



Maine Farm Safety Program

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Battling the Elements Safely

Exposure to heat or cold can lead to serious illness. Factors such as physical activity, clothing, wind, humidity, working and living conditions, age, and health influence if a person will get ill. There are several ways to lessen the chances of succumbing to exposure.

Exposure to Heat and Sun

Before working in hot temperatures for a long time, gradually spend more time each day in the heat. This will help to avoid heat stress. It takes four to seven days to get acclimated to unusual heat. Always drink plenty of cool water when working in the heat. The body can lose as much as three gallons of water a day in hot weather. Wear hats and sunglasses to help stay cool. Take frequent breaks in a cool place. Wear loose clothing that allows the skin to breathe. Cotton is an excellent fabric to wear in the summer.

Skin Protection

Protect your skin from the sun. Keep as much of it covered with clothing as possible. Wearing long-sleeved shirts will help. Skin cancer is common. It can be prevented or delayed with the use of sun screen or sun block on unprotected skin. Physicians recommend a sun block with a sun protection factor (SPF) of 15 or greater. Reapply sunblock regularly if perspiring heavily or swimming. Make sure to apply sunblock to hands, face (especially nose) and ears. Wash hands after applying so you do not wipe your eyes with it on. Conduct periodic self-examination to aid in early recognition of new or developing lesions.

Battling the Elements Safely

- **Protect skin from excessive exposure to subfreezing temperatures.**
- **Protect skin from excessive exposure to the sun.**

Keeping Cool

Use shaded areas, fans or ventilation systems whenever possible. A work area or vehicle can be shaded by a tarp or canopy. You can also use fans, awnings or air conditioners.

Heat-Related Illnesses and Treatments

Overexposure to heat can cause illnesses called heat cramps, heat exhaustion, or heat stroke. They are all serious and need to be treated immediately. In all three cases, get the person out of the sun and into the shade as quickly as possible.

Heat cramps are the least severe of the three heat-related illnesses. They are often the first signal that the body is having trouble with the heat. Heat cramps are painful muscle spasms that usually occur in the legs and abdomen. If a person has heat cramps, take them to a cool place, loosen clothing, and give cool water or a commercial sports drink. Allow the person to drink about one

glass of liquid every 15 minutes. With rest and fluids, the person should recover quickly and be able to resume activity. Keep the person drinking fluids and watch for any further signs of heat-related illness.

Heat exhaustion is more serious than heat cramps. Symptoms include cool, moist, pale or flushed skin, headache, nausea,

dizziness, weakness, and exhaustion. As with heat cramps, get the person to a cool place and loosen the victim's clothing. Give plenty of fluids to a heat exhaustion victim. Apply cool, wet compresses to cool the person.

Heat stroke is the most severe heat condition. It develops when the body systems become overwhelmed by heat and begin to stop functioning. Heat stroke is a serious medical emergency. The signals include red, hot, dry skin; changes in consciousness; rapid, weak pulse; and rapid, shallow breathing. Work to cool the person, as in the other two heat-related illnesses, but also call for medical help.

Refusing water, vomiting and changes in consciousness indicate the person's condition is worsening. Get medical attention immediately. If the person vomits, do not give any more fluids and put him on his side. This prevents the possibility of the person choking on his vomit. Watch for breathing problems and keep the victim lying down. Cool the body as much as possible. Place cool, wet cloths or ice packs on the victim's wrists, ankles, on the groin area, armpits and neck to cool the large blood vessels. Do not apply rubbing alcohol.

Exposure to Cold and Freezing Temperatures

Cold weather primarily affects the extremities of the body. Hands and feet are farthest from the body core and have less blood flow than the core. The extremities of the body are thinner than

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the core and cool down faster. Cold exposure can occur in weather that is not freezing. How one will be affected by the weather depends upon the conditions. When the wind blows, the wind chill factor takes effect. The wind, humidity, and moisture remove body heat. (See the section on physical ailments caused by cold weather for information on treating exposure to cold and freezing temperatures.)

Prevention of Cold-Weather Ailments

Dress according to the weather. In cold weather, wear several layers of loose, bulky clothing. These provide better insulation, and a layer can be removed if the body becomes over heated. Tight clothing reduces blood circulation and should be avoided. In extremely cold weather, protect the ears, face, hands and feet. A hat will keep your entire body warmer by reducing heat loss from the head. Body heat will be available for other parts of your body if it is not lost through the head. Wear a couple of pairs of socks and insulated, water-proof boots.

Follow simple rules when working in cold weather. On extremely cold days, limit the amount of time outside. Keep yourself as warm as possible. Move into a warm location periodically. Carry cold weather survival gear with you. This gear should include a thermos of hot liquid, a change of clothes, extra socks, gloves, hats, a jacket, and blankets.

Cold Weather and Equipment

Cold weather affects equipment. When it is cold, do not touch or brush

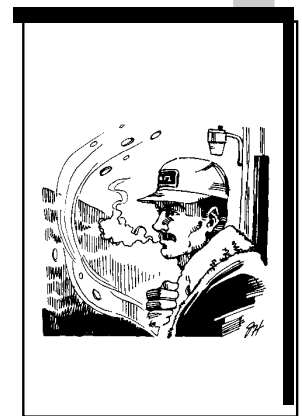
up against metal surfaces with bare skin. The skin may stick to it and get immediate frostbite. Greases and oils get thick and hard which makes equipment difficult to use. If equipment must be heated to make it work, follow the proper procedures and use the right tools. Steel tools also get brittle in the cold, so use caution when working with them.

Physical Ailments Caused by Cold Weather

There are very serious ailments caused by cold weather. These need medical attention.

Working with the feet under cold water or in wet fields for a long time causes trench foot or immersion foot. The feet feel cold and numb and blisters often form. As the feet begin to warm, they become red and feel hot to the person. To care for trench foot, gradually warm and elevate the feet. Put on a sterile dressing, taking care not to break the blisters. Get medical attention, because trench foot can cause severe disability.

Repeated, prolonged exposure to cold weather can cause chilblains. They are red, swollen areas that feel hot, tender and itchy. Chilblains can occur on the ears, fingers, and toes and are chronic. This means they can reoccur when there is another prolonged exposure to cold weather. If chilblains occur, cover the affected area and get to a physician.



Hypothermia is the general cooling of the entire body. The average normal temperature for a human is 98.6 degrees Fahrenheit. When body temperature drops very much below this, serious problems can arise. Symptoms of hypothermia include uncontrollable shivering, numbness, drowsiness and trouble doing simple tasks. As hypothermia progresses, the shivering stops, the breathing and pulse rate slow, and eyesight may begin to fail. The person may begin to stagger and become uncoordinated. If the person does not receive treatment they may become unconscious, and then the heart will stop. To treat hypothermia victims, immediately get them into a warm environment and gradually warm them. Immersing the person in warm water warms them too quickly and should never be done. Remove any wet clothing, dry the person and dress them in dry clothing. Wrap them in blankets and use heating pads and other heat sources to warm them. Keep a barrier, such as a blanket, towel or clothing between the person and the heat source.

If the person is alert, give them warm liquids. Get medical treatment for the victim immediately. Handle the person gently until medical help arrives.

Frostbite occurs when parts of the body actually freeze. Ice crystals form inside the skin. This can destroy the tissue and kill the affected part. The areas most often affected are the ears, nose, fingers and toes. Frostbitten areas in white-skinned people turn reddish and can be painful. Frostbitten areas turn pale on dark-skinned people. The pain subsides and the area can become numb. The area then becomes white or grayish-yellow and very cold to the touch. To heat, gradually warm the area. Do not use alcohol or rub the frostbitten skin. The affected area can be warmed by soaking it in lukewarm water. Loosely bandage the area with a dry, sterile dressing, taking care not to break any blisters. Get medical attention as soon as possible.

This Maine Farm Safety fact sheet is part of an educational fact sheet series produced by University of Maine Cooperative Extension. For more information on farm safety, contact your county Extension office.

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