

UNDERSTANDING AND AVOIDING HYPOTHERMIA

COLD KILLS IN TWO DISTINCT STEPS:

STEP ONE: EXPOSURE AND EXHAUSTION BEGIN

The moment your body begins to lose heat faster than it produces heat, exposure begins and two things happen:

1. You will voluntarily exercise to stay warm, and
2. Your body will make involuntary adjustments to preserve normal temperature in the vital organs.

Both responses drain your limited energy reserves. The only way to stop the drain is to limit the degree of exposure. *The time to act to prevent hypothermia is during the period of exposure and gradual exhaustion.*

STEP TWO: HYPOTHERMIA SETS IN

If exposure continues until your limited energy reserves are exhausted the following happens:

1. Cold reaches the brain slowing your judgment and reasoning power. You will not realize this is happening.
2. You will lose control of your hands and other motor skills. You are now hypothermic. Your internal temperature is on a downward slide. Without treatment, this slide leads to stupor, collapse and death.

PREVENTION OF HYPOTHERMIA:

YOUR FIRST LINE OF DEFENSE: AVOID EXPOSURE AND EXHAUSTION

1. **STAY DRY:** *50-degree water is unbearably cold.* Clothing, wet from perspiration, rain or melted snow and cooled by *mild 50 degree weather* will begin the process of exposure by conducting the heat from your body. Wool or poly pro and pile clothing are mandatory. Cotton absorbs water: cotton kills! *Don't ask "How cold is the air?"; ask "How cold is the water against my body?"*
2. **BEWARE THE WIND:** Even a slight breeze causes convection and evaporation, which can cool wet clothing below the surrounding air temperature. Stronger wind can find its way under loose clothing to evaporate moisture from skin and remove body warmth by convection. Use Gore Windstopper fleece and Gortex rain/wind layers that close at the wrists, neck and waist.
3. **COVER UP:** A bare head and hands can lose 60 percent of your body heat by conduction, convection, radiation and evaporation. Put on the raingear before you are soaked. Gortex rain/wind breathable/waterproof gear will help avoid sweat soaked clothing by venting, etc.
4. **SLOWDOWN OR STOP:** Heavy breathing loses body heat at a high rate: cold air must be warmed by the body as it is drawn into the lungs. Don't permit yourself to sweat. Don't exhaust your limited glycogen reserves. Trying to find your way or reach an unrealistic destination can be a fatal error.

YOUR SECOND LINE OF DEFENSE: TERMINATE EXPOSURE AND FORSTALL EXHAUSTION

You may think you are warm enough, but consider what will happen if you are forced to stop using your muscles to generate your body heat by personal injury, an injured or exhausted companion, losing your way, nightfall, fog, heavy rain or snow or a dangerous route. *Stop before you have exhausted your stored glycogen. Eat high carbohydrate foods – ClifBars, fig-newtons, etc.*

If you or a companion become exhausted the following will happen:

1. The rate of body heat production will drop by 50 percent as you stop using your big muscles.
2. Violent, incapacitating shivering may begin immediately.
3. The victim may slip into a hypothermic state in a matter of minutes.

Before you become hypothermic, you must:

1. Give up your peak or destination or whatever you had in mind.
2. Get out of the wind and rain, stay in one place, and concentrate on staying warm.
3. *Put on your essential extra clothing you have been carrying just for this emergency.*
4. Eat and drink to restore your blood sugar and enable your blood to circulate well.
5. Bundle with your companions and make a plan.

YOUR THIRD LINE OF DEFENSE: DETECT THE OCCURANCE OF HYPOTHERMIA

Appoint a foul-weather leader whose job is to think about the dangers of this insidious problem for outdoor recreationists. This person might be the best-protected member of the group; responsible for calling a halt before the least protected member of the group becomes uncoordinated or exhausted or begins violent shivering. *Watch yourself and others for the following overt symptoms:*

1. Uncontrollable fits of shivering.
2. Vague, slow or slurred speech.
3. Memory lapses or incoherence.
4. Immobile fumbling hands.
5. Frequent stumbling, lurching gait.
6. Drowsiness (to sleep is to die).
7. Apparent exhaustion.

YOUR FOURTH AND LAST LINE OF DEFENSE: TREATMENT

The victim may deny he is in trouble (I'm OK, I'm OK) Believe the symptoms not the patient. Even mild symptoms demand immediate, drastic treatment. *The victim himself is unable to generate enough heat to reverse his hypothermia.*

1. Get the patient out of the wind and rain or snow.
2. Strip off all wet clothing.
3. If the patient is only mildly impaired, *add heat:*
 - a. Give him warm drinks and high carbohydrate foods.
 - b. Get him into dry clothing and a sleeping bag with warm water bottles.
4. If the patient is semiconscious or worse *add heat as follows:*
 - a. Try to keep him awake and carefully give warm sugary drinks.
 - b. Leave him stripped naked and put him into a sleeping bag(s) with one or more naked persons who will act as heat donors. *Skin to skin full body contact is required to be effective.*
 - c. Arrange immediate transport to a hospital.

COLD INJURIES:

Hypothermia may be accompanied by cold injuries such as frostbite or worse. This is a separate condition. Read Backcountry First Aid and Extended Care by Buck Tilton for Wilderness Medicine Institute of NOLS for care of cold injuries and hypothermia patients.

Stay hydrated, nourished with carbohydrates, in a continuously aerobic state, dry and protected by your clothing and accessories from wetness and heat loss from conduction, convection, radiation, evaporation and heavy respiration!

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