

SAFETY TALK

NORTH DAKOTA LOCAL TECHNICAL ASSISTANCE PROGRAM-UPPER GREAT PLAINS TRANSPORTATION INSTITUTE-ND SU

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NIOSH Safety and Health Topic:

Cold Stress

Workers who are exposed to extreme cold or work in cold environments may be at risk of cold stress. Extreme cold weather is a dangerous situation that can bring on health emergencies in susceptible people, such as those without shelter, outdoor workers, and those who work in an area that is poorly insulated or without heat. Whenever temperatures drop decidedly below normal and as wind speed increases, heat can more rapidly leave your body. These weather-related conditions may lead to serious health problems.

Hypothermia

When exposed to cold temperatures, your body begins to lose heat faster than it can be produced. Prolonged exposure to cold will eventually use up your body's stored energy. The result is hypothermia, or abnormally low body temperature. A body temperature that is too low affects the brain, making the victim unable to think clearly or move well. This makes hypothermia particularly dangerous because a person may not know it is happening and will not be able to do anything about it.

Symptoms

Symptoms of hypothermia can vary depending on how long you have been exposed to the cold temperatures.

Early Symptoms

- Shivering
- Fatigue
- Loss of coordination
- Confusion and disorientation

Late Symptoms

- No shivering
- Blue skin
- Dilated pupils
- Slowed pulse and breathing
- Loss of consciousness

First Aid

Take the following steps to treat a worker with hypothermia:

- Alert the supervisor and request medical assistance.
- Move the victim into a warm room or shelter.

- Remove their wet clothing.
- Warm the center of their body first—chest, neck, head, and groin—using an electric blanket, if available; or use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
- Warm beverages may help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person.
- After their body temperature has increased, keep the victim dry and wrapped in a warm blanket, including the head and neck.
- If victim has no pulse, begin cardiopulmonary resuscitation (CPR).

Frostbite



Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in the affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage body tissues, and severe cases can lead to amputation. In extremely cold temperatures, the risk of frostbite is increased in workers with reduced blood circulation and among workers who are not dressed properly.

Symptoms

Symptoms of frostbite include:

- Reduced blood flow to hands and feet (fingers or toes can freeze)
- Numbness
- Tingling or stinging
- Aching
- Bluish or pail, waxy skin

First Aid

Workers suffering from frostbite should:

- Get into a warm room as soon as possible.
- Unless absolutely necessary, do not walk on frostbitten feet or toes—this increases the damage.
- Immerse the affected area in warm—not hot—water (the temperature should be comfortable to the touch for unaffected parts of the body).
- Warm the affected area using body heat; for example, the heat of an armpit can be used to warm frostbitten fingers.
- Do not rub or massage the frostbitten area; doing so may cause more damage.
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can be easily burned.

Recommendations for Workers

Workers should avoid exposure to extremely cold temperatures when possible. When cold environments or temperatures cannot be avoided, workers should follow these recommendations to protect themselves from cold stress:

- Wear appropriate clothing.
 - Wear several layers of loose clothing. Layering provides better insulation.
 - Tight clothing reduces blood circulation. Warm blood needs to be circulated to the extremities.

- When choosing clothing, be aware that some clothing may restrict movement resulting in a hazardous situation.
- Make sure to protect the ears, face, hands and feet in extremely cold weather.
 - Boots should be waterproof and insulated.
 - Wear a hat; it will keep your whole body warmer. (Hats reduce the amount of body heat that escapes from your head.)
- Move into warm locations during work breaks; limit the amount of time outside on extremely cold days.
- Carry cold weather gear, such as extra socks, gloves, hats, jacket, blankets, a change of clothes and a thermos of hot liquid.
- Include a thermometer and chemical hot packs in your first aid kit.
- Avoid touching cold metal surfaces with bare skin.
- Monitor your physical condition and that of your coworkers.

Content Source: National Institute for Occupational Safety and Health (NIOSH)