

FROSTBITE & HYPOTHERMIA

Frostbite

The two biggest dangers in winter camping are frostbite and hypothermia. Your chances of encountering them spike when the temperature plummets. You cannot merely be careful when extreme winter camping; you must go above and beyond the normal bounds of precaution at every turn. You must dress appropriately and pack supplies that will protect you against heat loss.

What Is Frostbite?

Frostbite is the freezing of body tissue (usually skin) that results when the blood vessels contract, reducing blood flow and oxygen to the affected body parts.

Frostbite is most likely to affect body parts that are farther away from the body core and, therefore, have less blood flow. **These include your feet, toes, hands, fingers, nose, and ears. You can also get frostbite on your face if you leave it exposed to the wind.**

What Causes Frostbite?

Frostbite is usually caused by prolonged exposure to cold temperatures, particularly if they are accompanied by a low wind-chill factor.

Contributing factors:

- Wearing clothing that isn't suitable for the conditions you're in — for example, it doesn't protect against cold, windy or wet weather or it's too tight.
- Staying out in the cold and wind too long. Risk increases as air temperature falls below 5 F (minus 15 C), even with low wind speeds. In wind chill of minus 16.6 F (minus 27 C), frostbite can occur on exposed skin in less than 30 minutes.
- Touching materials such as ice, cold packs or frozen metal.

There are three degrees of cold injury: frostnip, superficial frostbite, and deep frostbite, the signs and symptoms of which are:

Frostnip: The first stage of frostbite is frostnip. With this mild form of frostbite, your skin pales or turns red and feels very cold. Continued exposure leads to prickling and numbness in the affected area. As your skin warms, you may feel pain and tingling. Frostnip doesn't permanently damage the skin.

Superficial frostbite: The second stage of frostbite appears as reddened skin that turns white or pale. The skin may remain soft, but some ice crystals may form in the tissue. Your skin may begin to feel warm — a sign of serious skin involvement. If you treat frostbite with rewarming at this stage, the surface of your skin may appear mottled, blue or purple. And you may notice stinging, burning and swelling. A fluid-filled blister may appear 24 to 36 hours after rewarming the skin.

Severe (deep) frostbite: As frostbite progresses, it affects all layers of the skin, including the tissues that lie below. You may experience numbness, losing all sensation of cold, pain or discomfort in the affected area. Joints or muscles may no longer work. Large blisters form 24 to 48 hours after rewarming. Afterward, the area turns black and hard as the tissue dies. The affected body part may turn black

If you develop frostbite, you may not realize at first that anything is wrong, because the affected area may be numb.

Your face warms up easier than your fingers and toes, though. If you have any numb spots on your cheeks, ears, or nose, warm them up. You can also see fresh frostbite on a face -- it's usually kind of white colored.

First aid for Frostbite:

You can treat very mild frostbite (frostnip) with first-aid measures. **All other frostbite requires medical attention as soon as possible.** First-aid steps for frostbite are as follows:

1. **Check for hypothermia** Get emergency medical help if you suspect hypothermia. Signs and symptoms of hypothermia include intense shivering, slurred speech, drowsiness and loss of coordination.
2. **Protect your skin from further exposure** If you're outside, warm frostbitten hands by tucking them into your armpits. Protect your face, nose or ears by covering the area with dry, gloved hands. Don't rub the affected area and never rub snow on frostbitten skin.
3. **Get out of the cold, wet and wind** Once you're indoors, remove wet clothes.
4. **Gently rewarm frostbitten areas** Soak hands or feet in warm water — 99 to 108 F (37 to 42 C) — for 15 to 30 minutes. If a thermometer isn't available, test the water by placing an uninjured hand or elbow in it — it should feel very warm — not hot. Don't rewarm frostbitten skin with direct heat, such as a stove, heat lamp, fireplace or heating pad. This can cause burns.
5. **If there's any chance the affected areas will freeze again, don't thaw them.** If they're already thawed, wrap them up so that they don't refreeze.
6. **Take pain medicine.** If you are in pain, take over-the-counter ibuprofen (Advil, Motrin IB, others) to reduce pain and inflammation.
7. **Don't walk on frostbitten feet or toes if possible** This further damages the tissue.
8. **Know what to expect as skin thaws.** If the skin turns red and you feel tingling and burning as it warms, normal blood flow is returning. But seek emergency medical attention if the numbness or pain remains during warming or if blisters develop.

Complications of frostbite include:

- Increased sensitivity to cold
- Increased risk of developing frostbite again
- Long-term numbness in the affected area
- Changes in the cartilage between the joints (frostbite arthritis)
- Growth defects in children, if frostbite damages a bone's growth plate

- Infection

- Tetanus

- Gangrene - In severe cases, **permanent damage is possible**. Blood flow to the area may stop, and blood vessels, muscles, nerves, tendons, and bones may be permanently damaged. If the frozen tissue dies, the affected area may need to be amputated.

Note: With prompt medical attention, most people recover fully from frostbite.

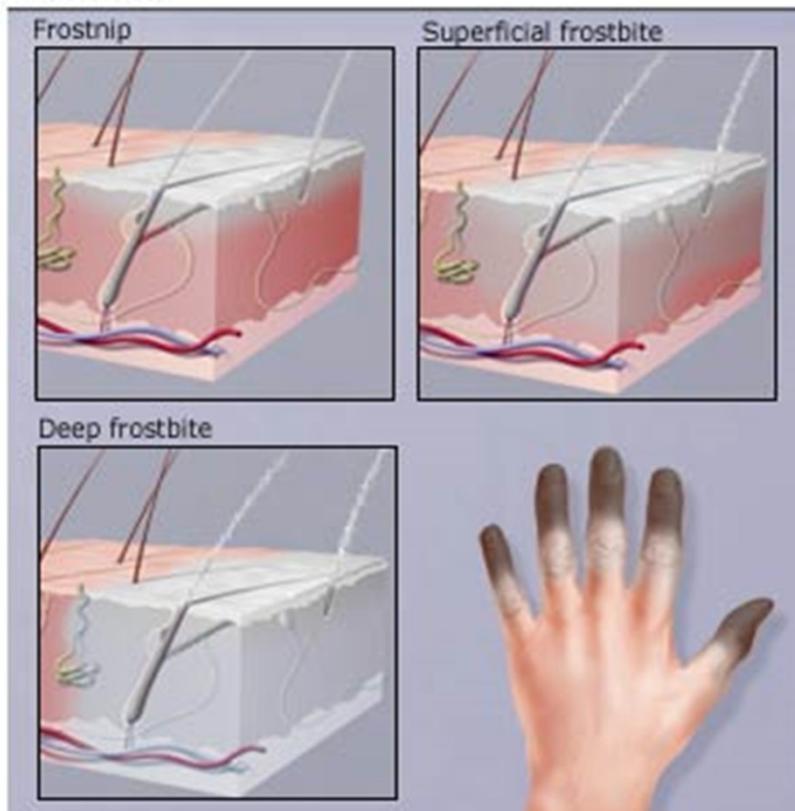
Frostbite Prevention:

- Dress in layers
- Keep moisture away from body
- Wear mittens rather than gloves, use liners and chemical heat packs if necessary
- Wear warm, comfortable boots that allow your toes to move; moisture wicking warm socks.
- You might be able to move around a lot and warm up your fingers or toes.

It is much better to avoid frostbite than to treat it. You can easily lose fingers and toes to frostbite. Remember, When you are camping in the winter, you cannot go into the lodge and warm up like you do snow skiing. You should really pay attention to frostbite.

Note: When your body starts getting cold, it reduces circulation to your fingers and toes and they get cold. If you can warm up your whole body, it will warm your fingers and toes.

Frostbite



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Hypothermia

What is Hypothermia?

Hypothermia is a potentially dangerous drop in body temperature, usually caused by prolonged exposure to [cold](#) temperatures. The risk of cold exposure increases as the winter months arrive. But if you're exposed to cold temperatures on a spring hike or capsized on a summer sail, you are at risk of hypothermia.

Normal body temperature averages 98.6 degrees. **With hypothermia, core temperature drops below 95 degrees. In severe hypothermia, core temperature drops to 86 degrees or lower.**

What Causes Hypothermia?

Hypothermia usually happens after exposure cold temperatures without enough warm, dry clothing for protection. When the balance between the body's heat production and heat loss tips toward heat loss for a prolonged period, hypothermia can occur.

During exposure to cold temperatures, most heat loss -- up to 90% -- escapes through your [skin](#); the rest, you exhale from your [lungs](#). Heat loss through the skin speeds up when skin is exposed to wind or moisture. If cold exposure is due to being immersed in cold water, the movement of waves and water can increase heat loss by up to 50%.

Normally, the activity of the [heart](#) and [liver](#) produce most of your body heat. But as core body temperature cools, these organs produce less heat, causing a protective "shut down" to preserve heat and protect the brain. Low body temperature can slow brain activity, breathing, and [heart rate](#).

Confusion and [fatigue](#) can set in, hampering a person's ability to understand what's happening and make intelligent choices to get to safety.

What Are the Symptoms of Hypothermia?

- Shivering, which may stop as hypothermia progresses. (Shivering is actually a good sign that a person's heat regulation systems are still active.)
- Slow, shallow breathing.
- Confusion and memory loss.
- Drowsiness or exhaustion.
- Slurred or mumbled speech.
- Loss of coordination, fumbling hands, stumbling steps.
- A slow, weak pulse.
- In severe hypothermia, a person may be unconscious without signs of breathing or a pulse.

What Is the First aid and Treatment for Hypothermia?

- Call 911! **Hypothermia is a potentially life-threatening condition that needs emergency medical attention.** If medical care isn't immediately available:
- Remove any wet clothes, hats, gloves, shoes, and socks.
- Protect the person against wind, drafts, and further heat loss with warm, dry clothes and blankets.
- Move them gently to a warm, dry shelter as soon as possible.

- Begin rewarming the person with extra clothing. Use warm blankets. Other helpful items for warming: an electric blanket to the torso area and hot packs and heating pad on the torso, armpits, neck, and groin; however, these can cause [burns](#) to the skin. Use your own body heat if nothing else is available.
- Take the person's temperature if a thermometer is available.
- Offer warm liquids, but avoid alcohol and [caffeine](#), which speed up heat loss. Don't try to give fluids to an unconscious person.

If the hypothermic person is unconscious, or has no pulse or signs of breathing, call for emergency help right away. CPR (cardiopulmonary resuscitation) should be given immediately.

How Can You Avoid Hypothermia and Frostbite? “Prevention is worth an ounce of Cure”

When it comes to your body, think layers Try a light synthetic shirt first, then a vest, sweater, or fleece topped by a wind-resistant coat. Save your insulated coat for the really cold days—you can remove and add layers as your body temperature changes. For pants, rather than sporting a heavy pair, wear a set of lightweight [thermal underwear](#) and wind or athletic pants. An inexpensive pair of wool pants is great on frigid days.

Mittens: Although mittens are hard to work in, they keep your hands warmer than gloves. If you wrap your fingers in too-tight leather gloves, circulation is reduced and they will cool faster than if you have some wiggle room. Mittens are typically warmer because the heat generated from your fingers is shared, rather than stuck in a tunnel of fabric. Liner gloves of silk, wool, or synthetic fabrics — while typically tight — can trap warmth, as long as they fit inside a mitten or glove easily. Only wear gloves when you need your fingers to be free to move around.

Protect your toes: Bundling your feet in huge wool socks plus a pair of (or two or three) cotton ones may actually be doing more harm than good. Like fingers, your toes need to be able to move freely. Wiggle room allows for better circulation. If they are crammed inside too much fabric, circulation is blocked and the blood simply can't get around to warm them. Since cotton holds water and perspiration, wear only one pair of synthetic or wool liner socks and a heavier pair of wool or synthetic socks. Your boots should be insulated, waterproof and at least mid-shin height.

Quench your thirst: Believe it or not, drinking a tall glass of water - even an ice-cold one - helps you stay warm. Your body needs water to keep your blood pumping, and people tend to become dehydrated in the winter without knowing.