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**JOB AID**  
**Cold Stress**

# Cold Stress

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Whenever temperatures drop decidedly below normal for your region, and as wind speed increases, heat can leave your body more rapidly. **Cold stress** is the loss of body heat to the environment.

## Sources of Heat Loss

- **Radiation** - loss of heat to cold air (heat is lost through uncovered head)
- **Conduction** - loss of heat due to contact with something cold (use insulated tools to prevent conduction heat loss)
- **Convection** - transfer of heat from a hot area to a cooler area (such as wind chill)
- **Evaporation** - heat lost from sweating and respiration (increased susceptibility to hypothermia and other cold injuries)

## When You Are Exposed to Extreme Cold

Watch for these symptoms that someone is too cold:

- Decreased alertness
- Loss of mobility/dexterity
- Feeling extremely tired
- Feeling effects of cold more quickly
- Slurred words
- Clumsiness
- Irritability or anger

When it is cold:

- Don't rush to get out of cold
- Safety glasses can fog up
- Snow, rain and sleet increase the risk of slips, trips and falls
- Remember that heaters increase the risk for fires or carbon monoxide poisoning

## Hypothermia

Hypothermia occurs when someone has an abnormally low body temperature.

Symptoms	Treatment
<ul style="list-style-type: none"><li>• Unable to move well or think clearly</li><li>• Disorientation</li><li>• Intense shivering</li><li>• Exhaustion or drowsiness</li><li>• Confusion or memory loss</li><li>• Slurred speech</li><li>• Euphoria</li><li>• Collapsing</li></ul>	<ul style="list-style-type: none"><li>• Immediate medical attention</li><li>• Bring the person to a warm room or shelter</li><li>• Remove any wet clothing</li><li>• Warm the center of the body first – chest, neck, head, groin, armpits – using skin-to-skin contact under loose dry layers of blankets, clothing, towels, sheets, hot packs or warm bottles</li><li>• Provide warm beverages only if the person is conscious</li><li>• Perform CPR, if needed</li><li>• <b>DO NOT</b> immerse hypothermic individuals in warm or hot water. It may stop a victim's heart.</li></ul>

## Frostbite and Trench Foot

Frostbite occurs when skin tissue freezes. The nose, ears, cheeks, chin, and fingers or toes are most susceptible. Damage can be permanent. Trench foot occurs when you combine cold with water exposure. Keep feet/shoes/socks dry to avoid trench foot.

Symptoms	Treatment
<ul style="list-style-type: none"><li>• An initial burning sensation</li><li>• Coldness, numbness or tingling</li><li>• White or grayish-yellow skin</li><li>• Skin that feels unusually firm or waxy</li></ul>	<ul style="list-style-type: none"><li>• Seek medical attention as soon as possible</li><li>• Get into a warm room as soon as possible</li><li>• Do not walk on frostbitten feet or toes, if possible</li><li>• Immerse area in warm – <b>not hot</b> – water</li><li>• Warm the affected area using body heat</li><li>• <b>DO NOT</b> rub/massage area</li><li>• <b>DO NOT</b> expose the area to a heat source (heat pad/lamp, fire, stove, etc.)</li></ul>

## Factors that Contribute to Cold Stress

Cold stress is more likely with sudden weather changes and if you have pre-existing health conditions or diseases. Some other factors that may impact how cold affects you are:

- Your age and health
- The activity you are doing
- The temperature
- The wind chill

## Prevent Cold Stress

Use the following work practices to minimize cold stress:

- Create wind/warming shelters
- Gradually build up your time in the cold
- Take rest breaks in warm areas
- Schedule work at warmer times
- Avoid metal chairs and tools
- Stay hydrated by drinking warm, sweet drinks or broths
- Increase your food energy intake (i.e., more calories/kilocalories/kilojoules)
- Limit or stop use of nicotine, caffeine and alcohol
- Monitor how medicine impacts your response to cold

## Clothing

- Keep your clothes dry
- Dress in layers
  - **Inner layer:** Use materials like wool, silk or polypropylene that draw moisture away and tend to hold more body heat than cotton
  - **Middle layer:** Use well-insulated material or wool that provides warmth without weight
  - **Outer layer.** Wear material that protects against water and wind. Wear a hat! Remember that you lose body heat through your uncovered head. Protect your hands by wearing insulated gloves