



# Cold Stress

## Awareness

Exposure to cold can cause injury to outdoor workers, or people who work in uninsulated/unheated/refrigerated spaces. The risk of cold exposure increases dramatically when wind or water is involved.

### Health effects

**Hypothermia** is an abnormally low body temperature caused by losing body heat faster than it can be produced. This affects the brain, making the victim unable to think clearly or move well. The victim may not recognize that this is happening. In colder temperatures hypothermia can set in within minutes to exposed skin. Early symptoms of hypothermia include:

- shivering
- fatigue
- loss of coordination
- slurred speech
- confusion/disorientation

**Immersion Hypothermia** is caused by immersion in water less than 70 F. It develops much more quickly because water conducts heat away from the body 25 times faster than air.

**Frostbite** occurs when the skin freezes (most commonly the fingers, toes, nose, ears, or chin). This causes permanent damage or destruction of the tissue. Amputation is often required. Symptoms of frostbite include:

- loss of feeling and color in the affected areas
- tingling or stinging
- aching
- bluish or pale, white waxy skin

### Work practices

- Plan ahead for the day, check the weather report.
- Take frequent breaks in a warm area.
- Schedule work for warmer parts of the day.
- Overexertion makes muscles susceptible to cold and causes sweating, which cools the skin.

- Work in teams so that one worker can watch for danger or get help if needed.
- Drink hot water and sports drinks. Avoid coffee, tea, soda, or alcohol.
- Eat warm, high-calorie foods such as hot pasta.
- Pack an emergency kit with blankets, dry clothes (especially socks), and a thermos of hot liquid.
- Use hand and toe warmers in gloves and boots.

### Personal Protection

- Wear layers of loose clothing for extra warmth and the ability to shed layers as needed.
- Protect the ears, face, hands and feet.
- Boots should be waterproof and insulated.
- Hats keep the entire body warmer.

### First Aid

#### Hypothermia:

- **Call 911—immediately**
- Bring victim in from the cold.
- Take off any cold/wet clothing.
- **Don't apply direct heat or use hot water, heating pad, or lamps.** (May send victim into shock)
- Apply warm compresses to the head, neck, chest and groin.
- Give warm non-alcoholic drinks, if conscious.
- **Don't massage or rub the person.**

#### Frostbite:

- **Call 911**
- If avoidable, do not walk on frostbitten toes/feet
- **Do not** rewarm the skin until you can keep it warm. Warming and then re-exposing the frostbitten area to cold air can cause worse damage
- Soak affected area in warm (not hot) water (99-108 F.) until skin appears red and warm.
- **Do not** rub or massage the skin, or break blisters.

### Questions

If you have questions on this topic, please contact University Health and Safety at (612)626-6002.

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