

## Cold Stress

As the weather outside becomes frightful, not everyone will be singing “Let It Snow, Let It Snow, Let It Snow.” For those those working in environments with exposures to colder temperatures, and for extended periods of time, they should be aware of the risks of cold stress and how it can affect their health and safety.

Cold Stress occurs when a person’s skin temperature, and eventually the internal body temperature (98.6°F), begin to decrease. Though the definition of cold will vary throughout the United States, the basic concept is that a cold environment makes your body work harder to maintain its core temperature. The temperature of the environment, and several risk factors, can greatly affect ones core temperature, because the body is using up large amounts of energy to maintain the core temperature. Some of these risk factors include, but are not limited to:

- Poor physical conditioning
- Predisposing health conditions (diabetes, hypothyroidism, hypertension)
- Wetness/dampness
- Dressing improperly
- Exhaustion

Our bodies have adapted to keep the internal temperature regulated by moving blood from the extremities to the core. When this scenario occurs, a person is more likely to develop one of the common injuries:

- Hypothermia
- Frostbite
- Trench foot

Hypothermia occurs when there is a drop in body temperature below 95°F that is usually caused by prolonged exposure to colder temperatures. Symptoms include, but are not limited to, the following:

- Person may shiver and stomp their feet in order to generate heat
- Body temperatures continue to fall and shivering will stop
- May lose coordination and fumble with items, become confused and disoriented

If a person is believed to be suffering from hypothermia, call 911 and seek medical assistance immediately. The person should be moved to a warm, dry area and ensure that clothes are dry and that the body is covered with layers of blankets.

Frostbite is a medical condition where there is damage caused to the skin or other tissues due to freezing. Frostbite is likely to happen in body parts farthest from the heart, i.e. hands and feet. The initial stages of frost bite are called frostnip. Symptoms include, but are not limited to, the following:

- Reddened skin with gray/white patches
- Numbness in the affected area

- Skin feels firm or hard
- Blisters can begin to occur

If a person is believed to be suffering from frostbite, follow the recommendations defined for hypothermia. Neither rub the affected area because it can cause more damage nor break blisters.

Trench Foot (immersion foot) is a condition that is caused by prolonged exposure to wet and cold temperatures. A wet foot loses heat 25 times faster than a dry foot and to prevent the heat loss, the body shuts down circulation to the feet. Symptoms of trench foot include, but are not limited to, the following:

- Redness of the skin, swelling, numbness, blisters

If a person is believed to be suffering from trench foot, call 911 immediately, remove the shoes and wet socks, and begin to dry the feet.

The following are safety tips for workers in cold environments:

- Ensure that you are trained on cold stress
- Monitor your physical condition and your co-workers
- Dress for the cold environment
- Stay dry
- Keep extra clothing
- Drink warm sweetened fluids
- Use the recommended engineering controls, safe work practices, and personal protective equipment provided by the employer.

Though there are not specific standards that cover cold environment working conditions, employers have the responsibility to provide their workers with employment that are free from recognized hazards. Therefore, employees should be trained on the hazards of the job, safety measures to use, and safe work practices, which can protect the workers' safety and health.

#### *References:*

*Occupational Safety and Health Administration*

*National Institute for Occupational Safety and Health*

*Center for Disease Control and Prevention*

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