

# RiskTopics

## Winter Safety – Don't be left out in the cold January 2018

With plunging temperatures occurring across the country, workers may be exposed to cold stress, which can lead to serious health problems, tissue damage or even death. This Risk Topic provides information to assist employers in addressing symptoms, treatment and prevention of the two frequent illnesses/injuries related to the cold - hypothermia and frostbite.

### Introduction

When arctic air combines with brisk wind, the result can be dangerous cold. In many areas of the country, this is nothing new; however, cold weather can have an adverse effect on employees. This is especially evident in areas where cold weather is not common, since building a tolerance to the cold can factor into the exposure. Cold stress occurs when the skin temperature drops, which can then lower the internal body temperature. Armed with an understanding of cold stress, employers can take steps to protect employees against injuries and illnesses that can result from extreme temperature drops.

### Discussion

Frostbite is one of the most common injuries caused by exposure to cold temperatures. Frostbite occurs when ice crystals begin to form in body tissue due to restricted blood flow caused by the cold. Hypothermia occurs when the body loses heat faster than it can produce it, resulting in a cooling of the body's inner core. If not treated, hypothermia can lead to death. Both frostbite and hypothermia may occur when temperatures are above freezing due to extended periods of exposure and windy conditions.

#### **Frostbite**

Uncovered skin areas and extremities, such as hands, feet, the nose, ears, and chin are typically the most susceptible to frostbite. Initial symptoms may include pain in the extremities; but as the exposure progresses, the pain may cease and be replaced with a feeling of numbness. In the early stages, skin may present as red or flushed color. As the exposure continues, the skin may turn to a white or pale color. While initially the frostbitten area may feel cold and numb, as the exposure progresses, the skin may feel "hard", the skin appearance may be mottled or blue, and the affected individual may actually feel a warming sensation.

Less severe cases of frostbite may be able to be treated using first aid. The Mayo Clinic suggests moving the individual to a warm location. Warm water between 98 and 108 degrees Fahrenheit can be applied to the affected area to begin the rewarming process. During this time, the affected area should not be rubbed or massaged and extreme hot air or touching metal objects should be avoided.<sup>1</sup> Potentially severe frostbite should always be handled by medical personnel.

## Hypothermia

According to the Mayo Clinic, hypothermia is a medical emergency that occurs when your body loses heat faster than it can produce heat, causing a dangerously low body temperature. Normal body temperature is around 98.6 F (37 C). Hypothermia occurs as your body temperature passes below 95 F (35 C)<sup>2</sup>

Hypothermia symptoms may include shivering, dizziness, numbness, confusion, weakness, impaired judgment, impaired vision and drowsiness. Later stages of hypothermia may include the loss of consciousness, decreased pulse and breathing rate, coma and possible death.

In all cases of suspected hypothermia, professional medical treatment should be obtained. However, until professional medical treatment is available, WebMD recommends that the victim be moved to a warm dry area, any wet clothing be replaced, and the victim be covered with layers of blankets for warmth. If the victim is fully conscious, a warm drink may be given; however, it should not contain alcohol or caffeine.<sup>3</sup>

## Guidance

Employers should develop a specialized work plan when faced with potential cold stress conditions. This could include a training plan to ensure workers know how to recognize and prevent cold stress illnesses and injuries, how and when to apply first aid treatment, and when to seek emergency medical assistance. Work can be assigned using a “buddy system” which allows workers to monitor each other for signs of cold stress. Employers should encourage workers to interrupt their work if they are extremely uncomfortable and should provide frequent breaks in a warming area. New and returning employees should be acclimatized by gradually increasing their workload and allowing more frequent breaks in warm areas, as they build up a tolerance for working in a cold environment.

## Protective Measures

1. Stay hydrated but avoid consumption of caffeinated or alcoholic beverages
2. Cover the head and neck area – up to 50% of heat loss occurs here
3. Dress in layers and avoid tight fitting clothing
4. Wear insulated and waterproof boots
5. Protect the hands with insulated and/or waterproof gloves
6. Take frequent breaks in a designated warming area

## Conclusion

Working in cold weather can present additional challenges. Having an increased awareness of the exposure, how to help reduce the risk, and what to do in the event of injury or illness can help employers communicate protective measures to their employees. Advanced planning for a cold event can help provide a safer working environment and reduce the overall exposure to employees.

## References

1. *Frostbite First Aid*, Mayo Clinic, October 11, 2014; Web January 3, 2017; <http://www.mayoclinic.org/first-aid/first-aid-frostbite/basics/art-20056653>
2. *Hypothermia*, Mayo Clinic Diseases and Conditions, October 15, 2014; Web December 19, 2016; <http://www.mayoclinic.org/diseases-conditions/hypothermia/basics/definition/con-20020453>
3. *Hypothermia Treatment*, WebMD, September 12, 2015, Web January 3, 2017; <http://www.webmd.com/first-aid/hypothermia-treatment#2>

## Additional Resources

*Cold Weather Safety*. National Oceanic and Atmospheric Administration, National Weather Service. Retrieved December 19, 2016 from <http://www.nws.noaa.gov/om/cold/>

*Cold Stress*. Center for Disease Control. Retrieved December 19, 2016 from <https://www.cdc.gov/niosh/topics/coldstress/>

*Cold Stress Guide*. United States Department of Labor. Retrieved December 19, 2016 from <https://www.osha.gov/SLTC/emergencypreparedness/guides/cold.html>

*Winter Safety from Head to Toe*. EHS Today. December 5, 2016. Retrieved December 19, 2016 from <http://ehstoday.com/protective-clothing/winter-safety-head-toe?page=2>

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