

First Aid: Extreme Temperatures - Cold

5-Minute Talk

Temperature Extremes – Cold

When your body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result. Hypothermia can occur when *land temperatures* are above freezing or *water temperatures* are below 98.6°F.

Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing. Let's take a look at the two most common cold-related illnesses—frostbite and hypothermia.

Frostbite

What happens to the body?

- Freezing in deep layers of skin and tissue
- Pale, waxy-white skin color
- Skin becomes hard and numb
- Usually affects the fingers, hands, toes, feet, ears, and nose

What should be done?

- Move the person to a warm, dry area. Do not leave the person alone.
- Remove wet or tight clothes that may cut off blood flow to the affected area.
- **DO NOT** rub the affected area. Rubbing causes damage to the skin and tissue.
- Gently place the affected area in a warm (105°F) water bath and monitor the temperature to slowly warm the tissue. Don't pour warm water directly on the affected area because it will warm the tissue too fast, causing tissue damage. Warming takes about 25-40 minutes.

- After the affected area has been warmed, it may become puffy and blister. The affected area may have a burning feeling or numbness. When normal feeling, movement, and skin color have returned, dry and wrap the affected area to keep it warm. **Note:** If there is a chance the affected area may get cold again, do not warm the skin. If the skin is warmed and then becomes cold again, it will cause severe tissue damage.
- Seek medical attention as soon as possible.

Hypothermia—a medical emergency

What happens to the body?

- Normal body temperature (98.6°F) drops to or below 95°F
- Fatigue or drowsiness
- Uncontrolled shivering
- Cool bluish skin
- Slurred speech
- Clumsy movements
- Irritable, irrational, or confused behavior

What should be done?

- Call for emergency help (i.e., ambulance or call 911).
- Move the person to a warm, dry area. Don't leave the person alone.
- Remove any wet clothing and replace with warm, dry clothing or wrap the person in blankets.
- Have the person drink warm, sweet drinks (sugar water or sports-type drinks) if they are alert. **Avoid drinks with caffeine** (coffee, tea, or hot chocolate) or alcohol.
- Have the person move their arms and legs to create muscle heat. If they are unable to do this, place warm bottles or hot packs in the arm pits, groin, neck, and head areas. **DO NOT** rub the person's body or place them in warm water baths. **This may stop their heart.**

How to protect your employees—Instruct them to:

- Recognize the environmental and worksite conditions that lead to potential cold-induced illnesses and injuries.
- Recognize the signs and symptoms of cold-induced illnesses/injuries and what to do to help a fellow employee.
- Select proper clothing for cold, wet, and windy conditions.
- Layer clothing to adjust to changing environmental temperatures. Wear a hat and gloves, in addition to underwear that will keep water away from the skin (polypropylene).
- Avoid exhaustion or fatigue. Energy is needed to keep muscles warm.
- Use the buddy system (work in pairs).
- Drink warm, sweet beverages (sugar water, sports-type drinks). Avoid drinks with caffeine (coffee, tea, or hot chocolate) or alcohol.
- Eat warm, high-calorie foods like hot pasta dishes.

How to protect your employees—Allow them to:

- Take frequent short breaks in warm, dry shelters to allow the body to warm up.
- Work during the warmest part of the day.

Employees are at increased risk when they:

- Have predisposing health conditions such as cardiovascular disease, diabetes, and hypertension.
- Are in poor physical condition, have a poor diet, or are older.
- Take certain medications. Ask your employees to check with their doctor, nurse, or pharmacy to see if any medicines they are taking affect them while working in cold environments.

Employee Training

There are no specific training requirements in the OSHA regulations for employee exposure to cold weather. However, the OSHA regulation at 29 CFR 1926.21(b)(2) says that you must instruct employees in the recognition and avoidance of unsafe conditions and the regulations applicable to their work environment to control or eliminate any hazards or other exposure to illness or injury.

Training Tips

See the instruction suggestions under the heading “How to protect your employees.”

Where To Go For More Information

29 CFR 1926.50—Medical services and first aid