

Cold Weather Camping and Hypothermia

U.S. SCOUTING SERVICE PROJECT -- [HTTP://USSCOUTS.ORG](http://USSCOUTS.ORG)

Compiled by: Chuck Bramlet, ASM Troop 323, Thunderbird District,
Grand Canyon Council, Phoenix, Az.

Contents

- [SYSTEMATIC HYPOTHERMIA \("X-Y"Chart\)](#)
- [SOME ADVICE ON KEEPING THE TENT DRY](#)
- [HYPOTHERMIA \(General Description\)](#)
- [HYPOTHERMIA -- THE SILENT KILLER](#)
- [PHYSICAL SYMPTOMS OF HYPOTHERMIA](#)
- [SOME SNOW CAMP RULES](#)

SYSTEMATIC HYPOTHERMIA

By: Kevin Hamilton

SYSTEMATIC HYPOTHERMIA

Core Temp	Degree of Hypothermia	Signs and Symptoms	Cardiorespiratory Response	Level of Consciousness
95 F	Mild	Shivering	Withdrawn	Foot Stamping
90 F	Mild	Loss off Coordination	Confused	
85 F	Moderate	Lethargy	Slow Pulse	Sleepy
80 F	Severe	Coma	Weak Pulse; arrhythmias; slow respiration	Irrational
78 F	Severe	Apparent Death	Ventricular fibrillation; cardiac arrest	Unconscious

SOME ADVICE ON KEEPING THE TENT DRY

By: Tony Wesley

Some tips for the novice. Veterans of camping will have learned these and probably have a few ideas of their own.

-- Examine your camp site carefully before setting up the tent. That nice flat spot, is it a low point? If you camp in a hollow, you may end up camping in a puddle if it starts raining.

-- Is this a new or borrowed tent? If so, put that rain fly on NOW even if the sky is blue. You can take it off, now that you know how to put it on. The tent will breath better with it off. But make sure you remember where it is. I met a couple who learned the hard way just the night before. They didn't know know what the rain fly was, and put it under their tent as ground cover. It rained on them, and that's when they realize something was wrong. Reading the instructions in the middle of the night with the rain pouring down on them, they realized what they had done. So they had to unstake the tent, move it, and place the rain fly over the tent, which was rather soggy by this point.

-- Are you camping under trees? The trees will help break the rainfall, but they will continue to drip after the rain has stopped. You win some, you lose some.

-- A canvas under the tent is a good idea, but watch out. If your canvas extends out further than your rain fly, rain will run off the rain fly and onto the canvas. Depending on the slope, the rainwater may then run **under** your tent.

-- You can improve your tent's rain resistance by applying seam sealer to your tent. Spending a couple dollars and a few minutes ahead of time will help. But don't expect miracles.

-- Condensation will form on the tent's interior walls, unless you keep the tent ventilated.

-- Placing the sleeping bag on a pad or an air mattress is a good idea. It will not only improve your sleep by keeping you warmer and and bed softer, it will keep you up off the tent floor should you get water in the tent.

A little bit of water seems inevitable if you're camping in the rain. But some precautions and some common sense can make the difference between damp

and wet. Oh, if you have room, toss that book you've been meaning to read in with your camping gear. If you get stuck in your tent waiting for the rain to pass, it'll be worth its weight in gold.

Any comments or questions are welcome, either by this forum or by electronic mail. Tony Wesley, 72770.2053@compuserve.com.

HYPOTHERMIA

Author: Michael R. Schmehl

Elsewhere in this database is an article concerning dressing properly for winter activities outdoors. This article shall deal with a deadly hazard which stems from foregoing such pre-cautions.

Hypothermia, sometimes mistakenly referred to simply as "exposure", is a lowering of the body's core temperature caused by over-exposure to cool or cold air or water.

One need not be subjected to near zero air temperatures or icy waters to be overcome, in fact, most cases of hypothermia occur during the spring, summer and fall. While the basic effects of air or water induced hypothermia are similar, the speed of occurrence and progression differs. Examine the case of a muskie fisherman or duck hunter whose boat capsizes in 50 degree water. From the moment of immersion, body heat will begin being lost via the skin. Seconds later, once saturated, more precious heat is drawn from such vulnerable body areas as the groin and sides of the chest. Shivering, a natural form of body heating, occurs and becomes intense; blood circulation slows to the arms and legs, saving heat for the vital body core area. In under two hours, when the body core temperature drops to about 87 degrees, the average person will lose consciousness. If the victim is not wearing a proper flotation device, drowning is likely. Should he be so equipped, yet not soon rescued, within the next hour the core temperature will reach the mid 70's, at which time the heart fibrillates and death follows.

With air/wind induced hypothermia, depending on air temperature and wind speed (chill factor), the symptoms may not be so apparent, both to the victim or any companions. Indeed, in the primary stages, the victim may even refuse to acknowledge there is a problem. Progression begins with a natural sense of cold accompanied by shivering. A feeling of numbness then occurs while shivering increases to where it's soon uncontrollable. Speech is garbled or incoherent, and the thought process slows. Body movements are erratic, and uncovered skin swells and appears blue. If the victim or members of his

group do not spot the problem soon, unconsciousness will take place, followed by the possibly fatal lowering of the body core temperature.

Before noting treatment, beware of some special problems akin to water related hypothermia. While a sufferer on land can exercise, build a fire or make use of a sleeping bag to recover, such options are not available to the victim in the water. Indeed, exercise in water can cause heat to be lost over 30% faster than if one were to remain motionless.

So the question arises as to whether one should try to swim for the shore or remain still in the hope that rescue will take place before becoming overwhelmed. Naturally such a life or death choice rests with the victim, so recalling the aforementioned case of water immersion and its progression, also note the fact that, in 50 degree water, the average person could not swim even one full mile, before being rendered helpless.

The treatment for both types of hypothermia are alike. Basically it requires that the body core temperature be raised to a normal level, aided by outside sources of heat. Some recommended suggestions include: stripping the victim, who is then placed into a sleeping bag along with one or two likewise attired companions (in such a situation there's no room for modesty); get dry clothes on the victim then huddle together; the use of fire, alone, or with either of the foregoing; administer hot, non-alcoholic drinks; or the warm breath of rescuers (or steam) can be used via the victim's inhalation. Once the victim is properly rewarmed, he can be moved. At this time he should be checked by the nearest doctor; never even think of merely continuing your activities.

By using the layer effect of several pieces of clothing instead of one heavy garment, you can better maintain proper body temperature and reduce the chance of sweating. Clothing which has become wet from sweating, rain or snow is the primary cause of air related hypothermia. Too many outdoors people die needlessly each year because of hypothermia; keep alert, be careful and dress properly so it doesn't happen to you; believe me, it can happen when you least expect it!!! I know, I almost became a victim,....but that's another story.....

Many thanks to Irene Brown who typed this article, thereby saving my two fingers untold suffering.

mike schmehl 75305.26@compuserve.com

HYPOTHERMIA -- THE SILENT KILLER

By: Gary Ross, EMT-D

August 5, 1987

It's August now. The last of the summer warmth. Days grow shorter. Autumn is near, and then winter...

This segment is on hypothermia. Hypothermia is a condition of general body cooling (in contrast to frostbite which is localized). It can kill you. But do not let the introduction mislead you. Hypothermia generally occurs during cold weather, but it can occur at any temperature (but generally below 60 degrees).

CAUSES:

Three factors are major causal factors in hypothermia: cold, water, and wind.

- 1) In a cold environment, the body must work harder to regulate heat; contact with cold air, water, snow, ground or clothing will cause heat losses due to conduction.
- 2) If a person is submersed in water, heat will be lost due to conduction and convection. At a water temperature of 32 degrees death occurs in 15 minutes; at 70 degrees survival for as long as 48 hours has been observed. Loss of heat by evaporation is a major contributor also. Wet skin or clothing will cool of the body quickly, especially if it is windy and/or cold.
- 3) Wind will cause heat loss due to convection, and will accelerate heat loss due to evaporation.
- 4) Hypothermia occurs much more quickly in the elderly and chronically ill.

Hypothermia is insidious. As the body's core temperature drops, more and more body systems suffer from the effects of cold. The presence and severity of hypothermia can be assessed by the signs and symptoms below. A patient is hypothermic at any temperature below 98.6 degrees Fahrenheit (rectal). 98-94 degrees is mild hypothermia; 94-84 degrees is moderate hypothermia, and below 84 degrees is severe hypothermia.

STAGES OF HYPOTHERMIA

98 - 95 degrees - Sensation of chilliness. skin numbness: minor impairment in

muscular performance, especially in use of hands; shivering begins.

95 - 93 degrees - More obvious muscle in coordination and weakness; slow stumbling pace; mild confusion and apathy. Skin pale and cold to touch.

93 - 90 degrees - Gross muscular in coordination with frequent stumbling and falling and inability to use hands; mental sluggishness with slow thought and speech; retrograde amnesia.

90 - 86 degrees - Cessation of shivering; severe muscular in coordination with stiffness and inability to walk or stand; incoherence, confusion, irrationality.

86 - 82 degrees - Severe muscular rigidity; patient barely arousable; dilatation of pupils; inapparent heartbeat and pulse. Skin ice cold.

82- 78 degrees and below - Unconsciousness; death due to cessation of heart action.

TREATMENT OF HYPOTHERMIA

Two situations are possible. One is where evacuation to a medical facility is possible within several hours. The other is where evacuation will be delayed or impossible. The other parameter is stage of hypothermia.

Moderate hypothermia

Get the patient as sheltered as possible (tent, snow cave, etc.)

Remove wet clothing and replace with dry clothing. Keep patient laying down. Place patient in a sleeping bag with a second rescuer of normal body temperature. Direct skin to skin contact is preferable.

Warm stones or bottles can also be placed in the bag (be careful not to burn patient). Make sure all extremities and exposed areas (e.g. face, nose, ears) are protected. If patient is conscious and able to swallow without danger to his/her airway, give sugar and sweet, warm (not hot) fluids by mouth. **DO NOT GIVE ALCOHOL.** If evacuation is **IMPOSSIBLE** and facilities permit, immerse patient in tub of water at 105 degrees Fahrenheit. Monitor patient's temperature rectally with thermometer if possible. Continue rewarming efforts until patient's core temperature is restored to normal. Always evacuate a hypothermic patient as quickly and gently as possible, including rewarmed patients.

Severe hypothermia

Patients in severe hypothermia are often erroneously thought to be dead. Neither pulse, nor heart sounds, nor respiration may be apparent. Handle a severely hypothermic patient with great care - VERY GENTLE HANDLING. Cut away wet clothing and replace with dry clothing.

Maintain an airway, but use no adjuncts (e.g. oral airway). Once you start CPR, DON'T GIVE UP. Get help. Do not attempt to rewarm patient unless evacuation is IMPOSSIBLE. Keep patient supine, in a 10 degree head-down tilt.

Handle every hypothermic patient very gentle. Rough handling can cause cardiac arrest and death. Get every patient into shelter, replace wet clothes with dry ones. Apply external heat if condition dictates. And give warm, sugary food and drink if patient's condition allows. Get help. If possible, have rescuers bring a heated oxygen unit, and administer to patient. Perhaps equipment can be air-dropped. Keep calm and do not become a victim yourself.

THE HYPOTHERMIC PATIENT ISN'T DEAD UNTIL HE'S WARM AND DEAD.

PREVENTION OF HYPOTHERMIA

Dress properly for current and possible conditions. Be prepared for sudden weather changes especially at elevations. Have at least one wool garment for the upper and lower parts of your body. Wool is the only material with any insulating value when wet. Carry or wear a windproof, waterproof garment. Always have a wool hat and wool mittens. Have extra clothing available especially mittens and hats. A large proportion of body heat is lost through the head. Wear suitable boots, insulated if necessary; wear wool socks, and always carry extra wool socks. Avoid getting overheated and perspiring, this cools you down - fast. Wear layers and remove clothing as necessary. Better having extra than too little. Dress sensibly and expect the worst.

Sit out bad weather. Better waiting than be overtaken by a blizzard or thunderstorm. Do not push on through the night. Make camp early and rest thoroughly. You can continue tomorrow with a much greater safety margin.

Do not get exhausted. Exhaustion promotes heat loss, and thus hypothermia. Besides, if your exhausted, you are probably drenched.

Do not get in over your head. If your experience is limited to day hikes on moderate trails, do not try to go out and tackle Mt. Washington in February. Be smart. Learn to use a map and compass. Learn fire starting techniques. Learn first-aid. Be calm. Be prepared.

Lastly, learn about hypothermia. Know the causes, warning signs, and treatment. Learn how not to get cold.

NOTE: Special hypothermia thermometers are available which measure between about 70 and 100 degrees Fahrenheit. I recommend carrying one in your first-aid kit on all cold weather excursions. Contact me for information on where you can purchase one.

I hope you found this information useful and important and feel free to contact me if you have any questions. Have fun in the great outdoors, but be careful. Mother Nature is never malicious, just incredibly powerful.

Gary Ross, EMT-D; 73317.3317@compuserve.com

PHYSICAL SYMPTOMS OF HYPOTHERMIA

By Smokey Sturtevant

The following is a chart to indicate the physical symptoms of hypothermia. It is provided to assist in showing the various stages of hypothermia that are readily apparent. It has no copyright and is to be used and distributed as you see fit. I hope that it will help in the recognition and prevention and treatment of hypothermia.

Smokey Sturtevant 75565.64@compuserve.com

The chart is broken down into approximate body temperature and the symptoms that develop at those temps. The temps are in degrees f. If you have any questions regarding hypothermia, please leave me a message or e-mail note. s.s.(on CompuServe)

temp. symptoms

98.6-95.0 Intense shivering, ability to perform complex tasks is impaired, fatigue, poor coordination, immobile and

fumbling hands.

95.0-91.4 Violent shivering, difficulty speaking, sluggish in thinking, amnesia starts to appear. starts to lose contact with environment. stumbling

gait, feeling of deep cold and numbness.

91.4-87.8 Shivering decreases, in it's place is muscle rigidity, erratic movement, thinking is not clear, victim can't still stand, hallucinations, loses contact with the surroundings.

87.8-85.2 Rigid muscles, no shivering, very irrational, starts into a stupor, pulse and respiration slow, pupils start to dilate, skin is turning bluish, drowsiness.

85.2-78.8 Does not respond to words that are spoken, pulse is very erratic, reflexes do not function, victim will be only semi-conscious, heart starts atrial fib.

BELOW 78.8 Heart and respiratory failure, ventricular fib, probable brain and lung hemorrhage, apparent death. Victims have been saved with core temps as low as 75.0f. The best chances of recovery are from early diagnosis and treatment. Even though there may not be a pulse or breathing, the victim can be saved. Many times the cold will cause a reaction in the nervous system that can help the victim. The most important thing to remember is that it won't go away!!! The problem must be treated and treated quickly.

This goes for others as well as for yourself. You should always be aware of what is happening to you as well as your partners. Be prepared to treat it before you cannot help yourself.

I hope that this proves useful. s.s.

SOME SNOW CAMP RULES

From Gene Haning

SHIRTS

The outer shirt or jacket should be of a material that will stop wind and shed snow. Some slick synthetics work well.

PANTS

As with shirts, the outer pair of pants should shed snow and block wind. Some types of ski-pants do both well. Problem with wind-resistant synthetic outer layers (save the most expensive, such as Gore-Tex) is that if they keep moisture out, then they'll keep it in, too. So perspiration, wicked away from

the skin by the polypro/wool inner layers, cannot escape. At the outer layer, where it's coldest, that moisture comes close to freezing (if it doesn't in fact), and (either way) progressively blocks subsequent perspiration from escaping. Result: Damp clear through. If one cannot afford the \$80-400 per garment for Gore-Tex, next best is to go with a blend of synthetics and natural fibers that'll cut the wind and let moisture pass in both directions. I prefer -synthetic to- -natural blend, but - has proponents. If one is properly layered, it's perfectly feasible to be comfy while the outer surface is at or below freezing. Vapor pressure will force perspiration to the outer surface of the outer garment, where it freezes and can be brushed off. Snow from the outside won't melt, and it too can (and **must**) be brushed away. When this is so, it doesn't really matter **what** the material is, so long as snow doesn't adhere when brushed, and moisture passes through. I have been perfectly happy in outer shells of -

The problem with ski-pants is that they are cut fashionably tight, where-as baggy is warmer. Again, treated "wetlock" fabrics popular for insulated skiing overpants won't let moisture escape. I go with \$35 army surplus baggy wool pants, and wear home-made - overpants (straight cut leg, draw-string waist, ankle ties (usually left untied and just tucked into Sorrels (or gaiters when the snow is deep))).

GROUND CLOTHS AND PADS

Standing all day long is uncomfortable, but sitting on snow just gets your highly vascular (big muscle) bottom wet, making you cold in a hurry.

Rock may be dry, but it sucks heat even faster. I paid \$6 for the cheapest closed-cell foam pad that I could find, and cut it into 2 by 2 foot squares.

Everybody carries a square on the outside of the pack, so we can flop down anywhere and sit dry and insulated during breaks on the trail. "Don't leave home without it."

[\[Return to the Top of this Page\]](#)