



Training Solutions, Delivered!

WORKING SAFELY IN COLD WEATHER

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

Item Number: 1320

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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.

1320 WORKING SAFELY IN COLD WEATHER FACT SHEET

LENGTH: 15 MINUTES

PROGRAM SYNOPSIS:

Not only does cold weather make your working environment more difficult, it can also be hazardous to your health. It has the ability to cause conditions like hypothermia and frostbite. It can also present treacherous driving conditions that in some cases can be life-threatening. This program discusses a number of the hazards that working in the cold presents and shows ways that you can plan ahead to protect yourself from these dangers. Topics include the four major contributing factors of cold stress, first aid treatment for hypothermia and frostbite victims, dressing in layers and other personal protection, safe work practices for preventing cold stress and being prepared to drive in bad weather.

PROGRAM OBJECTIVES:

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

- What the four factors of cold stress are and how they can affect the human body;
- How to identify the signs of cold stress;
- What actions to take when administering first aid to frostbite and hypothermia victims;
- How to dress in layers and use other personal protection to avoid cold stress;
- Which job practices will help prevent cold stress;
- How to prepare for the potential of driving in bad weather.

PROGRAM OUTLINE

COLD WEATHER CAN AFFECT PEOPLE DIFFERENTLY

- Keep in mind, the way cold weather affects you is most likely different than how it affects another person.
- Basically, we all react in different ways when exposed to the cold temperatures. This is a result of a number of factors that can include your age, weight, physical conditioning and general health.
- So when it's cold outside, it is important that you know your limitations and be sufficiently prepared to deal with the elements.
- One of the more dangerous side effects that accompany working in the cold weather is a condition known as "cold stress."
- There are four major contributing factors to cold stress. Keep in mind, not all of these factors need to be present for someone to fall victim to cold stress.

AIR TEMPERATURE

- The first of the big four is air temperature. Most of the time your body is continuously working to maintain a normal body temperature of right around 98 degrees Fahrenheit.
- When the air is cold, your body has to do increased work to maintain that comfortable temperature. Cold stress is the result of that additional strain to maintain that temperature.
- You should be aware that working in a cold environment for extended periods of time can significantly increase your risk of being affected by cold stress.
- When we refer to the cold, we are referring to anything below 59 degrees. That means you can fall subject to cold stress even when the temperature is almost 30 degrees above freezing.

AIR MOVEMENT

- The second factor that contributes to cold stress is air movement. Fast-moving air is basically what we call "wind."
- When cold air temperature and wind collide, you end up with what is commonly called "wind chill."
- The greater the wind chill, the colder it feels. This, of course, also creates a greater amount of stress on the body.

HUMIDITY

- The third factor that comes into play that can contribute to cold stress is humidity. Humidity is the measurement of how much water is in the air.

- Cold stress related to cold air and humidity can occur quite easily. This is because water has the ability to take heat away from the body.
- This can occur as much as 25 times faster than if the air were completely dry.

DIRECT CONTACT WITH COLD WATER OR WET SURFACES

- The fourth and final key contributing factor to cold stress is direct contact with cold water or wet surfaces.
- Similar to humidity in the air, when you come in contact with water outside of the air, it has a surprisingly powerful effect on the temperature of your body. Articles of wet clothing or contact with a cold wet surface can cause a severe loss of body heat.

IDENTIFYING THE SIGNS OF COLD STRESS

- Cold stress can be identified in a number of ways, but a few of the most common signs to watch for are dehydration, numbness, shivering, frostbite, and arguably the most dangerous, hypothermia.
- Of course, if there is a noticeable drop in your ability to use your hands and fingers. due to numbness or shivering, cold stress may be occurring.
- Loss of mobility in your hands is a common effect of cold stress and can result in safety hazards to you and your coworkers, especially if you are unable to grip a tool or properly handle the materials you're working with.
- Shivering is another of the body's responses to the cold and a potential indicator of the onset of cold stress. Be on guard if you begin to shiver.
- Shivering is the body's protective mechanism that increases the rate of your body's metabolism. This is a solid sign that hypothermia may be at the beginning stages.

HYPOTHERMIA

- Hypothermia is one of, if not the, most serious side effects of cold stress. It occurs once the body loses the ability to maintain its normal temperature and loses heat faster than it can be replaced.
- Other signs to watch for include slow or slurred speech, confusion, hallucinations, weak and irregular pulse or unconsciousness.

FROSTBITE

- Frostbite, like hypothermia, can be a disastrous side effect of cold stress as well. It usually occurs when there is damage to the skin caused by the extreme cold temperatures.
- In most cases, frostbite is likely to happen in body parts farthest away from the heart, like in your hands and feet, or even more specifically, your fingers and toes.
- You can usually recognize frostbite by discoloration of the skin; it will lack a normal healthy flesh tone.
- You will also have burning and tingling sensations or anything from partial to complete numbness in your extremities.

FIRST AID TREATMENT FOR FROSTBITE VICTIMS

- If possible, the victim should be moved to a warm, but never hot, safe area.
- Although you may instinctively want to rub or massage the affected areas, don't. Ice crystals that may have formed in the skin act as tiny knives and ruin body tissue when rubbed.
- If medical attention is not immediately available, the affected areas should be placed in warm water no more than 110 degrees until the body tissue is soft and the victim's sensation has returned.

FIRST AID TREATMENT FOR HYPOTHERMIA VICTIMS

- For hypothermia, as with frostbite, it is most important to first move the person out of the cold to prevent additional loss of body heat. Once that is achieved, you should take the following steps.
- First, if the person is wearing wet clothes, remove them and replace with a dry covering. When doing this, try not to move the person too much; if necessary, cut away the clothing.
- Lay the person on their back face up on a blanket or other warm surface.
- If the affected person is alert and is able to swallow, have the person drink a warm, nonalcoholic or non-caffeinated beverage. This will help to warm the body.
- This could include beverages like warm water or decaffeinated tea. Since sugary drinks can help increase the body's metabolism, even a warm glass of apple juice or a cup of hot chocolate could do the trick.

- Alcoholic drinks, on the other hand, reduce the body's ability to retain heat, so these types of drinks should be avoided.
- The core body temperature needs to be warmed gradually. In the case of severe hypothermia, never apply direct heat to the victim. This includes using hot water or a heating pad to warm the person.
- You should also not attempt to warm the affected person's arms and legs. Heat applied to the arms and legs forces cold blood back toward the heart, lungs and brain. That will cause the core body temperature to drop even further and could put the victim into shock.

DRESSING IN LAYERS

- Some people are more susceptible to cold stress than others, but for people who are not physically fit, have a chronic illness, drink alcohol or take drugs (including prescription drugs), are exposed to vibration from tools, or are not used to working in cold, have a higher risk to cold stress. So, it is best to be prepared for the cold, helping to prevent cold stress.
- Wearing the appropriate clothing is the most important factor for preventing cold stress and related problems. It is best to layer your clothing when working in the cold weather, with the magic number for layers being at least three.
- Your first layer or inner layer, which is closest to your body, should allow for good ventilation and would ideally be made of a synthetic weave such as polypropylene. This type of fabric wicks away moisture and maintains a dry layer against your skin, commonly in the form of long underwear.
- Next, your mid-layer, or layers, should be made of down or wool to help insulate and absorb sweat. As we learned earlier, since water takes away heat from the body, keeping dry when working in the cold is essential.
- Last but not least, your outer layer should be composed of a fabric like Gore-tex or nylon that prevents air penetration and keeps a good separation from the cold. Most often, modern winter jackets are made of this type of fabric.

OTHER PERSONAL PROTECTION

- Since 40 percent of your body's heat is lost through the head, a hat or wool cap goes a long way to keeping you warm.
- Protection for your hands and feet is extremely critical. For foot protection, insulated boots are recommended, with felt inserts, rubber bottoms and leather tops for ventilation.
- If you are working in wet conditions, waterproof boots may be necessary, but remember, waterproof boots may not allow for perspiration to escape from your feet and could leave you more susceptible to frostbite in very cold conditions.
- If you know that you will be working in conditions where you may get wet, or perspire, bring some extra clothes with you to work. It is better to be safe with what you need, than to be in danger and wish you had the extra clothes.
- You should also be aware that while it might seem to make a lot of sense to have extra thick socks or double up with two pairs, you will be a lot warmer if your socks are not too thick. When your socks are too thick, they lose some of their insulating properties.

SAFE WORK PRACTICES FOR PREVENTING COLD STRESS

- Beyond being prepared with the appropriate protective clothing, there are several on the job practices that you should take into consideration to prevent cold stress as well.
- It is also important that you are aware that your metabolism is essential for producing heat to maintain a normal body temperature.
- To keep up your metabolism, you need to stay hydrated and eat and drink warm high-calorie foods, including a solid breakfast and lunch that is well-rounded with both protein and carbs to keep your energy levels up. For example, the carbohydrates in pasta will give you the energy your body needs to keep warm and efficient.
- Try your best to avoid caffeine and alcohol since these can impair the body's normal reaction to cold.
- It is also a good practice to work on a buddy system where coworkers keep an eye out for each other. Keeping an eye out for your fellow coworkers and having them look out for you when working in cold conditions can keep you both from danger related to cold stress.

BEING PREPARED TO DRIVE IN BAD WEATHER

- As we all know, cold stress isn't the only thing we need to look out for when the temperature drops. Bad weather during the cold winter months is a reality for a lot of us and especially for those of us who are required to drive vehicles as a part of our jobs.

- As with avoiding cold stress though, your best defense for dealing with bad weather is being prepared.
- Think ahead. Be familiar with your vehicle and make sure that your vehicle is properly maintained. Make sure that your windshield is free from cracks, snow and ice, that your tires are not worn past the tread indicators and that your vehicle has been serviced with the proper anti-freeze mixture.
- Be prepared by carrying a car safety kit. Having one of these kits in your car could be a saving grace in any kind of event. In your kit be sure to include a flashlight, extra blankets for you and your passengers, water, food, a first aid kit, jumper cables, road flares and any other tools that could come in handy in case of an emergency.
- Be aware. In short, know the road conditions that you will be driving in. Be familiar with all necessary precautions and the appropriate steps that you'd need to employ in the event of bad weather. Most of all, remember to drive slowly and leave enough distance between you and the vehicle in front of you.

SUMMARY

- We've seen what cold weather can do to the body and the additional stress that it puts on you and those who work with you. We also now know how easily cold weather can turn your typical day on the job into a life or death battle with hypothermia.
- What you have in your favor now, however, is the knowledge it takes to be prepared for and prevent these situation and tips to plan ahead.
- Whether it be avoiding cold stress or identifying the side effects, navigating through cold weather related driving situations or just keeping warm so you can do your best every day on the job, remember this: thinking and planning ahead so that you're prepared for the dangers that working in cold weather presents goes a long way to bringing you home safe each day.

WORKING SAFELY IN COLD WEATHER

ANSWERS TO THE REVIEW QUIZ

1. b

2. a

3. a

4. b

5. a

6. c

7. b

8. b

9. a

WORKING SAFELY IN COLD WEATHER
REVIEW QUIZ

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

Name _____ Date _____

1. All four factors of cold stress must be present for a person to become a cold stress victim.
 - a. True
 - b. False

2. You can fall victim to cold stress even when the temperature is almost 30 degrees above freezing.
 - a. True
 - b. False

3. Cold stress related to cold air and humidity can occur as much as 25 times faster than if the air were completely dry.
 - a. True
 - b. False

4. Frostbite is most likely to happen in body parts _____ the heart.
 - a. Closest to
 - b. Farthest away from

5. When treating a frostbite victim, an affected body part should be placed in warm water no more than _____.
 - a. 110 degrees
 - b. 125 degrees
 - c. 150 degrees

6. Which type of drinks should be avoided when trying to warm a hypothermia victim's body?
 - a. Warm water or decaffeinated tea
 - b. Sugary drinks
 - c. Alcoholic drinks

7. What type of fabric should your middle layer be composed of when dressing for cold weather?
 - a. Synthetic weaves
 - b. Down or wool
 - c. Gore-tex or nylon

8. How much of your body's heat is lost through your head in cold conditions?
 - a. 25 percent
 - b. 40 percent
 - c. 60 percent

9. Socks that are too thick can lose some of their insulating properties.
 - a. True
 - b. False