
SAFETYLINE

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Hypothermia and Frostbite

With the cold winter weather upon us, it is important to consider possible hazards associated with freezing conditions. When the body gets so cold that it is unable to warm itself, cold weather related injuries and illnesses may occur, which can cause permanent tissue damage, or even death. In freezing temperatures, the appropriate amount of warm clothing should be considered as "Personal Protective Equipment".

"**Hypothermia**" and "**Frostbite**" are the two most common cold related illnesses.

Hypothermia is a condition where the body's "Core Temperature" drops below 95° F. (about 36° Centigrade). Our skin and the tissues under it are kept at a constant temperature by blood circulation. The body temperature fails when the skin is exposed to colder surroundings, which increases heat loss or when the flow of blood is impeded. The risk of cold injuries increases when nourishment is inadequate or when insufficient oxygen is available, as occurs at high altitudes. Cold injuries usually don't occur, even in extremely cold weather, if the skin, fingers, toes, ears, and nose are well protected and not exposed for more than a brief time. When exposure is longer, the body automatically narrows the small blood vessels to direct more blood to vital organs such as the heart and brain. However, this self protective measure comes at a price: As less warm blood reaches these parts of the body, they cool more rapidly.

Frostbite is the term used when deep layers of the skin and tissues freeze. Frostbite usually affects inadequately protected body extremities such as the hands, fingers, feet, toes, ears, and nose. This condition makes the skin appear pale white and feel hard and numb.

The onset of hypothermia and frostbite is usually so gradual and subtle that neither the victim nor others realize what's happening.

- ◆ **Cold air** and wind can carry heat away from the body by convection.
- ◆ **The cold ground**, a metal surface, or wet clothing will drain heat from the warm body to the colder surface by conduction.
- ◆ **Body heat can be lost** from exposed skin, especially on the head, through radiation and evaporation of sweat.
- ◆ **Hypothermia frequently occurs** when a person is immersed in cold water – the colder the water, the faster hypothermia develops.
- ◆ **Hypothermia causes fatigue**, drowsiness, uncontrolled shivering, and slurred speech. Movement becomes slow and clumsy, reaction time is longer, the mind becomes blurred causing irritability, confusion, and irrational behavior; judgment is impaired and hallucinations may occur.
- ◆ **A person who has Hypothermia** may fall, wander off, or simply lie down to rest and perhaps die.

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- ◆ **In the early stages**, changing into warm, dry clothing and drinking hot beverages can help bring recovery.
- ◆ **If the person is found unconscious**, further heat loss must be prevented by wrapping the victim in a warm, dry blanket and, if possible, moving the victim to a warm place while arrangements are made for immediate transportation to a hospital.
- ◆ **Often, no pulse can be felt** and no heartbeat can be heard; the victim must be handled gently because a sudden jolt, may cause an irregular heart rhythm (arrhythmia) that could be fatal. For this reason, cardiopulmonary resuscitation isn't recommended outside of a hospital, unless the victim has been immersed in cold water and is unconscious.
- ◆ **Because the risk** of an unconscious victim dying is high, such people must be treated and monitored at a hospital to have a chance of survival.
- ◆ **People who have Hypothermia** should not be considered dead until they have been warmed and still have no signs of life.

The generally accepted first aid measures for cold related injury or illness involve getting the person out of the cold conditions and into a warm, dry environment as quickly as possible. Get the person changed into dry, loose fitting clothing which will not constrict blood circulation and wrap in blankets. Give the person warm, sweet liquids without caffeine and high carbohydrate containing food, such as pasta. In the case of Frostbite, where frozen tissue is apparent, immerse the person or place the affected area in luke-warm (105° F. or 40° C.) water and slowly warm (25 - 40 minutes). Do not rub frostbitten body parts as this will damage frozen tissues. Seek immediate medical attention.

Preventing Hypothermia, Frostbite, or other cold injuries is simple: Stay appraised of the weather conditions in your area such as the forecast highs and lows, impending storms, and wind chill factors. Employees should not go out into freezing conditions to work alone; use the buddy system so employees can monitor one another. Many layers of clothing - preferably made of wool - or hooded jackets filled with down or a synthetic fiber, plus a light windproof cover protect people under the harshest conditions. Because a great deal of heat is lost from the head, warm headgear is essential. Eating enough food and drinking enough fluids also help. Follow these guidelines for cold weather safety.

(Source: Safety Services Company)