

Cold-Weather Casualties and Injuries Chart

In Cold Weather: Train soldiers on the proper use of cold weather clothing, maintain adequate hydration and ensure nutritional requirements are met, and remember the acronym C-O-L-D when wearing clothing in cold weather (C: Keep it Clean; O: avoid Overheating; L: wear clothing Loose and in layers; D: keep clothing Dry)

Chilblain

Cause

- Continuous or repeated exposure of skin to cold/wet weather conditions at temperatures below 50 °F for more than 1-5 hours

Symptoms

- Swollen, red skin (or darkening of the skin in dark-skinned soldiers) with rash-like appearance
- Tender, painful skin. Upon rewarming, skin is red, hot, and itchy.

First-Aid

- Warm affected area with direct body heat.
- Do not massage or rub affected areas.
- Do not wet the area or rub it with snow or ice.
- Do not expose affected area to open fire, stove, or any other intense heat source.

Prevention

- Use contact gloves to handle all equipment; never use bare hands.
- Use approved gloves to handle all fuel and POL* products.
- In extreme cold environments, do not remove clothing immediately after heavy exertion (PT); wait until you are in a warmer location.
- Avoid cotton clothing, which holds perspiration, in cold-weather environments.

Hypothermia

Cause

- Prolonged cold exposure and core body-heat loss. May even occur at temperatures above freezing, especially when a person's skin or clothing is wet.

Symptoms

- Shivering may be present.
- Drowsiness, mental slowness, lack of coordination; may progress to unconsciousness, irregular or slow heartbeat, and death

First-Aid

- Get the soldier to a medical facility as soon as possible. Hypothermia is a medical emergency and may be fatal.
- Never assume someone is dead until determined by a medical authority, even if a victim is cold and not breathing.
- Remove wet clothing, wrap victim in blankets or a sleeping bag, and move indoors.
- Place another person in sleeping bag as an additional heat source.
- Minimize handling of the unconscious victim with a very weak and slow heartbeat so as to not induce a heart attack.

Prevention

- Avoid cotton clothing in cold-weather environments.
- Anticipate the need for warming areas for soldiers exposed to cold conditions.

Frostbite

Cause

- Exposure to below freezing temperatures (< 32 °F) causing freezing of skin, fingers, toes, ears and facial parts.
- Exposure of skin to metal, super cold fuel and POL*, wind chill, and tight clothing, particularly boots.

Symptoms

- Numbness in affected area
- Tingling, blistered, swollen, or tender areas
- Pale, yellowish, waxy-looking skin (grayish in dark-skinned soldiers)
- Frozen tissue that feels wooden to the touch

First-Aid

- Start first-aid immediately. Warm affected area with direct body heat.
- Do not thaw frozen areas if treatment will be delayed.
- Do not massage or rub affected areas.
- Do not wet the area or rub it with snow or ice.
- Do not expose affected area to open fire, stove, or any other intense heat source.
- Evacuate as soon as possible, because frostbite can lead to amputation.

Prevention

- Use contact gloves to handle all equipment; never use bare hands.
- Use approved gloves to handle all fuel and POL* products.
- Avoid cotton clothing, which holds perspiration in cold-weather environments.
- Keep face and ears covered and dry.
- Keep socks clean and dry.
- Avoid tight socks and boots.

Immersion foot (trench foot)

Cause

- Prolonged (>12 hrs) exposure of tissue especially the feet to wet cold and conditions at 32 °F to 60 °F. Inactivity and damp socks and boots (or tightly laced boots that impair circulation) speed onset and severity.

Symptoms

- Cold, numb feet that may progress to hot with shooting pains.
- Swelling, redness, and bleeding may become pale and blue.

First-Aid

- Get medical help immediately.
- Remove wet and constrictive clothing.
- Dry and clean tissues gently. Rewarm feet by exposing them to warm air.
- Do not allow victim to walk on injury.
- Do not massage, rub, moisten, or expose affected area to extreme heat or lotions. Do not pop blisters.
- Evacuate victim to a medical facility.

Prevention

- Keep feet clean and dry; change wet or damp socks as soon as possible.
- Wipe the inside of Vapor Barrier boots dry at least once per day, or more often as feet sweat.
- Dry leather boots by stuffing with paper towels.

Additional Medical Considerations in the Cold Weather Environment

Dehydration

Cause

- Depletion of body fluids

Symptoms

- Dizziness
- Weakness or fatigue
- Blurred vision
- Thirst
- Dark, concentrated urine

First-Aid

- Replace lost water. Water should be sipped, not gulped. Warm fluids helpful for re-warming.
- Get medical treatment if necessary.

Prevention

- Consume 3-6 quarts of water per day at a minimum.
- Monitor urine color intensity.

Snow Blindness

Cause

- Burning of the cornea of the eye by exposure to intense UV rays of the sun in a snow-covered environment

Symptoms

- Eye-pain, redness, watery or gritty feeling in the eyes

First-Aid

- Rest in total darkness; bandage eyes with gauze
- Evacuate if no improvement within 24 hours

Prevention

- Use sunglasses with side protection in a snow-covered environment.
- Use improvised slit glasses if sunglasses are not available. Cut or tear opaque strips of tape and apply to glasses or make cardboard glasses and cut out horizontal slits from eye area.

Carbon Monoxide Poisoning

Cause

- Displacement of oxygen by carbon monoxide in the blood stream from burning fuels without proper exhausting and ventilation.

Symptoms

- Headache, confusion, dizziness, excessive yawning
- Cherry red lips and mouth (in light-skinned individuals); grayish tint to lips and mouth (in dark-skinned individuals)
- Unconsciousness

First-Aid

- Move to fresh air and administer oxygen if available.
- CPR if needed.
- Evacuate.

Prevention

- Use only Army-approved heaters in sleeping areas and ensure that personnel are properly trained to operate the heaters.
- Never sleep in idling vehicles.
- Always post a fire guard when operating a heater in sleeping areas.

*POL-petroleum, oil, lubricants
For additional information refer to
U.S. Army Technical Bulletin 508.