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## Frostbite

Frostbite is damage to the skin and underlying tissues caused by extreme cold. Frostbite is the most common freezing injury.

### Causes

Frostbite occurs when the skin and body tissues are exposed to cold temperature for a long period of time.

You are more likely to develop frostbite if you:

- Take medicines called beta-blockers
- Have poor blood supply to the legs (peripheral vascular disease)
- Smoke or use tobacco
- Have diabetes
- Have Raynaud phenomenon

### Symptoms

Symptoms of frostbite may include:

- Pins and needles feeling, followed by numbness
- Hard, pale, and cold skin that has been exposed to the cold for too long
- Aching, throbbing or lack of feeling in the affected area
- Red and extremely painful skin and muscle as the area thaws

Very severe frostbite may cause:

- Blisters
- Gangrene (blackened, dead tissue)
- Damage to tendons, muscles, nerves, and bone

Frostbite may affect any part of the body. The hands, feet, nose, and ears are the places most prone to frostbite.

- If the frostbite did not affect your blood vessels, a complete recovery is possible.

- If the frostbite affected the blood vessels, the damage is permanent. Gangrene may occur. This may require removal of the affected body part (amputation).

## First Aid

A person with frostbite on the arms or legs may also have lowered body temperature (hypothermia). Check for hypothermia and treat those symptoms first.

Take the following steps if you think someone might have frostbite:

- Shelter the person from the cold and move them to a warmer place. Remove any tight jewelry and wet clothes. Look for signs of hypothermia and treat that condition first.
- If you can get medical help quickly, it is best to wrap the damaged areas in sterile dressings. Separate affected fingers and toes with bandage material. Transport the person to an emergency department for further care.
- If medical help is not nearby, you may give the person rewarming first aid. Soak the affected areas in warm (never hot) water -- for 20 to 30 minutes. For ears, nose, and cheeks, apply a warm cloth repeatedly. The recommended water temperature is 104°F to 108°F (40°C to 42.2°C). Keep circulating the water to aid the warming process. Severe burning pain, swelling, and color changes may occur during warming. Warming is complete when the skin is soft and feeling returns.
- Apply dry, sterile dressings to the frostbitten areas. Put dressings between frostbitten fingers or toes to keep them separated.
- Move thawed areas as little as possible.
- Refreezing of thawed extremities can cause more severe damage. Prevent refreezing by wrapping the thawed areas and keeping the person warm. If protection from refreezing cannot be guaranteed, it may be better to delay the initial rewarming process until a warm, safe location is reached.
- If the frostbite is severe, give the person warm drinks to replace lost fluids.

## DO NOT

In case of frostbite, do not:

- Thaw out a frostbitten area if it cannot be kept thawed. Refreezing may make tissue damage even worse.
- Use direct dry heat (such as a radiator, campfire, heating pad, or hair dryer) to thaw the frostbitten areas. Direct heat can burn the tissues that are already damaged.
- Rub or massage the affected area.
- Disturb blisters on frostbitten skin.
- Smoke or drink alcoholic beverages during recovery as both can interfere with blood circulation.

## When to Contact a Medical Professional

Contact your health care provider if:

- You had severe frostbite
- Normal feeling and color do not return promptly after home treatment for mild frostbite
- Frostbite has occurred recently and new symptoms develop, such as fever, general ill-feeling, skin discoloration, or drainage from the affected body part

# Prevention

Be aware of factors that can contribute to frostbite. These include extreme:

- Wet clothes
- High winds
- Poor blood circulation. Poor circulation can be caused by tight clothing or boots, cramped positions, fatigue, certain medicines, smoking or tobacco use, alcohol use, or diseases that affect the blood vessels, such as diabetes.

Wear clothing that protects you well against the cold. Protect exposed areas. In cold weather, wear mittens (not gloves); wind-proof, water-resistant, layered clothing; 2 pairs of socks; and a hat or scarf that covers the ears (to avoid heat loss through the scalp).

If you expect to be exposed to the cold for a long period of time, do not drink alcohol, smoke, or use tobacco. Make sure to get enough food and rest.

If caught in a severe snowstorm, find shelter early or increase physical activity to maintain body warmth.

## Alternative Names

Cold exposure - arms or legs

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