

LESSON 14: Noise Hazards and Noise Management

TYPE OF INSTRUCTION: Lecture and practical exercise

TRAINING TIME: 2 Hours

TOOLS, EQUIPMENT, AND MATERIALS: Hearing protection examples.

PERSONNEL: One instructor, MOS 91S or AOC 72 series

INSTRUCTIONAL AIDS: Projection equipment, screen, PowerPoint presentations

REFERENCES: FM 21-10, Field Hygiene and Sanitation; FM 4-25.12, Unit Field Sanitation Team.

STUDY ASSIGNMENT: FM 4-25.12, Chapter 2.

STUDENT UNIFORM AND EQUIPMENT: Duty uniform; Soldier's Guide and pencil/pen; FM 21-10; FM 4-25.12

TRANSPORTATION REQUIREMENTS: None

Section I. INTRODUCTION

Show Slide FSTCC014-1: Title

OPENING STATEMENT: Provide a motivational opening appropriate to your student population, such as the following. We are so used to a sound filled environment, that a lack of sound can be disturbing. However, too much sound can literally be deafening. Certain noises can have profound physical and psychological effects on humans. Noise induced hearing loss, the most prevalent health hazard in the military, is a disability that is, in most cases, preventable. While hearing conservation programs are a command responsibility, the Army Medical Department is responsible for ensuring these programs are established and effective. As a member of the Field Sanitation Team, you will play an active role in this program in your unit. In this lesson you will study how to recognize the types and effects of noise, protect against noise, plan for control of noise hazards, and enforce individual and mission noise protection measures. This is valuable information for you since, in your FST duties, you will be able to protect your fellow unit soldiers' hearing loss, which can affect combat efficiency. You will also be able to help to decrease the most prevalent health hazard in the military, noise-induced hearing loss.

Show Slide FSTCC014-2: Lesson Objectives

NOTE: Inform the students of the enabling learning objectives for this lesson.

LESSON OBJECTIVES

After completing this lesson, you should be able to:

- 14-1. Define the two types of noise.
- 14-2. Recognize the effects of noise on the individual and on the mission.
- 14-3. Identify the preventive medicine measures necessary to protect personnel from exposure to noise.
- 14-4. Identify the individual preventive medicine measures necessary to protect personnel from exposure to noise.
- 14-5. Describe the proper wear of hearing protectors.
- 14-6. Identify the noise management measures necessary to protect personnel from exposure to noise.

Section II. EXPLANATION

Show Slide FSTCC014-3: Noise

14-1. TYPES OF NOISE

Noise is simply defined as unwanted sound whether it is a pure tone, a complex of tones, or unwanted speech or music. The term is usually applied to sounds that contain a large number of separate frequency components, extend over a wide range of frequencies and which are not normally generated to convey meaning or information.

Show Slide FSTCC014-4: Impact/Impulse Noise

a. Impact, or impulse noise. The first type of noise is one that we are exposed to quite often during normal training and in combat. Impulse or impact noise is very loud and comes in short bursts. It is characterized by a sharp rise in intensity followed by a rapid decline in intensity. This type of noise cannot be measured accurately with an ordinary sound meter.

(1) Small arms fire.

(2) Cannon fire.

Show Slide FSTCC014-5: Steady Noise

b. Steady noise. The second type of noise is steady noise. This noise is loud and steady with no significant change in intensity or frequency.

- (1) Field generators.
- (2) Personnel carriers, tanks, trucks and aircraft.

Show Slide FSTCC014-6: Effects of Noise

14-2. EFFECTS OF NOISE

a. Effects of noise on individuals. Exposure to excessive noise can have derogatory effects on both the individual soldier and the unit. Soldiers who are exposed to excessive noise may have both immediate and long-term reactions.

Show Slide FSTCC014-7: Immediate Reactions

- (1) Immediate reactions.
 - (a) Ringing in the ears.
 - (b) Temporary loss of hearing (muffling of sound) which may last minutes to hours.
 - (c) Pain, which may indicate the eardrum, is broken.

Show Slide FSTCC014-8: Long Term Reactions

- (2) Long term reactions. Long term exposure to excessive noise can damage delicate tissues in the inner ear.
 - (a) Usually leads to permanent loss of hearing.
 - (b) No known treatment for this type of hearing loss.

Show Slide FSTCC014-9: Effects on Unit Mission

- b. Effects of noise on unit mission. Excessive noise may affect the soldier's combat performance and the unit mission.
- (1) Inability to hear important sounds.
 - (a) Twigs snapping.
 - (b) Metal rattling.

(c) Vehicles/aircraft approaching.

(2) Loss of hearing may cause a unit's mission to be impaired if positions are overrun or soldiers are caught by surprise. The unit may even be destroyed.

Show Slide FSTCC014-10: Preventive Medicine Measures - PMM

14-3. PREVENTIVE MEDICINE MEASURES (PMM)

Units must take certain steps to protect soldiers from noise exposure.

a. Personal protective devices to lessen the risk of hearing loss such as earplugs or earmuffs should be available to soldiers.

b. Leaders must insure that vehicle or aircraft crewmembers wear the specifically designed helmets that are equipped with protective devices.

c. Realistic combat training includes the use of artillery simulators and blank ammunition. Units should be trained to carry out missions in this environment while wearing hearing protectors.

d. Leaders should be aware that short-term exposure to noise will effect a soldier's ability to hear combat significant sounds.

(1) Listening posts-observation posts (LP/OP) should be manned by soldiers who have not been exposed to noise.

(2) Consider using night vision devices or audible alarms to increase security around the LP/OPs.

Show Slide FSTCC014-11: Other Hearing Devices

Show Slide FSTCC014-12: Individual Preventive Medicine Measures - IPMM

14-4. INDIVIDUAL PREVENTIVE MEDICINE MEASURES (IPMM)

Show Slide FSTCC014-13: IPMM

NOTE: Read the following excerpt from the Fall 1995 issue of *'The NCO Journal,'* by SGM Kevin Skelly.

"If I could change one thing from the past twenty years, it would be the constant ringing in my ears I live with now - all because I didn't wear hearing protection when I should have. The only thing I can change now are the batteries in my hearing aids."

Show Slide FSTCC014-14: IPMM (cont.)

a. The most important IPMM to protect your hearing is to wear the protective devices provided.

- (1) Ear plugs
- (2) Ear muffs
- (3) Both (combination)

b. Do not remove protective inserts from CVC or aviators helmets.

NOTE: If soldiers complain that these are uncomfortable, advise them to have the helmet checked for proper size.

c. Avoid exposure to noise.

NOTE: If noise exposure is unavoidable, limit exposure to mission essential times.

d. Keep hearing protection devices clean (to prevent ear infection).

- (1) Wash with soap and water.
- (2) Dry before replacing in case.

Show Slide FSTCC014-15: Hearing Protectors

14-5. HEARING PROTECTORS

a. General principles.

(1) When worn properly, earplugs will create a good seal. You should feel a slight vacuum sensation in your ear and your voice should sound as if you are talking inside a barrel. Keep in mind, even a small leak defeats the purpose of wearing your earplugs.

NOTE: Medical personnel are responsible for fitting soldiers for ear plugs.

(2) Ear plugs tend to work loose as a result of talking or chewing. You will need to re-seat them periodically.

(3) You should have little difficulty understanding conversation when your ear plugs are worn, if the speaker's voice is raised slightly above the normal level.

(4) Ear plugs are part of your personal issue and are to be taken with you when you PCS.

(5) Well designed, properly fitted earplugs will reduce noise levels by 15 decibels in the lower frequencies and up to 35 decibels in the higher frequencies.

Show Slide FSTCC014-16: Demonstration

NOTE: At this point, solicit volunteers to demonstrate the proper wear of each type of hearing protection device as you walk the students through.

b. Proper wear of triple-flange earplugs. 

- (1) Place stem of earplug in inserter (top of earplug case).
- (2) Straighten ear canal by pulling gently backward on ear.
- (3) Insert smallest flange in ear canal, push and twist plug into place.

NOTE: If you can't get a good seal, the earplug is probably the wrong size. Triple-flange earplugs are available in three sizes.

c. Proper wear of single-flange earplugs. 

- (1) Straighten ear canal.
- (2) Hold tab and insert by pushing and twisting.
 - (a) Insure a good seal is made.
 - (b) Tab should be toward rear.

NOTE: If you can't get a good seal, the earplug is probably the wrong size. Single-flange earplugs are available in five sizes.

d. Proper wear of cylindrical earplugs (foam). 

- (1) Roll the earplug between the thumb and forefinger until it is shaped like a small cone.
- (2) Insert the small end into the ear canal and hold.
 - (a) Allow the earplug to expand.
 - (b) Insure a good seal is made.

e. Proper wear of earmuffs.

(1) Adjust headband to insure earcup seals are in complete contact with the head.

(2) Personnel wearing eyeglasses must insure that the earcup seals fit well around the temples of the eyeglasses.

NOTE: If the seals have become hard or damaged, they must be replaced. Even a small leak eliminates the protection provided by the earmuffs.



Show Slide FSTCC014-17: Demonstration (cont.)

f. Regardless of the type of hearing protector used, the only effective one is the one that is worn consistently. Hearing damage becomes progressively worse with each exposure; you must be able to convince your fellow soldiers of the importance of wearing their hearing protection.

Show Slide FSTCC014-18: Noise Management

14-6. NOISE MANAGEMENT MEASURES

a. Identify noise hazards in the unit.

NOTE: In garrison, mark noise hazard areas with signs indicating that hearing protection is required.

b. Leaders should insure that soldiers are medically fitted for, and issued multiple sets of hearing protectors.

NOTE: Leaders should include hearing protectors in periodic inspections such as basic issue layouts.

c. Units should insure that medical support personnel maintain an adequate supply of replacement hearing protectors.

d. Train soldiers to avoid noise whenever possible.

(1) Limit exposure to the time necessary to perform mission essential tasks.

(2) Insure that soldiers who are exposed to noise wear proper hearing protection.

e. Take steps to control noise sources, i.e., sandbagging generators.

Section III. SUMMARY

Show Slide FSTCC014-19: Summary

NOTE: Review the main points with the audience. Ask and answer questions to ensure understanding of the material presented in this lesson.

CLOSING STATEMENT: Your continued ability to hear and the success of your unit to accomplish its mission are directly dependent on soldiers using hearing protectors in noise areas. Without adequate noise protection, you and your fellow soldiers could lose your lives, and your unit could be destroyed. The FST members play a vital role in ensuring hearing conservation procedures are followed.