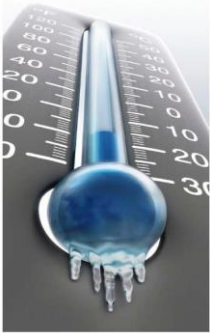


The *BSO Plus Safety Topic* is a review designed from the BSO Plus agenda. This safety topic is your way to stay current on the safety information over the 3 years between BSO Plus and BSR.

## COLD STRESS

### What is cold stress?



People who work in cold environments or who are exposed to extreme cold may be at risk of cold stress, which can lead to freezing injuries and hypothermia.

When exposed to the cold, your body expends much of its energy in keeping your internal temperature warm. The toes, fingers, ears, and nose are at the greatest risk for exposure because they do not have a major muscle group for heat production.

With prolonged exposure, your body will react by shifting blood flow from your extremities (hands, feet, arms, and legs) and outer skin to your core (chest and abdomen) as a means of protecting your internal organs.

### What are the health effects of exposure to cold?

#### Frostbite

Frostbite is an injury that occurs when body tissue temperature falls below the freezing mark, either from lack of blood flow or from exposure to cold temperatures or contact with extremely cold objects (especially metal). The body tissues may be severely, even permanently, damaged from frostbite injuries. Skin that has suffered from frostbite is usually very susceptible to the cold after recovering from the first injury. In severe cases, when blood flow can't be restored to damaged tissue, the result may be amputation of the affected area.



#### Hypothermia

Hypothermia occurs when the body loses heat faster than it can be generated. Prolonged exposure to cold will eventually use up the body's stored energy. When the core body temperature starts to drop, the brain's ability to function properly is affected. A person suffering from hypothermia may not even realize what is happening and will not be able to do anything to protect himself or herself.

#### Early symptoms

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

#### Late symptoms

- No shivering
- Blue / puffy skin
- Dilated pupils
- Slowed pulse
- Loss of consciousness

## What is wind-chill temperature?



A cold environment challenges the worker in three ways:

1. Air Temperature
2. Air Movement (wind speed)
3. Humidity (wetness)


In order to work safely, all three factors must be assessed when planning for work in cold environments. Planning for work in cold environments is your most important defence.

At any temperature, you feel colder as the wind speed increases. “Wind Chill” is a still-air temperature that would have the same cooling effect on exposed human skin as a given combination of temperature and wind speed. It can be used as a general guideline for deciding clothing requirements and the possible health effects of cold.

## How can you protect yourself from cold stress?

To protect yourself from cold stress, you should:

- Wear layered clothing, which helps trap heat close to the skin and allows you to add or remove layers to respond to shifts in temperature
- Wear a wool knit cap or liner under a hardhat to prevent up to 50% of body heat loss
- Stay hydrated with regular intake of non-caffeinated fluids (hot soup or non-caffeinated beverages are recommended)
- Avoid alcohol, which increases blood flow to the outer layer of skin and leads to faster loss of body heat
- Follow your employer’s safe work procedures for cold environments



**According to the WSIB’s “By the Numbers Report”, from 2016-2017 there were 82 approved lost-time claims related to hot/cold temperature extremes.**

If you are taking medications, consult your doctor before working in the cold. Certain medications may prevent the body from generating heat normally. These include sedatives, anti-depressants, tranquilizers and some heart medications. *(source: www.ccohs.ca)*

## FIRST AID MEASURES

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
- Warm beverages may help increase the body temperature, but do not give alcoholic beverages.
- 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

- 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.
- Warm the affected area using body heat
- 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.