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# HEARING CONSERVATION TRAINING FOR EMPLOYEES

**Leader's Guide, Fact Sheet  
& Quiz**

**Item Number: 3882**  
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***This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation.***

## **PREPARING FOR THE MEETING**

Here are a few suggestions for using this program:

- a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.
- b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.
- c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.
- d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes before the quiz itself, which is on the final page.

## **CONDUCTING THE PRESENTATION**

- a) Begin the meeting by welcoming the participants. Introduce yourself and give each person an opportunity to become acquainted if there are new people joining the training session.
- b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.
- c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.
- d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

## 3882 HEARING CONSERVATION TRAINING FOR EMPLOYEES FACT SHEET

**LENGTH: 18 MINUTES**

### **PROGRAM SYNOPSIS:**

Because hearing loss can be gradual, happening over a long period of time, we often don't recognize it's happening until it's too late. This is why we must make sound decisions when it comes to protecting our hearing by following our organization's hearing loss prevention plan, always wearing our hearing protection when required and taking steps to reduce off-job noise hazards. This program explains how your facility's hearing conservation program protects employees from the harmful effects of noise exposure.

Topics include how noise damages hearing, medical surveillance, noise reduction ratings, ear plugs and ear muffs, symptoms of hearing loss and off-job noise exposure.

### **PROGRAM OBJECTIVES:**

After watching the program, the participant will be able to explain the following:

- How noise can damage our hearing;
- How the organization's hearing conservation program works;
- What the advantages and disadvantages are for various types of hearing protection;
- What some of the symptoms of hearing loss are;
- Why they should protect themselves from off-job noise hazards.

### **INSTRUCTIONAL CONTENT:**

#### **HOW NOISE CAN DAMAGE OUR HEARING**

- Our sense of hearing is the culmination of a remarkable series of events.
- For us to hear a sound, it must first travel from its source to our ear. Sound travels in waves and upon reaching our outer ear, it is channeled into our ear canal.
- Inside the ear, these sound waves strike the eardrum, which is covered with a delicate membrane. The membrane of the eardrum vibrates against three delicate bones that carry the vibrations to a structure called the cochlea.
- The cochlea is filled with fluid and is shaped like a coiled tube. Inside the coiled tube-like structure of the cochlea are tiny hair-like structures called cilia.
- Similar to waves passing through marsh grass, waves induced by noise vibrations pass over the cilia, causing them to sway and bend. As they move, they transmit signals to the brain, which interprets these into the sounds we hear.
- Just as water waves can cause extensive damage as they increase in size and duration, as noise intensity and duration of exposure increase, the waves inside the cochlea can also become destructive and damage the delicate cilia structures.
- Damaged cilia do not repair themselves and we cannot grow more. When our cilia are damaged, any resulting hearing loss is permanent.

#### **THE HEARING CONSERVATION PROGRAM**

- To prevent hearing loss, OSHA requires a hearing conservation program be established when sound levels average 85 decibels over an eight-hour time-weighted period. The hearing program includes the key following elements.
- **Noise Assessment:** A noise assessment is conducted by properly trained hearing professionals. The noise assessment determines which areas require further noise reduction or the use of hearing protection. Once the noise assessment has been done, monitoring will take place periodically or when equipment or procedures have been changed that may affect noise levels.
- **Employee Training:** Properly trained employees are critical to a successful hearing conservation program. Employees will be informed how high levels of noise can damage their hearing and how to protect their hearing through the proper selection and use of hearing protection devices.
- **Audiometric Testing:** Audiometric testing refers to a program of hearing tests and evaluations by hearing professionals. These tests provide an initial hearing baseline for each employee so subsequent testing can reveal any indications of hearing loss.

- All of these elements together make up your organization's hearing conservation program.

### **MEDICAL SURVEILLANCE**

- Medical surveillance is the process by which audiometric testing is used to help protect our hearing.
- Employees enrolled in the hearing conservation program will have their hearing tested once a year. An employee's initial test, known as a baseline audiogram, will establish a baseline against which future tests are compared.
- Employees should avoid high levels of noise or wear hearing protection for 14 hours prior to the test.
- During subsequent tests, if hearing loss of at least 10 decibels is recorded as compared to the baseline audiogram, a "standard threshold shift" has occurred. A standard threshold shift indicates that some hearing loss has occurred.
- When an employee's hearing test indicates that a standard threshold shift has occurred, the employee's exposure to noise and methods of protection will be examined.
- This may include retraining the employee to ensure hearing protection is being used properly or introducing administrative controls to reduce the amount of time the employee is exposed to high noise levels.

### **PROTECTIVE DEVICES & NOISE REDUCTION RATINGS**

- Employees may be required to wear hearing protection to reduce their exposure to harmful noise.
- This will be the case when engineering and administrative controls fail to reduce employee noise exposure to those levels listed in OSHA's Occupational Noise Exposure Standard 1910.95 Table G-16; this table lists the maximum permissible noise exposures, in decibels, for various durations of exposure.
  - For example, for an eight-hour exposure, the maximum permissible sound level is 90 decibels; for a shorter exposure of three hours, a sound level of 97 decibels is allowed.
  - A noise assessment conducted by a hearing professional has determined the exposure levels of various work areas and appropriate hearing protection for those areas has been selected.
  - The purpose of this hearing protection is to reduce employee noise exposure to levels at or below permissible levels indicated in Table G-16 of OSHA's Occupational Noise Exposure Standard.
  - To help select hearing protection devices, each type of device has a noise reduction rating. The noise reduction rating is a measure, in decibels, of how much the device reduces the level of outside noise before it reaches the inner ear.
  - Hearing protection devices with higher noise reduction ratings offer more protection than those with lower ratings.
  - While useful in comparing one type of protection to another, be aware that the manufacturer's listed noise reduction rating is frequently higher than a device actually provides in real-world conditions.
  - For example, the device must be properly installed and properly fitted to reach maximum effectiveness.
  - In addition, there are various methods used to measure noise. The published noise reduction rating may have to be converted to match the type of noise measurements used by your organization; these conversion methods are listed in Appendix B of the OSHA Standard.
  - Understanding a device's actual noise reduction rating and selecting appropriate hearing protection can be a complex process, which is why a hearing professional has participated in developing this critical part of your organization's hearing conservation program.
  - If you are required to wear hearing protection, it will be provided to you by the company and you will be instructed how to use it properly.

### **THE EAR PLUG**

- One of the most common types of hearing protection device is the ear plug.
- One advantage of ear plugs is that they are available in different sizes and can be disposable or reusable.
- Some ear plugs are designed to be inserted into the ear canal, while others, sometimes called canal caps, only cover the entrance to the ear canal.
- Most disposable ear plugs are made of polyurethane or other expandable foam, which is easily compressed for insertion into the ear.
- It is important to understand that these types of ear plugs must be installed properly to achieve their full noise reduction rating.
- To properly install this type of disposable ear plug into the ear, first make sure your hands are clean. One disadvantage of ear plugs is that handling with unclean hands can allow dirt, germs and other foreign matter to enter our ear canal.

- Once your hands are clean, compress the ear plug by rolling it in your fingers. With your other hand, pull up on the top of the ear; this helps to open the entrance to the ear canal so the plug can be inserted.
- Insert the plug into the ear canal and hold it in place with the tip of your finger while the ear plug expands. The ear plug will expand to conform to the shape of your ear.
- Reusable ear plugs do not require compression. This type of plug is usually made of silicone, rubber or plastic.
- They must also be inserted properly in the ear canal to achieve maximum noise reduction.
- Reusable ear plugs should be cleaned with soap and warm water on a regular basis and stored in a clean, dry container when not in use.
- Ear plugs come in many shapes and sizes, so be sure you find one that fits properly and comfortably. Ask for help if you are unsure about fit, comfort or installation of your ear plugs.

### **THE EAR MUFF**

- Ear muffs are also a popular choice when it comes to hearing protection.
- Ear muffs are designed to cover the entire ear and consist of a pair of cups connected by a headband. These cups are usually filled with soft foam to provide a comfortable, secure fit and low-pressure seal.
- Some advantages of ear muffs are that one size fits all, they are easy to put on and take off and it is easy to visually verify they are being worn by employees.
- Also, with proper cleaning, ear muffs may be shared with other employees.
- Some disadvantages to ear muffs are some employees may find the tight fit uncomfortable; they may cause sweating or additional discomfort in hot environments; and, they may interfere with other equipment.
- In extremely loud environments, it may be necessary to wear both ear plugs and ear muffs.

### **SYMPTOMS OF HEARING LOSS**

- If you are enrolled in the hearing conservation program, your annual audiometric testing will reveal if you have experienced any substantial hearing loss; however, you should also be aware of the symptoms that may indicate the onset of hearing loss.
- People with hearing loss can often hear but not understand what others are saying, especially in the presence of background noise or other conversations.
- Other symptoms include increasing the volume of your television or radio to levels uncomfortable for others and having trouble hearing in the higher frequency ranges, which include the voices of women and children.
- One common result of hearing loss, unfortunately, is to withdraw from social interactions because trying to communicate is difficult and frustrating. Relationships can suffer and depression is common.
- Hearing loss can have a huge impact on our state of mind and quality of life. If you suspect you are experiencing hearing loss, you must be extra vigilant to protect what hearing you have left.

### **OFF-JOB EXPOSURE**

- In addition to protecting your hearing at work, it is equally important to protect your hearing off the job because harmful noise is harmful no matter where it occurs.
- For example, the noise level of lawn mowers and power tools is generally around 90 decibels; chain saws, circular saws and drills are each around 100 decibels; and, firing a gun exposes to over 120 decibels of noise.
- Depending on our length of exposure, each of these off-job activities can cause irreversible hearing loss if protection is not used.
- Keep a pack of disposable ear plugs in your tool box or garage. Get in the habit of wearing them or a pair of ear muffs any time you use lawn equipment, power tools or other noise-making equipment.

## HEARING CONSERVATION TRAINING FOR EMPLOYEES

### ANSWERS TO THE REVIEW QUIZ

1. a

2. b

3. b

4. a

5. b

6. b

7. a

8. d

**HEARING CONSERVATION TRAINING FOR EMPLOYEES**  
**REVIEW QUIZ**

*The following questions are provided to determine how well you understand the information presented in this program.*

Name \_\_\_\_\_ Date \_\_\_\_\_

1. Damaged cilia in the ear do not repair themselves and we cannot grow more.
  - a. True
  - b. False
  
2. OSHA requires a hearing conservation program be established when sound levels average \_\_\_\_\_ decibels over an eight-hour time-weighted period.
  - a. 65
  - b. 85
  - c. 105
  
3. A standard threshold shift has occurred when a hearing test indicates hearing loss of at least five decibels when compared to an employee's baseline audiogram.
  - a. True
  - b. False
  
4. According to the OSHA Noise Exposure Standard, the maximum permissible noise exposure for sound levels at 97 decibels is \_\_\_\_\_ hours.
  - a. Three
  - b. Six
  - c. Eight
  
5. Hearing protection devices with higher noise reduction ratings offer less protection than those with lower ratings.
  - a. True
  - b. False
  
6. \_\_\_\_\_ ear plugs do not require compression when you insert them into your ear.
  - a. Disposable
  - b. Reusable
  
7. In extremely noisy environments, you may be required to wear both ear plugs and ear muffs.
  - a. True
  - b. False
  
8. Which of the following is a symptom of hearing loss?
  - a. Having difficulty understanding what others are saying
  - b. Increasing the volume of your television to levels uncomfortable to others
  - c. Having trouble hearing in high-frequency ranges
  - d. All of the above
  - e. None of the above