

## Cold Stress

Winter months bring colder temperatures and the potential for snow storms, which increases your risk for cold stress and injuries caused by winter weather. Everyone will tolerate cold temperatures differently so it is important to be aware of early signs and symptoms of cold stress so preventative measures are taken to minimize the likelihood of injury.

### Types of Cold Stress:

- **Chilblains** are caused by the repeated exposure of skin to temperatures just above freezing to as high as 60°F. The cold exposure causes permanent damage to the capillary beds (groups of small blood vessels) in the skin. Affected areas are typically on cheeks, ears, fingers and toes. **Symptoms include: redness, itching, possible blistering, inflammation, possible ulceration (severe case).**

- **Immersion/Trench Foot** is caused by prolonged exposure to wet and cold conditions, it is a non-freezing injury of the feet. It can occur in temperatures as high as 60°F if feet are constantly wet. Injury occurs because wet feet lose heat 25-times faster than dry feet. **Symptoms include: reddening skin, tingling, pain, swelling, leg cramps, gangrene, numbness and blisters or ulcers.**

- **Frostbite** occurs when skin and underlying tissues freeze. It can cause permanent damage to body tissue and in some cases, it can lead to amputation. Workers who have reduced blood circulation and people who are not dressed properly for extremely cold temperatures are the most at risk. **Symptoms include: numbness, tingling or stinging, aching, bluish or pale, waxy skin, skin feels firm/hard, and may blister in severe cases.**

- **Hypothermia** occurs when the normal body temperature (98.6°F) drops to less than 95°F. Hypothermia is most likely at very cold temperatures but it can occur at cooler temperatures (above 40 °F), if a person becomes chilled from rain, sweat or submersion in cold water. **Mild Symptoms include: alert but shivering. Moderate to Severe Symptoms include: shivering stops, slurred speech, confused and disoriented, heart rate/breathing slows, loss of consciousness, death.**

## **Prevention:**

- **Acclimation:** is the adaptation of an individual's ability to tolerate cold temperature. A person becomes acclimated when they purposefully expose themselves to cold temperatures for a couple hours a day, increasing their time spent outside each day over one week.
- **Hydration:** drink warm sweetened liquids.
- **Dress:** layers of loose-fitting, insulated clothes such as an insulated jacket, gloves, hat (waterproof, if necessary) and insulated and waterproof boots. Layering clothing provides better insulation.
- **Wet Conditions:** wet clothing in cold-related conditions with prolonged exposure can lead to injuries such as trench foot, frostbite, and hypothermia. Layers should be removed if you begin to sweat while performing strenuous tasks in cold environments. Wet clothing should be changed when working in cold environments. Wet socks should be removed and feet should be dried before dry socks are put back on.
- **Work Planning:** if possible, schedule outdoor work during the warmer part of the day. Take breaks in warm areas.
- **Personal Risk Factors:** a prior frostbite injury, sedentary work in cold environments and personal conditions such as hypertension, hypothyroidism and diabetes will make you more susceptible to a cold stress injury.

## **First Aid:**

If you or someone you are working with begins exhibiting signs of cold stress, move into a warm room or shelter. Wet clothes should be removed and loose, dry blankets, clothing or towels should be placed on the person. Notify your supervisor immediately. If symptoms do not improve, worsen, or symptoms of hypothermia are observed, call 911 immediately. Medical attention is recommended if symptoms of a cold stress injury are noticed while working.