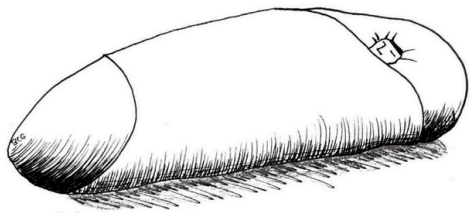
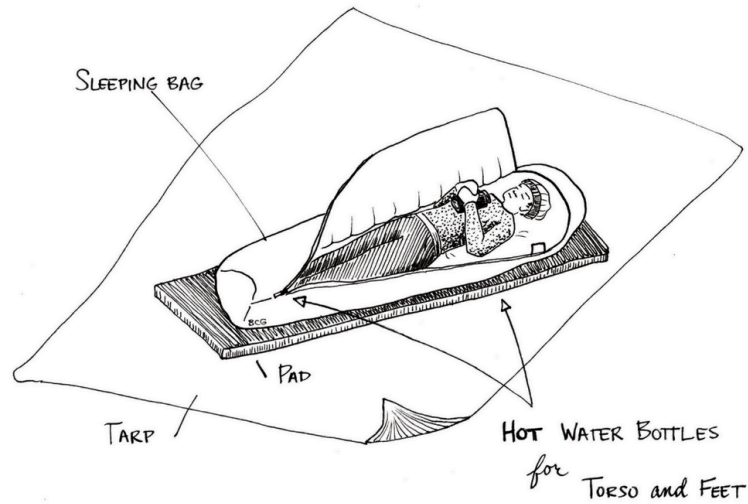


Hypothermia Wrap



Recognizing and Treating Hypothermia while Unhoused



SAFE
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BOULDER, COLORADO

Note: This author is not a doctor, nurse, or EMT. I am trained as a wilderness first responder. Guidelines laid out here were developed for wilderness situations, which share many characteristics with street medicine (e.g. limited resources, environmental exposures, delayed access of definitive care), but not all of this advice may apply in your situation.

What is hypothermia?

Our bodies must maintain a constant balance of heat gain and loss to maintain a stable temperature. Hypothermia is a condition that develops when our core body temperature drops below normal. It is dangerous and becomes a life-threatening emergency if allowed to progress. The most effective prevention is to seek shelter in a heated building, but when that's not an option, there are still steps we can take to prevent hypothermia. Early recognition is critical to avoid a permanent negative outcome.

Making a hypothermia wrap

A hypothermia wrap is a method to help someone retain as much of their body heat as possible. Ideally, it is constructed with a tarp, a sleeping bag, a sleeping pad, and heat packs. If these are not available, we can often improvise with other materials.

On the outside, we want a windproof and waterproof layer. A tarp is best. In the absence of a tarp, try a mylar emergency blanket. If you do not have one, use rain jackets and rain pants or ponchos. If none of these are available, trash bags may be better than nothing (note: never put your patient's head inside a trash bag). Be careful not to get any water or dampness on the inside.

Next, we want something to insulate the patient from the ground. If you have a sleeping pad available, use it. If not, consider cardboard, backpacks, or extra clothing.

On the inside, we want insulation. Sleeping bags and blankets are best. Consider using multiple, if you can do so without putting yourself or other people in your group at risk of hypothermia. If you do not have sleeping bags and blankets, use dry clothing layers (especially puffy jackets!). Bundle your patient up as closely as you can, taking full advantage of hoods. Everything that goes inside your hypothermia wrap should be dry – if the patient is wearing wet clothes, take them off. Check carefully; dampness can be subtle.

If possible, add heat in the form of heat packs or hot water bottles. Be careful not to burn the patient, remembering that they may have diminished sensation. Heat on the chest and in the armpits is most effective for rewarming. Heat by the feet can make your patient more comfortable and help prevent frostbite.

Once you have all your layers, wrap everything up burrito-style, being careful not to get any dampness on the inside.

Treatment of severe hypothermia

- As always, be aware of your own safety before attempting to help someone else. You cannot help a hypothermic patient by becoming hypothermic yourself.
- Handle the patient gently and keep them as horizontal as possible. Avoid walking or standing, and do not use exercise to generate heat. Jarring or bouncing can trigger heart arrhythmias in severely hypothermic patients. Additionally, a sudden change in posture or activity level can cause cold blood from the extremities to suddenly enter the body core, causing a greater core temperature drop.
- This is a life-threatening emergency. Warming this person yourself is unrealistic. If at all possible, access emergency medical care ASAP. While waiting for help, focus on preventing further heat loss – place the patient in a hypothermia wrap (see below). If you can, get inside a building.
- Severe hypothermia can trigger cardiac arrest. Call for emergency medical care for any unresponsive person with suspected hypothermia. You can attempt CPR if you have the proper training, *however*, be aware that signs of life are quite subtle in cases of severe hypothermia. Check for a pulse for a full minute before beginning compressions. Also be aware that CPR may be extended past the 30-minute guideline for hypothermic patients – nobody's dead until they're warm and dead.

Mechanisms of heat loss

Hypothermia can develop in any environment where heat loss exceeds heat gain. We lose heat to the environment in four ways:

- **Conduction:** heat transfer through direct contact between a hot object and a cold object. For example, we lose heat through our butts when we sit on snow or cold ground. We can reduce heat loss through conduction by using insulating layers. Warm air trapped in dry clothing is a good insulator. Wet clothing, metal, and snow are good conductors.
- **Convection:** transfer of heat to moving liquids or gases. This is why we get so cold in wind and moving water. We can minimize convective heat loss by seeking shelter from wind and wearing wind-proof layers
- **Radiation:** Transfer of heat without direct contact. Humans emit infrared radiation, losing heat in the process. We radiate heat from uncovered skin, often on the hands, face, and head, and can minimize this heat loss by wearing clothing.
- **Evaporation:** when water evaporates from our skin, the change in state from liquid to gas transfers heat away from our bodies. We lose a lot of heat this way when we sweat, or when we get wet. We also lose some heat to evaporation when we breathe out moist air. Minimize this heat loss by exchanging wet clothing for dry, and by avoiding intense exercise in order to minimize sweating and heavy breathing

Signs and symptoms of hypothermia

- **Cold stress:** cold feeling and shivering with normal mental status. The patient may feel tired, unwell, and unhappy. Although this person is not hypothermic yet, this is a warning that it's time to act
- **Mild hypothermia:** shivering, impaired fine motor skills, slurred speech, “the umbles” (stumbling, fumbling, bumbling), mental deterioration begins (sluggishness, confusion, poor decisions)
- **Moderate hypothermia:** uncontrollable violent shivering, worsening of “the umbles”, obvious muscular incoordination, obvious changes to mental status (irritability, apathy, forgetfulness)
- **Severe hypothermia:** shivering stops as energy reserves are depleted, obvious mental deterioration (incoherence, disorientation, irrational behavior) progressing to a loss of responsiveness, muscular rigidity, and decreasing heart and respiratory rates and blood pressure. Eventually the pulse may become undetectable, and the patient may appear to have stopped breathing (this patient may still be revived)

Hypothermia is often overlooked, especially in the early stages, and is easily mistaken for intoxication, overdose, or stroke. If you suspect hypothermia, treat it immediately and aggressively. Anyone in a cold environment is at risk for hypothermia.

Treatment of cold stress and mild to moderate hypothermia

People experiencing cold stress and mild hypothermia are still capable of warming themselves if placed in an environment that will help them retain heat.

1. **Find shelter.** Get out of the wind.
2. **Insulate the patient.** Replace damp/wet clothing with dry, add wind and waterproof layers, and insulate the head, neck, and feet. Check carefully; dampness can be subtle. Consider a hypothermia wrap (see last page).
3. **Add heat.** For example, you may use handwarmers, heat packs, or bottles of hot water. Focus on the chest and armpits. (Insulate these to prevent burns and be very careful if you chose to use open flames. Be aware that a hypothermic patient has diminished sensation and diminished motor control, so they may not be able to protect themselves from burns.)
4. **Add calories.** Encourage the patient to eat and drink, *only if* they are alert and able to eat and drink under their own power (a patient who cannot hold their own beverage cannot protect their airway). Avoid caffeinated and alcoholic beverages, as these increase blood flow to the skin and may result in increased heat loss.
5. **Exercise** to generate heat, *only if* the patient is alert and can stand on their own.
6. **Be aware** that hypothermia can aggravate injuries and chronic health conditions.
7. **Seek help** if you are not able to rewarm the patient. Hypothermia becomes life-threatening when it progresses to the severe stage. Be aware that it may take up to a day to rewarm someone with mild or moderate hypothermia.