

# Frostbite

## Definition

Frostbite occurs when the skin and body tissue just underneath it freezes. Your skin becomes very cold, then numb, hard and pale. Frostbite typically affects smaller, more exposed areas of your body, such as your fingers, toes, nose, ears, cheeks and chin.

### Causes

You're more likely to develop frostbite if you:

- Take medicines called beta-blockers
- Have peripheral vascular disease
- Smoke
- Have diabetes
- Have Raynaud's phenomenon

### Symptoms

1. A slightly painful, prickly or itching sensation
2. Red, white, pale or grayish-yellow skin
3. Hard or waxy-looking skin
4. A cold or burning feeling
5. Numbness
6. Clumsiness due to joint and muscle stiffness
7. Blistering, in severe cases

Very severe frostbite may cause:

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

## Treat Frostbite

1. Shelter and warmth. Remove any constricting jewelry and wet clothing.
2. If immediate medical help is available, wrap the affected areas in sterile dressings (remember to separate affected fingers and toes) and transport the person to an emergency department for further care.
3. If immediate care is not available, soak the affected areas in warm water -- or repeatedly apply warm cloths to affected areas for 20 to 30 minutes. The recommended water temperature is 104 to 108 degrees Fahrenheit. Keep circulating the water to aid the warming process. Warming is complete when the skin is soft and sensation returns.
4. Apply dry, sterile dressings to the frostbitten areas. Put dressings between frostbitten fingers or toes to keep them separated.
5. Move thawed areas as little as possible.
6. Refreezing of thawed extremities can cause more severe damage. Prevent refreezing by wrapping the thawed areas and keeping the person warm.
7. If the frostbite is extensive, give warm drinks to the person in order to replace lost fluids.

## Prevention

- Be aware of factors that can contribute to frostbite, such as extreme cold, wet clothes, high winds, and poor circulation. Poor circulation can be caused by tight clothing or boots, cramped positions, fatigue, certain medications, smoking, alcohol use, or diseases that affect the blood vessels, such as diabetes.
- Wear suitable clothing in cold temperatures and protect exposed areas. In cold weather, wear mittens (not gloves); wind-proof, water-resistant, layered clothing; two pairs of socks; and a hat or scarf that covers the ears (to avoid substantial heat loss through the scalp).
- If you expect to be exposed to the cold for a long period of time, don't drink alcohol or smoke, and get adequate food and rest.
- If caught in a severe snowstorm, find shelter early or increase physical activity to maintain body warmth.

## References

<http://www.mayoclinic.com/health/frostbite/DS01164/METHOD=print>

<http://www.nlm.nih.gov/medlineplus/ency/article/000057.htm>