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# **COLD STRESS:** *Working Safely in Cold Weather*

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

**Item Number: 4655**  
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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.

# 4655 COLD STRESS: *Working Safely in Cold Weather* FACT SHEET

**LENGTH: 8 MINUTES**

## **PROGRAM SYNOPSIS:**

Anyone who works outside on a regular basis knows, at some point or another, you're going to experience cold and wet weather conditions. These working conditions can threaten your ability to do your job safely, as cold can have negative effects on the body. This is known as "cold stress." Cold and wet weather can begin to have negative effects on the body in temperatures as high as 59 degrees Fahrenheit. This program helps employees understand and recognize the signs of cold stress illnesses, how to protect themselves from them and how to treat cold stress victims.

## **PROGRAM OBJECTIVES:**

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

- What the symptoms of hypothermia are;
- How to dress in layers to prevent the onset of hypothermia and other cold stress illnesses;
- What the symptoms of frostbite are and how to prevent and treat them;
- What the symptoms of trench foot are and how to prevent and treat them.

## **PROGRAM OUTLINE:**

### **HYPOTHERMIA**

- Cold stress affects the body gradually. This can make it difficult to recognize sometimes until it's too late. This is why it's important to be aware of the signs of cold stress, not just for yourself but for your coworkers as well.
- Hypothermia is a potentially life-threatening illness that begins when the body's internal temperature sinks from its normal 98.6 degrees to 95 degrees or lower. When you're exposed to cold conditions for an extended period, your body loses heat faster than it can produce it.
- Most of the body's energy is used to keep the internal core temperature warm. Over time, your body begins to shift blood flow from your extremities to your core. This shift causes the exposed skin and extremities to cool rapidly, increasing the risk of hypothermia and frostbite.
- Usually, hypothermia occurs in extremely cold temperatures, but it can happen in temperatures warmer than 40 degrees Fahrenheit if you are chilled by rain, sweat or cold water.
- Early symptoms of hypothermia are often overlooked. They include shivering, muscle tension and fatigue. Advanced symptoms can include slow or slurred speech, difficulty performing tasks, loss of coordination, confusion, erratic behavior or poor decisions, irritability, slow breathing and heart rate and ultimately unconsciousness.
- If someone is showing signs of hypothermia, prevent further heat loss by sheltering them from wind and water. Bring them to a warm area if possible. Remove any wet clothing and replace with dry clothing. Wrap them in blankets and cover their head.

### **WEARING LAYERED CLOTHING**

- Clothing is your best defense against hypothermia and other cold stress illnesses.
- Layering is extremely important. Wear several layers of loose clothing to provide better insulation.
- Tight clothing reduces blood circulation and warm blood needs to be circulated to your extremities.
- Having several layers also gives you the option to open or remove a layer before you get too warm and start sweating or to add a layer when you take a break. It also allows you to be prepared when temperatures and weather conditions change.
- It's best to start with an innermost layer made of synthetic fabric that will allow for ventilation and wick away moisture. An example of this is thermal underwear made from polyester or polypropylene.
- Next, a middle layer should be made of down or wool to insulate and absorb sweat. Cotton is not recommended as it tends to get damp and wet quickly and loses its insulating properties. Wool and synthetic fibers, on the other hand, do retain heat, even when wet.

- Finally, an outer layer should be made of breathable, waterproof fabric to prevent air and water penetration and keep your body away from the cold.
- Remember, your layers should be easy to open or remove, especially during strenuous activities and make sure your clothing does not restrict the movement necessary to do your job safely.

### **FROSTBITE**

- Frostbite occurs when the skin is exposed to freezing temperatures. It can cause permanent damage and even lead to amputation in severe cases. Fingers, toes, noses and earlobes are most commonly affected.
- Exposure to cold temperatures and wind can quickly result in frostbite. This is why it's so important to dress properly when working in cold conditions.
- Signs of frostbite can include reddened skin that develops grey or white patches, tingling, aching, loss of feeling and blisters. Skin often feels frozen or "wooden."
- When treating frostbite, get to an area where you can stay warm after thawing so the affected body area does not refreeze. Warm water is best for rewarming, but do not rub or massage the area and do not use dry heat like a radiator or heating pad. If blisters are present, leave them intact.
- Since extremities feel the cold first, it's important to properly protect them.
- Gloves or mittens should be worn on hands, preferably made of some kind of waterproof fabric. It's important to find gloves or mittens that don't interfere with your work.
- Protecting your face and ears is also extremely important. Hats are essential, as much of the body's heat loss occurs through the head, so wearing a wool knit cap or a liner under your hardhat will keep your whole body warmer.

### **TRENCH FOOT**

- Unlike frostbite, trench foot can develop when feet are exposed to water or damp conditions for an extended period of time. It can affect the heels, toes or entire foot and can occur in temperatures as high as 60 degrees Fahrenheit.
- Wet feet lose heat 25 times faster than dry feet. This is why it's so important to specifically prepare for working in wet conditions.
- Signs of trench foot can include reddening skin, tingling, pain, swelling, leg cramps, numbness and blisters. If allowed to progress, tissue and nerve damage can occur.
- Prompt treatment is important to prevent permanent damage. Gently rewarm the area to improve circulation. do this for about five minutes at a time by soaking in warm, not hot, water, then wrap with a dry cloth.
- dressing your feet for wet conditions is essential to your safety. A pair of good wool socks, which will absorb sweat and keep feet insulated, work best.
- Boots should be made of leather with rubber soles and felt inserts. The rubber soles will prevent water from entering through the bottom of the boot and will be less slippery.
- If you work primarily in and around water, make sure to find boots that are more waterproof than leather. Also avoid boots or shoes that are too loose or too tight.

### **CONCLUSION**

- Cold stress can be hard to recognize, so remember to keep an eye on coworkers. If you notice a co-worker shivering or working unsafely, make sure to say something.
- Your company may have additional procedures for you to follow for working safely in cold weather. Following those procedures and the ones we've recommended in this video, plus a little common sense, can help you work safely and more comfortably in cold weather.

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**ANSWERS TO THE REVIEW QUIZ**

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

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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. At what temperature does cold stress begin to affect the body?
  - a. 0 degrees Fahrenheit
  - b. 32 degrees Fahrenheit
  - c. 59 degrees Fahrenheit
  - d. 75 degrees Fahrenheit
  
2. Hypothermia happens when the body's temperature sinks from its normal 98.6 degrees to 95 degrees or lower.
  - a. True
  - b. False
  
3. Which of the following is not a symptom of hypothermia?
  - a. Shivering
  - b. Slurred Speech
  - c. Blisters
  - d. Confusion
  
4. It's a good idea to wear multiple layers clothing to regulate body temperature.
  - a. True
  - b. False
  
5. Frostbite is the same as trench foot.
  - a. True
  - b. False
  
6. Which of the following is a sign of frostbite?
  - a. Reddened Skin
  - b. Tingling
  - c. Blisters
  - d. All of the above
  
7. Using a radiator or heating pad is the best way to treat frostbite.
  - a. True
  - b. False
  
8. Trench foot affects which body part?
  - a. Head
  - b. Earlobes
  - c. Hands
  - d. Feet
  
9. If you have trench foot, it's best to soak your feet in the hottest water you can tolerate.
  - a. True
  - b. False
  
10. Symptoms of cold stress occur rapidly and are easily noticed.
  - a. True
  - b. False