and rotate it to the rear. To properly place the Triple Flange

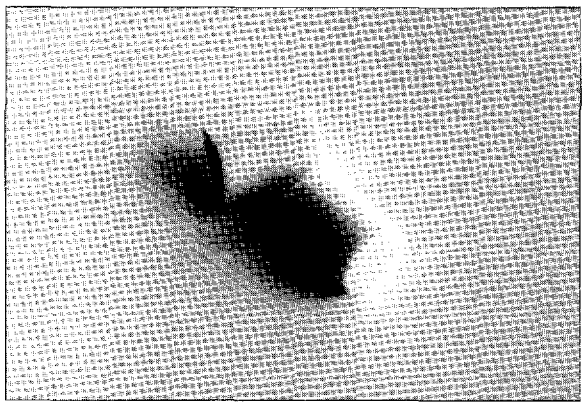
V51R personally fitted earplugs



Triple Flange personally fitted earplugs



E-A-R single use ear plugs



plug, insert it so that the largest flange touches the outer rim of the ear canal. In all cases, when inserting earplugs, you should straighten the ear canal by lightly tugging the ear up and back. Also, in order to preclude unnecessary buildup of bacteria, do not lick or moisten the earplugs with your saliva before placing them in your ears. Moreover, you should wear only approved earplugs or earmuffs.

Hearing Conservation Program Requirements

Air Force medical personnel are very much aware of hearing loss problems. As a result, there is a continuous and comprehensive program to reduce personnel noise hazards throughout the Air Force; this program is called the Hearing Conservation Program and includes:

1. Periodic hearing tests to detect hearing loss before it becomes permanent.
2. Educational briefings and distribution of information letters or pamphlets to aquaint personnel with the hazards of noise.
3. Design of less noisy ground equipment and aircraft.
4. Design of enclosures to attenuate noise from equipment that cannot be internally modified.
5. Issue of earplugs/muffs and other specialized protective equipment to personnel when noise attenuation is either economically or technically not feasible.

All Air Force members are required to follow the guidance set forth by the Hearing Conservation Program. In fact, failure to comply with current standards could result in disciplinary action against an offender and supervisor under the new Air Force Occupational Safety and Health (AFOSH) Standard 161.17 "Standardized Occupational Health Program."

Remember, hearing loss from exposure to loud sounds is permanent and irreversible. It is preventable when you wear hearing protection. You are the only person who can care for and be responsible for your hearing. Don't let yourself down! Lastly, if you ever have any questions concerning noise or occupational health, please contact the Public Health office at your base. That's why we're here - - to be a help and service to you. ■

Some Misconceptions about Noise

1. Noise induced hearing loss can be cured. True or False?
- False. Once hearing loss due to noise has become permanent, there is no surgery or medication that can help recover one's hearing.

2. Use of earplugs while working creates a safety hazard. True or False?
- False. It is more of a safety hazard to work without them.
Earplugs/muffs reduce the high frequency noise that damages your hearing. They do not interfere with those frequencies involved in speech.

3. Single use E-A-Rs are better than personal fitted earplugs. True or False?
- False. Both types of earplugs give you adequate protection. However, as mentioned earlier, personally fitted earplugs are easier and quicker to insert.

4. I can borrow my buddy's earplugs when I need them. True or False?
- False. This is not a hygienic practice. Also, personally fitted earplugs come in various sizes and are custom made to fit each individual. Proper fitting is provided by Public Health personnel.