

HEARING CONSERVATION AND YOU

INTRODUCTION

Follow along as Steve, Jerry and a group of co-workers receive their annual training on hearing conservation. Jerry and the others understand and follow their training, while Steve does not. Steve doesn't take the issue of hearing loss seriously and continually disregards the need for hearing protection at home and at work. As time passes, Steve develops the symptoms of hearing loss due to his poor choices regarding hearing protection. Steve's annual audiogram reveals hearing loss and in the end, Steve becomes convinced of the importance of protecting his hearing from further damage. Watching the example of Steve's poor attitude and subsequent hearing loss will convince your employees to protect their hearing at home and at work.

Viewers will also learn important information about the hearing conservation program. Topics include how noise can damage hearing, using and fitting earplugs, canal caps and earmuffs, the medical surveillance program, importance of protecting against off-job noise, signs and symptoms of hearing loss and preventing further hearing loss once damage has occurred.

PROGRAM OUTLINE:

HOW NOISE CAN DAMAGE HEARING

Steve and Jerry go to a safety meeting regarding hearing conservation. Steve is obviously not interested in attending. While Steve complains that it is going to be boring, Jerry tells him that he should pay attention. At the beginning of the meeting, their supervisor explains that because the company has many tasks and work areas that contain harmful noise, a hearing conservation program consisting of several components has been established. He goes on to say that before the attendees learn more about the hearing conservation program, they need to understand how loud noise can damage their hearing. He then introduces Dr. Anderson, an audiologist, who describes how loud noise can damage hearing. Steve pays no attention to Dr. Anderson's presentation, playing on his cell phone. Dr. Anderson offers the following instructional points.

- For any of us to hear a sound, the sound waves must travel from its source to your outer ear, where it is channeled into your ear canal.
- Inside the ear canal, these sound waves strike the ear drum, causing it to vibrate. The membrane of the ear drum vibrates against three delicate bones which carry the vibrations to a structure known as the cochlea.
- The cochlea is filled with fluid and contains tiny hair-like structures called cilia. When waves of fluid induced by noise vibrations pass over the cilia, they bend and sway.
- As the tiny hair like cilia bend and sway, they transmit signals to the brain. Our brain then interprets these signals into the sounds we hear.
- The whole process is somewhat delicate and at high enough noise levels, the fluid waves inside the cochlea can become so forceful that the cilia can be damaged.
- As this process is repeated, over time, a gradual loss of hearing will occur. At first you may not even notice it's happening; usually it's your family members who will notice it first.
- Damaged cilia cannot repair themselves nor can we grow more. When our cilia are damaged from excessive exposure to loud noise, the resulting hearing loss is permanent.

At the conclusion of the meeting, Steve tells Jerry that he doesn't believe that's how hearing loss really happens. He says he thinks it "just happens to everyone when they get old, regardless, and there's nothing you can do about it."

HEARING PROTECTION: Earplugs and Canal Caps

Steve and Jerry then attend a meeting in the maintenance shop in which their supervisor discusses the use of earplugs and canal caps. The supervisor begins by saying that the facility has conducted a noise assessment to determine which work areas have harmful noise levels. When engineering controls can't reduce the noise to a safe level, hearing protection will be required. The following are instructional points the supervisor makes regarding earplugs and canal caps.

- Each type of hearing protection has a noise reduction rating, or NRR. This is a measure in decibels of how much the device reduces the level of outside noise before it reaches the inner ear.
- Our organization has selected hearing protection with a noise reduction rating high enough to reduce the measured noise levels to a safe level; however, you must understand that the hearing protection will not provide the listed noise reduction if it is not properly fitted or is not properly installed.
- Earplugs are a very common choice of hearing protection. Disposable earplug dispensers can be found in many areas of the facility.
- Before installing the plugs, make sure your hands are clean to prevent dirt and other debris from entering the ear canal.
- Then compress the plug by rolling it in your fingers.
- Use your other hand to pull up on the top of the ear, opening the entrance to the canal.
- Insert the earplug into the ear and hold it there with the tip of your finger for around 10 seconds while the plug expands inside your ear canal. Then repeat the process for the other ear.
- Once both plugs expand, you can test for a proper fit by placing your hands over your ears; when you remove your hands, there should be no difference in the amount of noise you are able to hear.

At the conclusion of the supervisor's talk, Jerry and Steve insert their earplugs. Steve complains that his feel weird and he was going to loosen his. Jerry tells him that they won't work if they aren't on right. Once again, Steve clearly missed the point. The narrator continues the discussion about earplugs and canal caps.

- For earplugs to be effective they must be installed properly.
- While they may take some getting used to, they should not be uncomfortable.
- One benefit of earplugs is that they are available in different sizes. You can work with your supervisor to find a size that fits you properly and is comfortable.
- Another advantage of earplugs is that they can be disposable or re-useable.
- Most disposable earplugs are made of polyurethane or other type of foam that will expand in the ear canal after being compressed for insertion.
- Reusable earplugs don't require compression, but they must also be inserted properly, into the ear canal, to provide maximum protection.
- Reusable earplugs should be cleaned with soap and water periodically and stored in a clean, dry container when not in use.
- In addition to the common earplug, there is another type of hearing protection called canal caps. Canal caps provide less noise reduction than earplugs and only cover the entrance to the ear canal.
- Some people feel that canal caps are more comfortable than earplugs and prefer them when less noise reduction is permissible.

HEARING PROTECTION: Earmuffs

The supervisor then reviews the use of earmuffs with the training group.

- Another type of hearing protection is the earmuff. Earmuffs are another common choice when it comes to hearing protection.

- Some advantages of earmuffs are that they are easy to put on properly, making it more likely that you will receive their maximum noise reduction.
- Also, they can be adjusted to fit anyone and after a proper cleaning can be shared with other employees..
- Of course, ear muffs also have a few disadvantages. Some people find their tight fit uncomfortable and they can feel hot when working in high temperatures.
- Earmuffs can also interfere with other protective equipment such as face shields or hardhats, but this can be overcome by using specialized equipment or adapters.
- Before putting on a pair of earmuffs, check the cushions of the cups for tears and inspect the muffs and headband for other damage. If you discover any defects, get a new pair.
- To be effective, the foam padding around the earmuff must make a good seal all the way around your ear. When putting on earmuffs, make sure your hair doesn't interfere with a secure seal.

The narrator concludes the discussion on hearing protection.

- It's important for all workers to understand that any required hearing protection has been selected to provide the appropriate noise reduction for the level of noise in your work area. This protection must be worn properly and consistently to prevent hearing loss.
- If you have any questions or concerns about your hearing protection, please work with your supervisor to find a type of protection that works for you.

THE MEDICAL SURVEILLANCE PROGRAM

Next, Dr. Anderson explains how medical surveillance in the hearing conservation program is conducted.

- OSHA requires the establishment of a hearing conservation program when employees may be exposed to noise levels which average 85 decibels or more for an eight- hour period.
- Medical surveillance is an important part of the hearing conservation program in which hearing tests called audiometric testing are used to help recognize and prevent employee hearing loss.
- Every employee who is enrolled in the hearing conservation program will be given an initial hearing test, known as a baseline audiogram, that establishes an initial reference point to which future hearing tests can be compared to determine if there has been any hearing loss.
- After the baseline has been established, each worker will be retested annually. If subsequent tests indicate a hearing loss of at least 10 decibels as compared to the baseline audiogram, then the worker will have suffered some hearing loss, which is referred to as a "standard threshold shift."
- Of course we do not want any of you to suffer ANY hearing loss. This is why you must always follow your training and wear your hearing protection at work. But you must also protect your hearing away from work. You would be surprised how many workers I see who are diligent at work but have suffered hearing loss by not wearing any hearing protection at home.

The doctor ends the discussion by stressing that employees must always follow their training and wear their hearing protection at work. She adds that they must also protect their hearing away from work because many workers have suffered hearing loss by not wearing any hearing protection at home.

OFF-JOB NOISE

- Off job noise can be a leading cause of hearing loss. For example, a simple hand held drill has a noise level of 98 decibels. A typical lawn mower is 107 decibels and a power saw is around 110 decibels.

- If you recall that prolonged exposure to 90 decibels of noise can cause irreversible hearing loss, you will see how important it is to protect your hearing both on and off the job.

Jerry and other workers are then shown wearing their hearing protection both on and off the job.

SIGNS AND SYMPTOMS OF HEARING LOSS

After their initial training and baseline audiogram Steve, Jerry and the other workers settled into their work routine. Jerry and the others followed their training and properly used hearing protection at work when required. They took the doctor's advice and also made sure to use hearing protection off the job. They all understood the long term consequences of hearing loss, but not Steve. Steve continued to trivialize the importance of hearing protection.

At work, Jerry notices that Steve's earplugs are not inserted far enough into his ears. When he tells him he needs to put them in all the way, Steve replies, "It's not even that loud in here, besides I have them in a little ways, I'm sure that's good enough. I need to be able to talk to people."

When working in his yard or garage at home, Steve routinely wore his safety glasses, but refused to wear earplugs. Even though his wife urged him to wear them, he resisted her pleas.

As the ensuing 12 months passed, Steve continued to ignore the serious hazard presented by loud noise. He began exhibiting some classic symptoms of hearing loss but failed to recognize them. One day, in the company lunchroom, Steve has difficulty understanding Jerry during a conversation and becomes frustrated and withdrawn.

- People with hearing loss can often hear but not understand what others are saying, especially if there is other noise in the background.
- People with hearing loss often suffer socially because they have a hard time communicating in a group setting.

After Steve's wife requests that he hand her a pot three times, he asks why she was always yelling at him. She replies that she only yells at him when he tunes her out. When he says that didn't tune her out and guessed he just didn't hear her, she says it's still not funny, thinking he's joking like before. Angrily, Steve walks away and says "I'm not trying to be funny."

- Hearing loss isn't funny. People experiencing hearing loss often have trouble hearing in the higher frequency ranges, which include the voices of women and children. This often causes tension and misunderstandings with the people we love the most.
- Other symptoms of hearing loss may include ringing in the ears, other people telling you that you are speaking too loudly or turning up the volume of the television louder than is comfortable for others.
- If you think you may be suffering from hearing loss discuss it with your supervisor and arrange to be tested.
- Unfortunately, hearing loss is not curable, but it is never too late to redouble your efforts to protect the hearing you have left.

PREVENTING FURTHER HEARING LOSS

At the end of the first year, it was time for Jerry and Steve to undergo their annual hearing test which would be compared to their baseline audiogram. Jerry's audiogram showed no signs of hearing loss; however, Steve's new audiogram revealed some alarming news.

Dr. Anderson tells Steve that the results of his audiogram indicate a reduction of 10 decibels in his hearing (known as a standard threshold shift) from the year before. When the doctor says she concludes that he has been exposed to excessive noise for long periods of time with no hearing protection, Steve replies that he can't disagree.

Steve is told that as part of the medical surveillance program, he will be retrained on the use and installation of hearing protection and may also be reassigned to work in a less noisy area or have his duration of exposure reduced. When Dr.

Anderson tells him that they couldn't control his exposure away from work, he says not to worry; he as someone at home to help him remember.

Steve was retrained how to properly install earplugs. He also discovered that a smaller size earplug was much more comfortable to wear. After getting used to wearing his earplugs properly, Steve also learned he had no problem talking to his co-workers. Steve also made it a habit to use earplugs at home anytime he used his tools or lawn equipment.

Another 12 months passed by and once again it was time for Steve to hear the results of his annual hearing test. The doctor tells him that there has been no change in his hearing. When Steve pretends that he can't hear her, she laughs and replies, "That is seriously not funny."

- We can all agree that there is nothing funny about hearing loss. Hearing loss can have a devastating impact on the quality of our lives and our relationships with loved ones.

PREPARE FOR THE SAFETY MEETING

Review each section of this Leader's Guide as well as the program. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the program. Play it without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Make an attendance record and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your video equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the program.

CONDUCTING THE PRESENTATION

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to discuss the components of a hearing conservation program while using Steve's story to illustrate that hearing protection must be used consistently and worn properly to be effective in preventing hearing loss.

Introduce the program. Play it without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about work areas at your facility that may contain harmful noise levels and the protection that is available to protect hearing when working in these areas.

After watching the program, the viewer should be able to explain the following:

- How noise can damage our hearing;
- How to fit earplugs and earmuffs and the importance of wearing them when harmful noise is present;
- How the medical surveillance program is used to recognize and help prevent employee hearing loss;
- Why it is important to protect hearing when performing off-job activities;
- What the signs and symptoms of hearing loss are.

HEARING CONSERVATION AND YOU
REVIEW QUIZ

Name _____ Date _____

Please provide answers to the following to show how well you understand the information presented during this program.

1. The structure in the in the ear that is filled with fluid and contains tiny hair-like structures called cilia is known as the _____.
 - a. ear drum
 - b. cochlea
 - c. stirrup
2. Damaged cilia are capable of repairing themselves and we can also grow more.
 - a. true
 - b. false
3. Hearing protection will not provide its rated noise reduction if it is not properly fitted or is not properly installed.
 - a. true
 - b. false
4. Canal caps provide _____ noise reduction than earplugs.
 - a. more
 - b. less
5. What is an advantage of wearing earmuffs?
 - a. they are easy to put on properly
 - b. they can be adjusted to fit anyone
 - c. they can be shared with other employees
 - d. all of the above
6. OSHA requires a hearing conservation program to be established when employees may be exposed to noise levels that average _____ decibels or more for an eight-hour period.
 - a. 65
 - b. 75
 - c. 85
7. The initial hearing test for employees enrolled in the hearing conservation program is known as a _____.
 - a. threshold audiogram
 - b. conductive audiogram
 - c. baseline audiogram
8. Off-job noise can be a leading cause of hearing loss.
 - a. true
 - b. false
9. If you have suffered a significant amount of hearing loss, there is no reason to try to protect what hearing you have left.
 - a. true
 - b. false
10. Workers whose audiometric testing indicates hearing loss will be retrained in the use of PPE and may be reassigned to an area with less noise.
 - a. true
 - b. false

ANSWERS TO THE REVIEW QUESTIONS

1. b

2. b

3. a

4. b

5. d

6. c

7. c

8. a

9. b

10. a