

# TECH Bulletin: Employees & Hypothermia

## HYPOTHERMIA

### Introduction

People who work outside or enjoy outdoor recreational activities face certain risks. Hypothermia is one of these risks that is often overlooked or not recognized. Because hypothermia can affect reasoning and judgment, people quickly find themselves in a life-or-death situation without realizing they are in danger.

### Definition

Hypothermia is defined as, “a decrease in core body temperature to a level at which normal muscular and cerebral functions are impaired.” The most common cause of this loss of body temperature is exposure to cold and/or wet conditions. When exposed to cold conditions, the body can lose heat through a variety of routes, including conduction (contact with cold or wet objects, such as snow or wet clothing), convection (heat being carried away from the body by wind; i.e. wind chill) and evaporation (sweating and respiration). Once the body’s core temperature begins to drop, symptoms of hypothermia will start to appear.

### Recognition

The symptoms of hypothermia are varied and depend on the body’s core temperature. A person suffering from a mild case may exhibit shivering and lack of coordination, while a person suffering from severe hypothermia may be incoherent, exhibit muscular rigidity and potentially succumb to cardiac arrest. The following chart shows the correlation between core body temperature and hypothermia symptoms.

Hypothermia Severity	Body Temperature	Symptoms
Mild	98.6 – 97	Shivering Begins.
	97 – 95	Skin numbness and goose bumps.
Moderate	95 – 93	Intense shivering. Pale skin and/or slow or stumbling pace.
	93 – 90	Violent shivering. Difficulty speaking. Mental sluggishness.
Severe	90 – 86	Extreme confusion. Shivering stops. Irrational behavior. Blue skin.
	86 – 82	Semiconscious. Muscular rigidity. Ice cold skin. Decreased pulse.
	82 – 78	Unconsciousness. Erratic heart-beat. Respiratory failure. Death.

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## Treatment

Once it is determined someone is suffering from hypothermia, it is critical to begin treatment immediately, even in cases of mild hypothermia. The first and most important step is to eliminate the victim's exposure to cold or wet conditions (i.e. seeking shelter if outdoors). Treatment methods vary depending on severity as follows:

- ◆ Mild Hypothermia – Remove all wet clothing and replace them with warm, dry clothes. Encourage the victim to stay active and drink a warm (not hot) sugary liquid. Avoid offering liquids containing alcohol and/or caffeine, as alcohol can increase heat loss and caffeine tends to cause dehydration.
- ◆ Moderate Hypothermia – Again, replace all wet clothing with warm, dry clothes. Be sure to cover the victim's head, as this is a major source of heat loss. If the victim is able to swallow without danger, provide warm, sugary liquids to drink. Place warm objects, such as hot water bottles, next to the victim's head, neck, chest and groin to help increase core body temperature; body-to-body contact is also an effective means of warming the victim. Finally, take the victim to a medical facility as soon as possible.
- ◆ Severe Hypothermia – A person suffering from severe hypothermia may easily be mistaken for dead. Even if the victim is cold, rigid and has no detectable pulse, continue treatment! There are numerous cases where a seemingly lifeless victim was brought back to full consciousness and good health. It is vital that a person suffering from severe hypothermia get to a medical facility as quickly as possible, even before treatment is attempted. While waiting for professional assistance, replace the victim's wet clothing with warm, dry clothing. Always handle the victim gently; when the heart reaches temperatures below 90 degrees (F), it is very susceptible to cardiac arrest. If the victim does suffer a cardiac arrest, administer CPR until professional help arrives.

## Prevention

There are several steps you can take to reduce your risk of hypothermia before you head out into cold, wet conditions. These steps include:

- ◆ Wear proper clothing. The ideal clothing for extended periods in a cold and/or wet environment consists of a breathable layer next to the skin (such as cotton or polypropylene), an insulating middle layer (wool, which continues to insulate even when wet, is a good choice) and a water-proof, but breathable, outer layer (such as nylon).
- ◆ Stay hydrated when outdoors.
- ◆ Use the buddy system when spending time outdoors if possible.
- ◆ Be familiar with the signs of hypothermia. Early recognition of hypothermia can help you avoid a life or death situation.