



FROSTBITE

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Frostbite is an injury that occurs when the skin and underlying tissue is damaged through exposure to cold temperatures. The fingers, toes, ears, nose, cheeks, and chin are the most commonly affected areas.

Symptoms

Early signs of frostbite can include pain, numbness or tingling, and clumsiness of the affected area. Permanent damage may occur with continued exposure. Frostbite is divided into four degrees of severity.

- First-degree: Skin will look pale or red and the tissue becomes swollen.
- Second-degree: Redness and swelling are present along with clear blister formation.
- Third-degree: Blood blisters form and the skin has a blue-gray discoloration.
- Fourth-degree: Damage extends to the muscle and bone. Mummification of the affected part occurs and often leads to autoamputation.

Management

The first priority in treatment is to move to a warm location, if possible. Wet clothing and constricting items, like jewelry, should be removed. If emergency care is not immediately available, the affected area should be placed in warm water while taking care not to hit the sides of the container. The temperature of the water should be maintained at 98.6 – 102.2 degrees Fahrenheit. Warming should be done until the tissue looks red or purple and feels soft (about 15 - 30 minutes). Allow the extremity to air dry instead of rubbing, as friction causes more tissue damage. Walking on a frostbitten foot is inadvisable.

Do not use hot water or dry heat sources, such as fires or stoves. Body heat can be used (placing fingers under the arm) if warm water is not available. Avoid rewarming if there is a chance refreezing will occur. Refreezing is detrimental to the health of the tissue.

Seeking medical attention is important in the treatment of frostbite. Further intervention, such as a vaccination for tetanus may be needed. More severe injuries require specialized treatment or surgery.

Risks

The risk for frostbite increases in low temperatures, windy conditions, and higher altitudes. Some individuals are more susceptible to cold weather injury. Medical conditions that involve poor circulation, such as diabetes, peripheral vascular disease, and Raynaud's phenomenon increase the risk of frostbite. Alcohol and certain medications affect blood flow and cause greater heat loss. Alcohol and other sedating drugs can also decrease situational awareness, making cold-induced injury more likely.

Prevention

Frostbite is often preventable. Several precautions can be taken to reduce the risk of cold weather injury. Wearing loose and layered clothing allows for appropriate warmth and circulation. Tight clothing and footwear leads to poor circulation and increases the risk of frostbite. Layers of clothing to be worn should include a moisture-wicking first layer, an insulating second layer, and a water-resistant outermost layer. Exercise can protect against frostbite up to a certain point. When exhaustion sets in, however, body heat is rapidly lost. Proper hydration and nutrition is necessary to prevent exhaustion. Adequate preparation and mindfulness of personal limitations can help prevent frostbite.

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