

# The Medical Minute: Avoiding two winter weather-related problems

January 17 2012, By Kent Harkey and Chris DeFlicht

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Though it may not have felt like winter until recently, it is that time of year when environmental exposures to the cold weather will be causing many problems for people. Here are some tips for preventing and safely treating two common winter weather-related problems -- frost bite of the extremities and hypothermia.

Frost bite is a common cold-induced phenomenon caused by ice [crystal formation](#) in tissues, causing direct damage or by [lack of oxygen](#) to the cold tissue. Extremities like hands and feet are at highest risk because with exposure to [cold temperatures](#), those extremities don't receive as much warm blood flow as the central part of your body that houses important organs like the heart and lungs. In direct damage, ice crystals form in the tissues and kill the tissue. When an area is re-warmed, returning blood encounters injured blood vessels and small clots form. This sets off a complicated chain reaction of inflammation.

Frostbite of the extremities is described in three severity levels. First degree consists of areas of redness that are painful, burning, itching, or tingling and is completely reversible with re-warming. In second degree frostbite, blisters associated with decrease skin sensation occur on the skin. Third degree represents damage to all layers of tissue. Third degree is irreversible cell tissue death and is associated with loss of sensation and black discoloration.

When treating frost bite, get to a warm environment and remove wet clothing. Rewarm the tissue gradually, avoiding high temperature water

or heaters. Pain is common on rewarming and can last for days or weeks. Seek medical attention for second- and third-degree frostbite. The extent of damage is often hard to discern until rewarming is completed. Cold [tissue](#) should be rewarmed and stay warm. Any repeated cycle of freezing, rewarming, and refreezing can be more dangerous than lower degrees of the frostbite itself.

Hypothermia consists of a core body temperature less than 95 degrees Fahrenheit. Frequently related to prolonged cold environmental exposure, some brief submersions in cold water can precipitate hypothermia. Signs and symptoms of hypothermia include numbness, stiffness of extremities, clumsiness, confusion, amnesia, shivering and fatigue. In severe hypothermia, your body's protective mechanism of shivering will stop, which is a late and ominous sign.

If a person has been exposed to cold water and is exhibiting signs and symptoms of hypothermia, it is important, similar to frostbite treatment, to remove wet clothing and place the person in a warm environment, cover him with blankets and seek medical attention.

One special consideration for everyone to be aware of is being trapped inside during freezing temperatures. In this scenario, it is important to remain inside. Opening doors can cause heat loss. If trapped in a car, run your vehicle 10 minutes for every hour to provide heat and use interior material for insulation. If you are running the car, first make sure the exhaust pipe is clear at the back of the car to prevent carbon monoxide poisoning. Carbon monoxide (CO) is a colorless, odorless gas, and poisoning can manifest as headache, confusion and lethargy leading to death in severe cases. Similarly, using portable propane gas heaters in enclosed spaces, including homes, causes similar risk for CO exposure.

Frostbite and hypothermia can be largely avoided by wearing appropriate [cold weather](#) clothing when outside for long time periods, such as to

shovel snow or engage in winter sports. Choose waterproof or water-repellant clothes and footwear: Wetness accelerates the cool down of your skin and body temperature. Limiting the amount of time you are outside during extreme cold snaps also helps reduce your risk for developing frostbite and exposure. To prepare for unexpected exposures to the cold, such as a stalled or otherwise immovable vehicle during bad weather, plan ahead by having an extra blanket or two, warm socks and gloves, and a hat stored in your vehicle.

Provided by Pennsylvania State University

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