

Wilderness First Aid

Cold Weather Injuries

Types of Cooling:

- Convection
 - Windy conditions moving warmth away from body
- Conduction
 - Occurs when touching any cool objects (rocks, metal trekking poles, etc.)
- Evaporation
 - Producing sweat that evaporates off of the body to cool itself
- Radiation
 - Heat moving away from your body naturally

Injury Types:

- Chilblains
- Frostnip
- Frostbite
 - Superficial
 - Severe
- Snow Blindness
- Hypothermia
- AMS (Acute Mountain Sickness)

What To Do:

For General Prevention

- C- clean
- O- avoid overheating
- L- layers
- D- keep it dry

Chilblains & Frostnip

- *Symptoms*
 - Small, itchy, red patches that can appear after you have been in the cold
 - Can be seen on fingers, toes, face, and legs
- *Treatment*
 - Rewarm affected skin gently, DO NOT massage, rub or apply to direct heat
 - Avoid cold exposure whenever possible
 - Keep your affected skin dry and warm, but away from sources of heat
 - Apply lotion to alleviate itching (not usually available in backcountry)
 - Clean with an antiseptic and gently bandaged to prevent infection

Mild and Severe Frostbite

- *Mild Frostbite Symptoms*
 - Reddened skin may become pale or white
 - Some ice crystals start to form within the skin
 - Your skin may actually feel warm to you, which is a sign of damage
 - Upon warming, your skin may look mottled or purple and fluid-filled blisters may appear up to 36 hours after warming the skin back up
- *Severe frostbite Symptoms*
 - Frostbite has gone beyond the outer layers of the skin and affected the deep tissues underneath
 - Possible numbness, pain, or discomfort
 - Surrounding muscles may not work
 - Blisters, often filled with blood, a day or two after rewarming
 - There can be permanent tissue death at this stage, where the affected areas become hard and black
- *Treatment*
 - Seek shelter from the cold
 - Warm your hands by tucking them under your arms
 - If possible, go indoors and remove wet clothing
 - Once inside, place your hands and feet in warm (not hot) water, and cover the rest of your body with a blanket or sleeping bag
 - Avoid sources of heat such as lamps, fire, or heating pads (These can burn frostbitten skin)
 - Drink warm drinks to rehydrate body and warm core
 - Seek a doctor as soon as possible

Snow Blindness

- *Symptoms*
 - Eye pain
 - Burning eyes
 - Red eyes
 - A gritty feeling or sensation that something is "in" the eye
 - Sensitivity to light
 - Blurry vision
 - Swollen eyes and/or eyelids
 - Headaches
 - Glare and halos around lights
- *Treatment/ Prevention*
 - Wear sunglasses and if affected stay indoors

Hypothermia

- ***Symptoms***
 - Hypothermia occurs as your body temperature falls below 95 F (35 C)
 - Shivering
 - Slurred speech or mumbling
 - Slow, shallow breathing
 - Weak pulse
 - Clumsiness or lack of coordination
 - Loss of consciousness
- ***Treatment***
 - Do not massage or rub the person. Excessive, vigorous or jarring movements may trigger cardiac arrest.
 - Move the person to a warm, dry location if possible and remove wet clothing
 - If you're unable to move the person out of the cold, shield him or her from the cold and wind
 - Insulate the person's body from the cold ground using layers of dry blankets or coats to warm the person
 - Monitor breathing. A person with severe hypothermia may appear unconscious, with no apparent signs of a pulse or breathing. If the person's breathing has stopped or appears dangerously low or shallow, begin CPR immediately
 - Provide warm beverages
 - Warm water in a plastic bottle, apply a compress only to the neck, chest wall and/or groin
 - Do not apply direct heat (do not use hot water to warm the person)

Acute Mountain Sickness (AMS)

- ***Symptoms***
 - typically occurs at about 8,000 feet, or 2,400 meters above sea level
 - Dizziness
 - Nausea
 - Headaches
 - Shortness of breath
 - Loss of appetite
 - Swelling of the hands, feet, and face
 - Rapid heartbeat
 - In rare cases, altitude sickness can become severe and cause complications with the lungs or brain
- ***Treatment***
 - Returning to a lower altitude
 - Reducing your activity level
 - Resting for at least a day before moving to a higher altitude

Sources

“Stages of Frostbite.” Mayo Clinic, Mayo Foundation for Medical Education and Research, www.mayoclinic.org/diseases-conditions/frostbite/multimedia/img-20114490.

“Snow Blindness: How to Prevent Sunburned Eyes.” All About Vision, www.allaboutvision.com/conditions/snowblind.htm.

“Hypothermia.” Mayo Clinic, Mayo Foundation for Medical Education and Research, 6 Jan. 2018, www.mayoclinic.org/diseases-conditions/hypothermia/symptoms-causes/syc-20352682.

Healthline. (2018). Acute Mountain Sickness: Causes, Symptoms, and Diagnosis. [online] Available at: <https://www.healthline.com/health/acute-mountain-sickness>