

Heat Stress: Working Safely in the Heat

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

INTRODUCTION: A brief description of the program and the subject that it addresses.

PROGRAM OUTLINE: Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

PREPARING FOR AND CONDUCTING THE PRESENTATION: These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

REVIEW QUESTIONS AND ANSWERS: Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

INTRODUCTION

Working in hot conditions can easily bring on heat-related illnesses if we aren't proactive in preventing them. So it is important to understand that heat stress and heat-related illness can cause more than just discomfort. If it's not treated early enough, it can lead to hospitalization or even death. This program provides an overview of how the body regulates heat and how to recognize the warning signs when these processes aren't working. The viewer will learn to recognize and treat symptoms of various heat-related illnesses. Most importantly, the program offers advice on preventing symptoms from occurring and understanding how to work safely in the heat.

Topics include how the body responds to heat, acclimation, the symptoms and treatment methods for five heat-related illnesses and the precautions to take to prevent heat-related illnesses.

PROGRAM OUTLINE

HOW THE BODY RESPONDS TO HEAT

- Inside your body there are many different mechanisms to make sure that your internal temperature stays at or near 98.6 degrees Fahrenheit or 37 degrees Celsius. In extreme temperatures, your body has to work harder to heat or cool itself to stay comfortable.
- When trying to stay cool in the heat, the first thing your body will do is send more blood towards the surface of the skin.
- By increasing blood flow towards the surface, the body can cool the blood and then send it back inside, where it will help keep you cool internally. This is why your skin may look flushed when you've been working in high temperatures.
- If the increasing blood flow isn't enough to keep you cool, your second line of defense are your sweat glands. As the perspiration evaporates from your skin, it cools your body. This is why a fan or a cool breeze on a hot day feels so good.
- Sometimes these internal mechanisms may not be able to keep your body cool. Higher temperatures mixed with increased physical activity can make it hard for your body to cool itself efficiently; that's when heat-related illnesses strike.
- You might assume that heat-related illnesses only affect people who work outdoors, in direct sunlight, during hot summer months, but heat can be a problem in both indoor and outdoor work environments.
- Below 91 degrees Fahrenheit or 32 degrees Celsius, most people can work comfortably and safely, but as the temperatures rise, it is important to be on the lookout for signs and symptoms of heat-related illnesses in yourself and your coworkers.

ACCLIMATION

- Another way heat-related illnesses can sneak up on you is when you are new to working in hot environments or have taken a break for longer than four days.

- Your body needs time to adjust to higher temperatures, especially when you are doing more strenuous work. Acclimation is your body's process of learning how to properly cool itself in hotter than normal conditions.
- By giving yourself time to acclimate to the heat, you'll feel better and be able to work more productively. During the acclimation period, make sure you are paying close attention to the signs of heat-related illnesses, drinking plenty of water and taking small breaks as needed.

HEAT RASH

- Heat rash (or "prickly heat") occurs when sweat begins to clog your sweat glands. This also limits your ability to sweat, making it harder for your body to cool itself, leaving you susceptible to more serious heat-related illnesses.
- In most cases, all you need to do is take a break in a cool place and drink water to clear up a mild rash.

HEAT CRAMPS

- Other heat-related illnesses can be confused with the effects of simply doing physical work for long periods of time.
- Heat cramps are a result of extended heat exposure and profuse sweating. The loss of minerals, salt, and water through sweat can cause painful muscle spasms in your limbs and body.
- Heat cramps are a warning sign that your body's internal temperature is climbing and can signal that more serious problems are on the way, if you aren't paying attention.
- To treat heat cramps, stop working and rest in a cool area. Drink juice or a sports drink to rehydrate and replenish the minerals and salt that your body needs.

HEAT SYNCOPE

- When sweating is not enough, the body directs blood flow to the skin to help the body cool itself. If your body is in overdrive, this can result in a lack of blood flowing to the brain, otherwise known as heat syncope.
- Symptoms include headache, dizziness and fainting. If ignored, heat syncope can lead to heat exhaustion and heat stroke, so it's important to treat it right away.
- If you or someone you're working with experiences symptoms of heat syncope, have them lie down in a cool place with their feet slightly elevated. Loosen clothing and fan the victim. Apply a cool compress to their forehead, if possible.
- When the victim begins to feel better, have them drink small amounts of water, or a sports drink every five minutes or so, until dizziness subsides. Just like heat rash, the best treatment is prevention.

HEAT EXHAUSTION

- Some heat-related illnesses can be quite serious. Heat exhaustion can lead to heat stroke, which is fatal if not treated. Like heat cramps, heat exhaustion is brought on by intense physical activity in hot conditions.
- Symptoms of heat exhaustion include intense sweating, blurred vision, rapid breathing, weak pulse and moist cool skin.
- Profuse sweating leads to a loss of minerals, water, and salt, and causes dehydration. Your body's cooling systems go into overdrive and eventually burn out.
- If someone is experiencing heat exhaustion symptoms, get the victim to a cool area where they can lie down. Soak the victim with water or dab them with a cool, damp cloth, then fan them until they've cooled down.
- Encourage the victim to drink small amounts of water, around one glass every 15 minutes. It is also recommended that the victim visits an emergency room or urgent care clinic to get checked out.

HEAT STROKE

- If more serious symptoms appear, like nausea and vomiting or loss of consciousness, call 911 immediately! These symptoms indicate that the person may be experiencing heat stroke.
- Heat stroke occurs when body temperatures rise to near-fatal levels, temperatures above 104 degrees Fahrenheit or 40 degrees Celsius. When your body cannot regulate its internal temperature, the organs will begin to shut down, which will lead to death if not treated.
- If someone is beginning to experience heat stroke, immediate medical attention is required. While you wait for help to arrive, it is important to try to lower the victim's body temperature.
- Start by removing any unnecessary PPE and clothing. Then, lay the person on their side, away from the heat. Douse the victim with cool water, and fan them to lower their body temperature.
- Use ice packs to help lower the body temperature by placing them behind the neck and under armpits. Stay with the victim until medical help arrives and do not give them aspirin or any anti-fever medications.
- Even with treatment, heat stroke can cause permanent long-term health problems, like kidney, brain and heart damage.

PREVENTION

- Prevention is always the best way to deal with heat-related illnesses. Hydration is the most important part of preventing heat-related illnesses.
- Make sure to pre-hydrate before work, by drinking about two glasses of water, about 16 oz. or a half liter, before you begin working in a hot environment. Drink fluids throughout the day, even if you don't feel thirsty.
- Aim to drink one glass of water for every 20 minutes of work in hot conditions. Flavored water and sports drinks can count towards these totals.
- Avoid coffee, caffeine and alcohol as these have dehydrating effects and can make heat-related illnesses worse.
- Sunburn can cause discomfort, lead to fluid loss and heat-related illnesses. Thirty minutes before going outside, put on a sunblock of SPF 30 or higher. Re-apply every two hours or more often if you are sweating a lot.
- Wear light colored clothing made of breathable fabric. Moisture wicking fabrics can provide additional help moving moisture away from the skin and help it evaporate, keeping you cool and dry.
- Even though you can't avoid wearing your PPE, dressing comfortably underneath will help you from overheating.
- Try to avoid scheduling heavy work during the hottest parts of the day. Tasks that can't be done in the shade should be done early in the day.
- Pay attention to what your body tells you. Don't push yourself too far and don't try to keep up with coworkers just because they don't seem bothered by the heat.
- It's important to take small breaks as needed. Get away from the heat and make sure to rehydrate.
- Being physically fit is important to overall health, but it will also help your body acclimate to heat more quickly.
- Some medications can have an adverse effect on your body. If you take any medications regularly, it is important to pay attention to the side effects. If you are on any medications, talk to your doctor to see if you can safely work in the heat.
- Check in with your coworkers throughout the day to look for signs or symptoms of heat-related illness.

- Because heat-related illness can cause confusion and disorientation, someone experiencing a problem might not realize it or might not think they need help. It's important to always look out for your coworkers. It's better to be safe than sorry.
- If you are going to be working in a hot environment, make sure you are paying attention to the signs of heat-related illness. If you notice any symptoms, stop working and tell your supervisor or a coworker right away. Don't push past the breaking point, because it could cause permanent damage to your body or worse.
- By using these preventative measures, and staying alert to the warning signs, you can continue to stay safe and productive when working in the heat.

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 how to recognize and treat symptoms of various heat-related illnesses as well as how to prevent the symptoms from occurring in the first place while working safely in the heat.

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

Lead discussions about your organization's specific policies and procedures for reporting suspected abuse and the options available for employees if they feel if they have a substance abuse problem of their own.

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

- How the body responds to heat;
- How the process of acclimation adjusts your body to higher temperatures;
- What the symptoms and treatment methods for various heat-related illnesses are;
- Which precautions to take to prevent heat-related illnesses.

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REVIEW QUIZ

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

Name _____ Date _____

1. When trying to stay cool in the heat, the first thing your body will do is send perspiration from your sweat glands to cool your skin.
 - a. True
 - b. False

2. Heat rash can usually be controlled by taking a break, cooling off and drinking water.
 - a. True
 - b. False

3. Heat cramps result from the loss of minerals, salt and water through profuse sweating.
 - a. True
 - b. False

4. Heat syncope is a result of _____.
 - a. Lack of blood flow to the brain
 - b. Lack of nutrition in our bodies
 - c. Lack of exercise

5. While heat exhaustion can be quite serious, it can NOT lead to heat stroke.
 - a. True
 - b. False

6. You should encourage a victim of heat stroke to drink around one glass of water every _____.
 - a. 5 minutes
 - b. 15 minutes
 - c. 30 minutes

7. You should call 911 immediately if heat stroke symptoms such as nausea, vomiting or lack of consciousness appear.
 - a. True
 - b. False

8. When treating a victim of heat stroke, you should give the person aspirin or anti-fever medications.
 - a. True
 - b. False

9. It is recommended to pre-hydrate before work by drinking 16 ounces of _____.
 - a. Coffee
 - b. Energy drinks
 - c. Water

10. You should re-apply sunblock every _____ if you are sweating a lot while working outside.
 - a. 2 hours
 - b. 3 hours
 - c. 4 hours

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ANSWERS TO THE REVIEW QUESTIONS

1. b
2. a
3. a
4. a
5. b
6. b
7. a
8. b
9. c
10. a