

## Hypothermia

Hypo means "a lack of." Thermia means "heat." Hypothermia occurs when the person's body core temperature drops so low that it is no longer possible to keep warm. In effect, the body's furnace goes out. Conditions do not have to be extreme for hypothermia to develop. Any combination of cool weather and damp clothing, wind, exhaustion, or hunger can bring it on. In fact, most cases occur when the air temperature is well above freezing.

### How to Spot It

To function well, the brain must stay warm. As the body begins to cool, the victim will shiver in an attempt to create heat. Other symptoms may include irritability, and as the temperature of the brain begins to drop, disorientation, sleepiness, and incoherence. The ability to make clear judgments will be reduced, perhaps causing the victim to push on longer when conditions call for turning back. As the person becomes even colder shivering will stop, followed by a slip into unconsciousness and perhaps death.

Because it first affects the ability to think clearly, hypothermia is as stealthy as it is dangerous. Someone beginning to suffer from it may have no idea that there is any danger and, in growing confusion, may reject any suggestions to stop and get warm. When you are outdoors in damp, cool, or cold weather, use the "hypothermia challenge" to determine if you or others in your group are in danger. Here's how it works:

If you think someone in the group is acting strangely, challenge your companion to walk a 30-foot line scratched on the ground. It's a test similar to that used by the police to check suspected drunk drivers. If a hiker can walk heel-to-toe for the length of the line without difficulty, hypothermia is still not a problem. However, if there is unsteadiness, loss of balance, or other signs of disorientation see that your companion gets warm and dry even if the person protests. Everyone in the group must take the "hypothermia challenge" before you travel on.

### How to Treat It

Take action to rewarm the victim and prevent further heat loss. In mild cases you can move the victim to the shelter of a building or tent, remove wet clothing, and zip the person into a sleeping bag until body temperature warms to normal. Make sure the head is covered with a warm hat or sleeping bag hood. Give hot drinks and soup if available—no alcohol.

In severe cases you have to actively warm the victim's body. Get the person under shelter and into a sleeping bag, ideally a double-sized bag made by zipping together two sleeping bags. Crawl into the bag with your companion and strip the clothing from both of you. The effort of removing damp clothing will help you generate body heat, and the bag will protect both of you from the cold outside. If the bag is large enough, have a third person crawl in and strip down, too. Skin against skin, the heat of your bodies can rewarm the victim and perhaps save a life.

### How to Prevent It

The best way to deal with hypothermia is to prevent it in the first place. Always carry raingear to keep yourself and your clothing dry. Dress warmly. Wear a hat. Eat plenty of energy foods. Don't push yourself to a dangerous point of fatigue.

## Hypothermia

Every outdoorsman must be aware of the symptoms and the treatment of hypothermia, and of ways to prevent it. Hypothermia is the cooling of the body's core temperature below the point the body can rewarm itself. It can occur any time the weather is cool, especially if it is wet and windy. At first the person feels chilly and tired; then he begins shivering, becomes irritable and disoriented, and may slip into unconsciousness. When this happens, first aid must be administered soon or he will die.

When someone in your patrol shows signs of hypothermia, get him warm and dry. Put him in a tent, strip off his wet clothing, and zip him into a sleeping bag. If he can manage hot drinks, give him plenty of cocoa or soup. However, if he continues to shiver, you may need to strip down and crawl into the bag with him so that you body can warm his. It can save his life.

Of course, the best way to deal with hypothermia is to prevent it in the first place. Always carry rain gear to keep yourself and your clothing dry, and dress warmly. Eat plenty of energy food and don't push yourself to the point of exhaustion.

## Heat Exhaustion

Heat exhaustion happens when the body becomes overheated. The body's methods of cooling itself fail.

### How to Spot It

When the weather is hot and someone begins acting strangely or feels faint and nauseous, suspect heat exhaustion. Look for these signs:

1. Body temperature above 98.6°F but below 102°F
2. Skin pale and clammy
3. Heavy sweating
4. Dizziness and fainting
5. Tiredness and weakness
6. Nausea and tiredness
7. Headache
8. Muscle cramps

### How to Treat It

Have the person lie down in a shady, cool spot with feet raised. Loosen clothing. Cool the victim with cool, wet cloths or a fan. Have the person sip water to which a pinch of salt has been added.

Recovery is usually rapid. If symptoms persist, however, consult a physician.

### How to Prevent It

To avoid heat stress, stay out of the sun during hot weather. Plan strenuous activities for the cool of morning and evening. Drink plenty of fluids.

## Heat Exhaustion/Sunstroke

Hot weather is not without hazards. Heat exhaustion occurs when the cooling mechanism of the body works so efficiently it lowers a person's temperature too much. He may feel faint and nauseous, and his skin will become pale, cold, and clammy. Have him lie down, wrap him in a blanket or sleeping bag, and let him sip a little water to which a pinch of salt has been added. He should feel better soon, but be sure he takes it easy the rest of the day.

Sunstroke is much more serious. The body's cooling mechanism becomes so overworked, it simply stops functioning. The person's temperature soars, his skin becomes hot, red, and dry, and he may become disoriented. Breathing is difficult and noisy. You must cool him as quickly as you can. If there is a lake or stream nearby, dip him in it. If not, lay him in the shade, soak his clothing with water, and drape his bare skin with damp cloths. When he can drink, give him all the liquid he wants. Treat him for shock and get him to a doctor.

To prevent heat exhaustion and sunstroke, stay in the shade during hot weather. Plan your strenuous activities for the cool of the morning and evening. Drink plenty of fluids.

## Heatstroke (Sunstroke)

Less common than heat exhaustion, heat stroke is much more serious. It occurs when extremely high temperatures overwhelm the body's heat control system. The body's cooling mechanisms become so overworked they simply stop working. As a result, the victim's temperature soars, becoming life-threatening.

### How to Spot It

Heatstroke pushes the body temperature to 102°F or higher—usually higher than 105°F. Signs include:

1. Skin red, hot, and dry
2. No sweating
3. Pulse extremely rapid
4. Confusion or disorientation
5. Fainting or unconsciousness
6. Convulsions

### How to Treat It

You must cool the victim immediately. Take the following steps:

1. Move to a cool, shaded spot.
2. Place victim face up with head and shoulders raised.
3. Cool body temperature as quickly as you can. Take off the victim's outer clothing. Sponge bare skin with cold water and soak underclothing with cool water; drape bare skin with wet cloths; apply cold packs; use a fan; place victim in a tub of cold water. Dry the skin after body temperature drops to a safe level (101°F).
4. When the victim is able to drink, give all the water wanted.
5. Treat for shock and obtain medical help immediately.

### How to Prevent It

Stay in the shade during hot weather. If you must be out in the hot sun, wear light-colored clothing and wear a hat. Avoid playing or working in direct sunlight for more than 30 minutes at a time. Drink plenty of water. Take in a little more salt than usual with meals, but don't overdo it—too much salt is not good for you. Plan strenuous activities for the cool of morning or evening.

# Heat and Cold

Extreme temperatures, either hot or cold, can pose great dangers in the out-of-doors. Searing sun or winter's cold can tax to the limits even a hardened outdoorsman. Before heading off on a backcountry trip, review these first aid procedures for weather-related injuries.

## Frostbite

Flesh exposed to low temperatures is in danger of freezing. The longer the exposure, the more damaging the injury. Far from the body's core heat, toes and fingers are especially susceptible to frostbite, and so are noses, ears, and cheeks.

### How to Spot It

As flesh freezes it may become painful and then numb, though sometimes the victim is not aware the injury is occurring. If the freezing continues, the area will stiffen and become grayish or whitish in color. Blisters may appear.

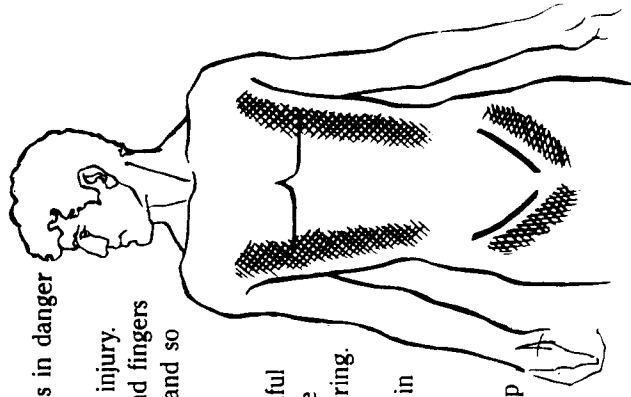
### How to Treat It

Get the affected area warm and keep it warm. In the field, thaw fingers by holding them beneath your clothing and under your armpits. Press a bare palm over a frosted nose, ears, or cheeks.

If you can get to shelter, place cold feet on a companion's bare belly, or dip frozen areas in lukewarm water (104°–108°F or 40°–42°C).

Do *not* rub the injury with snow. Too much heat and abrasion can seriously damage tissues already made tender by the cold.

If blisters appear, apply a large sterile dressing. Treat the victim for shock and get to a physician.



Main heat-loss areas of the body

A mountaineer or biker whose feet have badly frozen miles from help may need to delay thawing the injury. In desperate survival situations it is possible to walk on frozen feet; once they've been warmed, however, further travel is impossible.

### How to Prevent It

Areas of the body most likely to suffer frostbite are those farthest from the deep organs or large muscles: earlobes, nose, cheeks, hands, and feet. To prevent frostbite, the body must be warm enough to supply warm blood to these areas. Adequate clothing on the head and body, therefore, is at least as important as warm coverings for the hands and feet. If clothing becomes wet, change to dry garments as soon as possible. Wet clothing is a much poorer insulator than dry clothing.

## Frostbite

During winter camping trips, be on the lookout for frostbite. Fingers, toes, and patches of exposed skin are susceptible to freezing, particularly when the wind creates a chill factor far below the actual temperature. Wear warm, loose-fitting clothing, cover your head and ears with a stocking hat, your face with a scarf, and your hands with wool mittens. Keep your socks dry, and loosen your boots a little to allow blood to circulate freely in your feet.

The symptoms of frostbite are a loss of feeling in the affected area, and the appearance of a greyish or whitish color. In the field, treat the injury with direct body heat. Press the bare palm of your hand on frosted ears, noses, and cheeks. Tuck cold fingers inside your clothes under an armpit. Put frozen toes and feet against the bare skin of a companion's belly.

Move the person to shelter and, if possible, submerge the injury in water that is warm (110°F) but not hot. Do not rub frostbite with snow, but do treat the person for shock and get him to a doctor.

## Burns

Most burns are minor—a spark from a campfire landing on the skin. In some instances, though, burns can be severe. A pot of boiling macaroni may spill on a cook's foot, a stove might flare, the sun may sear unprotected skin.

Mild burns cause a painful reddening of the skin. A typical *first-degree* burn is sunburn. More serious burns raise blisters; scalding with boiling



FIRST-DEGREE BURN

The skin is reddened. Patient may feel pain. Sunburn is usually a first-degree burn when sunning is stopped in time.



SECOND-DEGREE BURN

Blisters may have formed. Great care is necessary to keep the blisters from breaking. If they break, wound may become infected.



THIRD-DEGREE BURN

Some skin may be burned away and some flesh charred. Patient feels no pain. This burn is extremely dangerous because growth cells that form the new skin have been destroyed.

water is an example of a *second-degree* burn. Severe or *third-degree* burns char layers of skin and flesh.

### How to Treat It

Do *not* treat burns with jellies, creams, greases, or sprays. In many cases they slow the healing process, and once applied they are difficult to remove. An exception is mild sunburn, which may respond well to specially formulated sunburn lotions.

For mild burns without broken skin (first-degree and second-degree):

1. Relieve the pain by applying ice packs or damp, cold cloths, or by dipping burned areas in cool water.
2. Do not break blisters.
3. Let the affected area air dry, then cover it with a loose bandage.

For serious burns (severe second-degree and third-degree):

1. Protect the burn by draping it with a clean, damp cloth. Do not apply ice water to a large third-degree burn, as it may cause shock. Do not try to remove pieces of charred cloth that may stick to the burn.
2. Treat for shock.
3. If the victim is able to drink, give lots of milk or water or other fluids.
4. Obtain medical attention as quickly as possible.

### How to Prevent It

Never allow children to play with matches. Don't smoke, and don't let anyone in your household smoke in bed. Be prepared—install home fire detectors. Store flammable materials in a safe place. People whose skin is sensitive to the sun (particularly blue-eyed blonds) should wear hats, long sleeves, and apply a sunscreen with a rating of 15 or above whenever exposed to sunlight.

# Bites and Stings

It's nearly impossible to spend time in the out-of-doors without suffering a few bites and stings. Most are not dangerous, but some venomous creatures are a real threat to comfort and safety.

## Snakes

The poisonous snakes of North America are pit vipers and coral snakes. Pit vipers, including rattlesnakes, copperheads, and cottonmouths, have triangular-shaped heads with pits on each side in front of their eyes. Coral snakes have black noses and are marked with red and yellow bands side by side, separated by bands of black. Coral snakes inject a powerful venom that works on the nervous system of the victim, while pit viper venom affects the circulatory system.

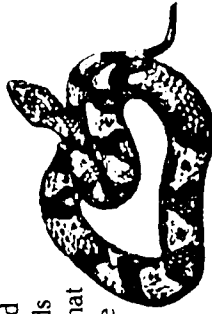
### How to Spot It

Signs of a pit viper bite include:

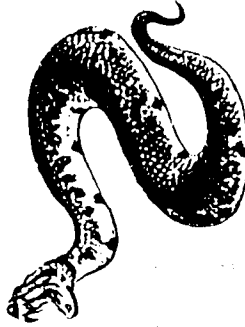
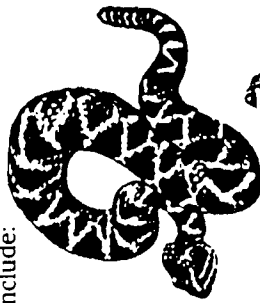
- Puncture marks
- Pain (perhaps extreme)
- Swelling (possibly severe)
- Skin discoloration
- Nausea and vomiting
- Shallow breathing
- Blurred vision
- Shock

The symptoms of a coral snake bite include:

- Slowed physical and mental reactions
- Sleepiness
- Nausea
- Shortness of breath
- Convulsions
- Shock
- Coma



Copperhead



Cottonmouth  
moccasin



Coral snake

### How to Treat It

First aid for the bite of a nonpoisonous snake is the same as for a puncture wound. First aid for a venomous snakebite, however, requires special care. You must calm the victim, slow the spread of the venom, treat for shock, maintain respiration, and quickly obtain the care of a physician who can give snakebite antivenin. Follow these steps:

1. Make the victim lie down and be still. Movement spreads the poison through the body faster. Keep the part that was bitten lower than the rest of the body.
2. Remove any rings, watches, and bracelets that the victim may be wearing—a precaution in case of swelling.
3. Put a broad, constricting band (a 1-inch-wide or more strip of cloth, belt, or neckerchief) around the arm or leg, 2 to 4 inches above the bite (between the heart and the bite), to slow the spread of venom. This is a constriction band, *not* a tourniquet; though snug, it should be loose enough for a finger to be slipped under it with little difficulty. Do not use a constriction band around fingers, toes, the head, neck, or trunk.
4. Treat for shock.
5. Do not give alcohol, sedatives, or aspirin. Do not apply ice or cold packs.
6. Obtain medical help as soon as possible. Get the victim to a hospital, avoiding unnecessary physical activity en route. Tell the doctor the kind of snake, if known.

### How to Prevent It

Almost all snakebites occur on the limbs. Gloves and boots or high leather shoes will protect the most vulnerable areas from bites. The best rule is to never put your feet or hands where you cannot see. Don't reach over blind hedges or poke around in crevices, hollow logs, or woodpiles.

## Insects

The bites of mosquitoes, chiggers, and no-see-ums are irritating but not usually dangerous. More troublesome are ticks, which bury their heads



Tick

beneath the skin. Particularly painful and sometimes dangerous are the stings of bees, wasps, hornets, and some ants.

### How to Treat It

If a tick gets a good hold on you, coat its body with petroleum jelly, grease, or oil to block its breathing pores. In half an hour you should be able to ease it loose with tweezers. Wash the area well. Do not touch or pull off with unprotected fingers.

If stung by a bee, wasp, or hornet, remove the stinger by scraping it out with a knife blade. Avoid squeezing it with tweezers or fingernails; this forces more poison into the skin. Use a paste of baking soda and water or household meat tenderizer and water to ease the pain.

Some people have severe allergic reactions to insect stings. They should carry a special treatment kit prescribed by a physician. Before hikes and other outdoor activities, they should explain to their companions the nature of the allergy, how it is to be treated, and where to find the treatment kit in an emergency.

To give first aid to someone suffering a severe allergic reaction:

1. If the bite or sting is on an arm or leg, tie a constricting band above the wound. It should be just tight enough to stop the blood in the skin. You should be able to put a finger under it.
2. Put ice water or ice in a cloth on the wound.
3. Keep the arm or leg lower than the body.
4. Make sure the victim continues to breathe. Give rescue breathing if needed.
5. Get the person medical care quickly.



Honeybee



Mud dauber wasp

Paper wasp

## Blisters

Blisters occur when skin is irritated, usually by friction or heat. A "hot spot" on your foot signals the beginning of a friction blister. Stop whatever you are doing, cut a doughnut-shaped piece of moleskin or mole foam with a hole large enough to encircle the tender skin, and apply it to your foot. The bandage will remove the pressure of your boots from the injury, but it won't adhere to inflamed skin. Several layers of "doughnuts" may be necessary to adequately protect the irritated area.

If a blister does form and it impedes your walking, you may need to drain it. Clean your foot with soap and water, then prick the edge of the blister with a sterilized needle. Bandage the wound with cushioning "doughnuts" and pull on clean socks.



Treating a blister

## HYPERVENTILATION

Hyperventilation occurs when someone breathes faster than normal. This rapid breathing upsets the body's balance of oxygen and carbon dioxide. Hyperventilation is often the result of fear or anxiety and is more likely to occur in people who are tense and nervous. But it is also caused by injuries such as head injuries, by severe bleeding, or by conditions such as high fever, heart failure, lung disease, or diabetic emergencies. It can be triggered by asthma or exercise.

A characteristic sign of hyperventilation is shallow, rapid breathing. Despite their breathing efforts, victims say that they cannot get enough air or that they are suffocating. Therefore, they are often fearful and apprehensive or may appear confused. They may say they feel dizzy or that their fingers and toes feel numb or tinglingly.

If the victim's breathing is rapid and you suspect that it is caused by emotion, such as excitement or nervousness, try to calm the victim to slow his or her breathing. Reassurance is often enough to correct hyperventilation. But you can also ask the victim to try to breathe with you. Breathe at a normal rate, emphasizing inhaling and exhaling.