

Frostbite and Frostnip

(From the Mayo Clinic website 10/2020)

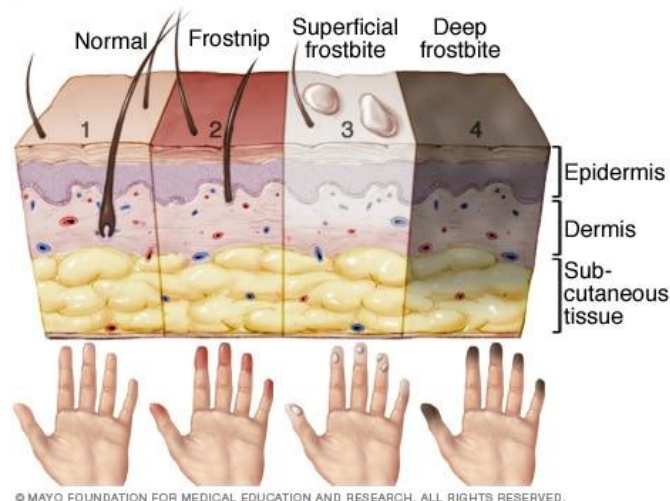
Frostbite is most common on the fingers, toes, nose, ears, cheeks and chin. Because of skin numbness, you may not realize you have frostbite until someone else points it out.

Frostbite is an injury caused by freezing of the skin and underlying tissues. First your skin becomes very cold and red, then numb, hard and pale. Frostbite is most common on the fingers, toes, nose, ears, cheeks and chin. Exposed skin in cold, windy weather is most vulnerable to frostbite. But frostbite can occur on skin covered by gloves or other clothing.

Frostnip is a milder form of cold injury that doesn't cause permanent skin damage. You can treat frostnip with first-aid measures, including rewarming the affected skin. All other frostbite requires medical attention because it can damage skin, tissues, muscle and bones. Possible complications of severe frostbite include infection and nerve damage.

Symptoms

- At first, cold skin and a prickling feeling
- Numbness
- Red, white, bluish-white or grayish-yellow skin
- Hard or waxy-looking skin
- Clumsiness due to joint and muscle stiffness
- Blistering after rewarming, in severe cases



Frostbite occurs in several stages:

- **Frostnip.** Frostnip is a mild form of frostbite. Continued exposure leads to numbness in the affected area. As your skin warms, you may feel pain and tingling. Frostnip doesn't permanently damage the skin.
- **Superficial frostbite.** Superficial frostbite appears as reddened skin that turns white or pale. 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. And you may notice stinging, burning and swelling. A fluid-filled blister may appear 12 to 36 hours after rewarming the skin.
- **Deep (severe) frostbite.** As frostbite progresses, it affects all layers of the skin, including the tissues that lie below. Your skin turns white or bluish gray and 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.

Prevention

Frostbite can be prevented. Here are tips to help you stay safe and warm.

- **Limit time you're outdoors in cold, wet or windy weather.** Pay attention to weather forecasts and wind chill readings. In very cold, windy weather, exposed skin can develop frostbite in a matter of minutes.
- **Dress in several layers of loose, warm clothing.** Air trapped between the layers of clothing acts as insulation against the cold. Wear windproof and waterproof outer garments to protect against wind, snow and rain. Choose undergarments that wick moisture away from your skin. Change out of wet clothing — particularly gloves, hats and socks — as soon as possible.
- **Wear a hat or headband that fully covers your ears.** Heavy woolen or windproof materials make the best headwear for cold protection.
- **Wear mittens rather than gloves.** Mittens provide better protection. Or try a thin pair of glove liners made of a wicking material (such as polypropylene) under a pair of heavier gloves or mittens.
- **Wear socks and sock liners that fit well, wick moisture and provide insulation.** You might also try hand and foot warmers. Be sure the foot warmers don't make your boots too tight, restricting blood flow. Wear a vapor barrier socks (or breadbags).
- **Watch for signs of frostbite.** Early signs of frostbite include red or pale skin, prickling, and numbness. Seek warm shelter if you notice signs of frostbite.

- **Don't drink alcohol if you plan to be outdoors in cold weather.** Alcoholic beverages cause your body to lose heat faster.
- **Eat well-balanced meals and stay hydrated.** Doing this even before you go out in the cold will help you stay warm.
- **Keep moving.** Exercise can get the blood flowing and help you stay warm, but don't do it to the point of exhaustion.

When to see a doctor

Seek medical attention for frostbite if you experience:

- Signs and symptoms of superficial or deep frostbite
- Increased pain, swelling, redness or discharge in the area that was frostbitten
- Fever
- New, unexplained symptoms

Do's and Don'ts

(from a lecture by Dr. Murray Hamlet, former director of US Army Cold Weather Injury Research - Army Research Institute of Environmental Medicine at the Natick Labs)

- Fit boots to longest toe, which is not necessarily the “big” toe.
- If blisters form, do not puncture them because tissue underneath is susceptible to infection.
- Do not allow frozen skin to thaw if there is a possibility it will re-freeze – could cause more severe damage. It is better to keep them frozen until you are in a safer place.
- It is Ok to walk on frozen feet. Don't thaw – or you might not get your boots back on making it impossible to walk. It is better to have a person walk than have to carry them.
- Never rub or bend frozen fingers or toes – they may break.
- To warm frostbite, use warm water (not hot).
- Creams do not help with frostbite.
- Be sure to treat the water with iodine tablets before using on injured skin.