

# The Ultimate Hiker First-Aid Manual

Treating injuries miles from the ER is an essential skill. But don't pack a medical text: Instead, learn what really matters. Wilderness Medicine Institute cofounder Buck Tilton boils down a lifetime's worth of experience into 62 tips every hiker should know. Read it, save it—and go forth to save lives.

## Minor Wounds

No wound, no matter how minor, should go ignored in the backcountry. Check out these quick tips to clean it up and keep trekking.

### Blisters

Clean well with an antiseptic wipe. Sterilize the point of a pin or knife with flame or an alcohol swab and gently pierce the blister. Massage the fluid out, leaving the roof of the blister intact.

Cover with a friction-reducing dressing by cutting a donut-shaped piece of moleskin and place it over the blister. Fill the hole with antibiotic ointment and cover the moleskin with athletic or duct tape.



### Abrasions

Scrub the wound with soap and a gauze pad or bandanna, making sure to remove all debris (warning: It'll hurt). Rinse off all of the soap, then apply a layer of antibiotic ointment to a gauze pad and tape it in place. (You can also use a commercial pad with adhesive edges.) The pad should completely cover the wound.

### Burns

Immediately plunge the burn site into cold water. Second best: Apply a water-soaked bandanna, a burn gel, or aloe vera. Continue cooling until pain has substantially subsided, then cover the burn with ointment and a gauze pad. If blisters form, prevent the blisters from popping as long as possible.

## Heavy Bleeding

Check out what to do when it's much more than a simple scrape or puncture wound.

Apply direct pressure until bleeding stops. Pack the wound with absorbent gauze, apply direct pressure on top, and elevate it above the heart. If it soaks through, add more gauze on top and keep applying pressure. When bleeding stops, clean the wound thoroughly with a high-pressure stream of water. Apply antibiotic ointment to a sterile dressing and completely cover the wound, securing it with tape or roll gauze. Gaping wound? Press the edges together gently and hold them there with wound closure strips. Then apply the ointment and sterile dressing.



Check all wounds (including burns and abrasions) regularly for signs of infection:

1) increasing pain, heat, redness, and swelling; 2) more than a little white pus; 3) appearance of red streaks just under the skin near the wound; and 4) fever. If these signs appear and grow steadily worse, find a doctor.

**NOTE:** Do not close wounds caused by animal bites or crushing injuries; anything involving damaged tendons, ligaments, or bones; or those too heavily contaminated to clean thoroughly. All have a high risk of infection. Instead, pack the wound with moist gauze, cover with dry gauze, and evacuate the patient.

## Muscles & Bones

Sprains, strains, and fractured bones. Here's what to do in the case of a distressed limb.

**Sprains and strains** Remember RICE: First, rest. Ice the site to reduce swelling (use snow or cold water). After 20 to 30 minutes, remove the cold and let the injured area warm naturally for 10 to 15 minutes before use. Compress the injury with elastic wrap or athletic tape (the basket-weave pattern, right, works well for ankle sprains).

Apply it snugly, but not tight enough to cut off circulation, and wrap it toward the heart (for example, up the leg, not down). Elevate the injury by keeping it higher than the heart. Repeat three to four times a day until pain and swelling subside.



## Animal & Insect Bites

Though we love backcountry wildlife (well, mostly), sometimes we get no love back. Read up on what to do when Mother Nature bites.

### Bees and Wasps

If the stinger remains in the skin, remove it immediately. Apply a cold pack for pain and swelling, and give an oral antihistamine. If the patient has an allergic reaction—difficulty breathing, tightness of the chest, swelling of the throat, dizziness—give a dose of injectable epinephrine (prescription required) and the antihistamine. Evacuate to medical attention ASAP, keeping a second dose of epi on hand and giving more antihistamine every four to six hours.

### Ticks

These bloodsuckers can transmit disease if allowed to embed in the skin (sometimes a few hours is all it takes), so check yourself twice a day. Found one? Remove it immediately with tweezers. Grasp the tick at skin level, perpendicular to the long axis of the tick, and pull it gently straight out. Wash the site. If illness and/or an unusual rash develop, consult a doctor.

### Venomous Spiders

Black widow bites can be tough to diagnose (many victims don't feel the bite when it occurs). Look for vomiting, weakness, headache, fever, and intense abdominal and/or back pain. Brown recluse bites might sting or itch. For both, clean the wound, apply cold to the site, and give the patient an antihistamine (for itching) and ibuprofen for pain. Hike out to a doctor (don't worry: death is rare).

### Venomous Snakes

First, keep the victim calm (a low heart rate minimizes venom circulation, and death from snakebite is unlikely). Remove jewelry, watches, and any snug clothing that could cut off circulation when the bite site swells. Splint the bitten arm or leg, but do not elevate it. Carry the victim out if you can; otherwise, have him slowly walk out for a dose of antivenin.

### Mammals

Stop the bleeding. Immediately wash the wound thoroughly with soap and water. Rinse clean, cover with a sterile dressing smeared with antibacterial ointment, and find a doctor ASAP. These bites have a high risk of infection, including rabies—and in that case, the victim needs a vaccination within 72 hours for the best chance of survival.

## Gastrointestinal Illness

Ugh. It's happened to us all. Here's how to handle a bad belly when you're away from far from home.

### Diarrhea

In all cases, give lots of fluids to prevent dehydration and pop an Imodium AD tablet. For more severe diarrhea, add electrolyte tablets, such as NUUN, to the water. Give him easily digested foods (such as rice or oatmeal); avoid fats, dairy products, and caffeine. If it's not under control within 24 hours, find a doctor—sooner if bloody bowel movements, fever, and pain exist.

### Vomiting

Give as much fluid as the patient can tolerate and have him rest—but evacuate if the problem persists for more than 24 hours.

### Wash Your Hands

A 2004 *Journal of Travel Medicine* report found that 61 percent of Appalachian Trail hikers who "rarely or never" washed their hands after a bathroom break got diarrhea, compared to just seven percent of those who did scrub. Here's how to wash up right:

- Wet hands (hot water is best) and add a drop of biodegradable soap.
- Work up a lather and scrub for 30 seconds—especially fingertips and under nails.
- Rinse, repeat, then dry hands with a bandanna reserved for this purpose.

## Dental Emergencies

Soothe tooth pain with these helpful remedies.

**Toothache** Rinse your mouth with a solution of half a teaspoon of salt and eight ounces of water several times a day. If pain, sensitivity to hot and cold, and swelling exist, get to a doctor—it could be an abscess.

**Broken tooth** Rinse the tooth thoroughly with drinking water, then protect the sensitive nerve by placing a chewed piece of gum over the break. Apply a cold-water bladder to the patient's cheek to reduce swelling, and take ibuprofen for the pain. Hike out to your dentist.

## Environmental Threats

As much as we try to protect ourselves from extreme elements, sometimes the elements hedge even our greatest efforts. Here's what to do when Mother Nature wins.

### Snowblindness

**Recognize:** Redness, tearing, and a sandpapery pain when opening or moving the eye are signs of sunburned corneas.

**Treat:** First, don't let the patient rub his eyes; it could further damage the corneas. Give ibuprofen for the pain, apply a cold compress, and cover eyes with gauze. Wear sunglasses and stay in a dark environment until vision returns to normal (usually in about 18 hours).

### Hypothermia

**Recognize:** The person complains of feeling cold and shivers. More advanced hypothermia patients exhibit "the umbles:" stumbling, fumbling, mumbling, and grumbling.

**Treat:** Get the patient into warm, dry clothes and place him in a sheltered area—such as in a sleeping bag, inside of a tent. (Don't have a tent? Protect him from the elements by wrapping the sleeping bag in a tarp, plastic sheet, or garbage bags.) Give water and simple sugars, such as hot chocolate or candy, to generate quick body heat. For more advanced cases, build a fire nearby and put the patient in a "hypothermia wrap:" Start with a sleeping pad, put a zipped sleeping bag on top, then lay the patient (in a second sleeping bag) on that. Give him a hot-water bottle wrapped in clothing to hold in his hands. Put another sleeping bag on top, then wrap it all, burrito-style, in a tarp or plastic sheet.

## Stay or Go?

Use this chart to determine if you can finish your trip—or should hightail it to the ER.

Problem	Stick it out if . . .	Head for help if . . .
Hypothermia	Person warms up and feels fine	Pulse slows; shivering stops; person becomes incoherent or unconscious
Frostbite	Tissue warms and looks normal	Blisters or black tissue form
Heat illness	Person cools off and feels fine	Person has altered mental status and red, hot skin
Muscle/bone injury	Person can use the injured part	Person cannot use the injured part
Diarrhea	Problem resolves within 24 hours	Problem persists for more than 24 hours
Wounds	They are cleaned, properly dressed, and don't require closure	They are large enough to require closure; they're deep wounds on the face or neck
Burns	Pain is manageable and no large blisters form	Pain is intense; blisters are large; face is burned

## Extreme First Aid

When you're miles away from medical help and it's serious: Here's how to handle extreme injuries in the backcountry.

### Heart Attack

Look for chest pain that radiates to the shoulder, arm, or jaw (especially on the left side), nausea, lightheadedness, and pale, cool, sweaty skin. Keep the person comfortably at rest, cover him with clothing or a sleeping bag to prevent heat loss, and keep him as calm as possible. Give an aspirin tablet (to inhibit artery-clogging blood clots). Don't let the person walk. Get help.

### Shock

Look for rapid, weak pulse; shallow breathing; clammy skin; and nausea. Caused by an inadequate flow of oxygenated blood, shock can result from any major injury, including blood loss, severe dehydration, and spinal cord damage. If the cause can be treated—such as rehydrating the dehydrated—do it. Put him in a sleeping bag or cover him with extra clothing. Keep the person calm and lying down on a sleeping pad with his legs comfortably elevated about 10 inches. If vital signs don't improve with treatment or the patient becomes less responsive, go for help. Left untreated, shock can be fatal.

### **Broken Back**

Move the person as little as possible (if movement is necessary, don't bend or twist the spine). Place a SAM splint around the neck to restrict the head. Do not leave the patient alone. Have someone keep a hand on the person's head to discourage movement. Go for help.

### **Mushroom Poisoning**

Treat all unknown mushrooms as deadly—the bad ones are that bad. Induce vomiting as soon as possible after ingestion by having him stick a finger down his throat to stimulate the gag reflex. Give plenty of fluids to dilute the poison, keep a sample of the mushroom, and get to a doctor. Poisoning symptoms take six to 24 hours to appear—and by then, it's often too late.

### **Brain Injury**

A blow to the head that results in unconsciousness often causes the brain to swell. Early signs include progressive disorientation, irritability, and combativeness (after consciousness returns). Evacuate the patient immediately. If he's unconscious, carefully roll him onto his side and go for help.

## **First Aid Improvisation**

"Be prepared" is a great maxim, but be honest: Who among you packs a SAM splint and an irrigation syringe on every backpacking trip? Fear not—everyday items can serve as medical equipment in a pinch.

### **Antacid**

Eat two teaspoons of menthol toothpaste mixed with cold water.

### **Antibacterial Ointment**

Use honey to discourage infection and promote healing. (it's a natural antibacterial agent). Spread it over the surface of minor cuts, burns, abrasions, and frostbite (but not directly in a wound) and cover with gauze.

### **Bandage**

Cut a thin strip of fabric out of a T-shirt (snip in a circular pattern around the shirt to get the longest dressing possible).



### **Cervical Collar**

No SAM splint? Roll a bulky jacket or fleece, leaving the sleeves out, and wrap it around the patient's neck (see left). Tie it in place with the sleeves. Or cut a foam pad into a collar and tape it in place.

**Cold Pack** Soak the injury in cold water, or wrap soaked bandannas or cotton T-shirts around the site.

**Irrigation Syringe** Force water out of a hydration tube or squeeze a zip-top bag with a pinhole poked in it.

**Medical Gloves** Put your hands inside clean zip-top bags.

**Sling** Pull the bottom of the patient's short-sleeve shirt up and over the injured arm and pin it to the front with two safety pins. Long-sleeve shirt? Pin the sleeve of the injured arm (with the arm in it) to the shirt.

**Wound closure strips** Cut 1/4-inch-long strips of duct tape; punch pinholes to let fluid drain.

## What to Pack

Construct a solid emergency kit with these medical must-haves.



Basic Kit



Group Kit

### Basic Kit

Suitable for two people on a weekend trip

- 4 sterile, 3x3-inch or 2x2-inch gauze pads to clean and cover wounds
- 5 1x3-inch adhesive strips to cover cleaned wounds
- 2 blister dressings or moleskin
- 1 roll tape (1/2 inch x 5 yards) to hold dressings on wounds
- 6 200mg tablets ibuprofen for pain, inflammation, and fever
- 2 packets antibiotic ointment to cover wounds before dressings
- 1 swab tincture of benzoin to make adhesive bandages stickier or hold wound closure strips in place
- 3 antimicrobial hand wipes to clean hands and around wounds
- 2 safety pins

### Group Kit

Suitable for four people on a weeklong hike

- 4 sterile, 3x3-inch or 2x2-inch gauze pads
- 1 sterile, 3-inch roll of gauze to cover cleaned wounds or hold larger dressings or splints in place
- 1 3-inch roll of elastic wrap (such as an ACE bandage) to compress sprains or hold splints in place
- 8 1x3-inch adhesive strips
- 2 blister dressings or moleskin
- 1 roll of tape (1/2 inch x 10 yards)
- 8 200mg tablets ibuprofen
- 4 tablets aspirin
- 2 antihistamines for allergies, swelling, or stuffiness of a minor cold
- 4 tablets antidiarrheal medication (such as Imodium AD)
- 1 irrigation syringe to clean wounds
- 3 packets antibiotic ointment
- 3 swabs tincture of benzoin
- 1 pair tweezers for removing splinters and ticks
- 1 pair medical gloves to protect you and the patient from contamination
- 6 antimicrobial hand wipes
- 2 safety pins

## Evacuate or Wait for Rescue?

Your buddy just slid down a steep scree and broke his leg. Should you go for help—or haul him out? It's a tough call. The answer depends on several factors. Here's how to decide.

Your buddy just slid down a steep scree slope and broke his leg. Should you go for help—or haul him out? It's a tough call. The answer depends on several factors. Here's how to decide.

**How bad is it?** Patients with life-threatening injuries should usually stay put and wait for trained medical professionals; those with less serious injuries can walk or be carried out. If the patient can handle it, walking out is the best option.

**How far is the trailhead?** One fit hiker can move a lot faster than a group carrying a litter. If you're deep in the wilderness, a messenger might bring back help before you could carry the patient out.

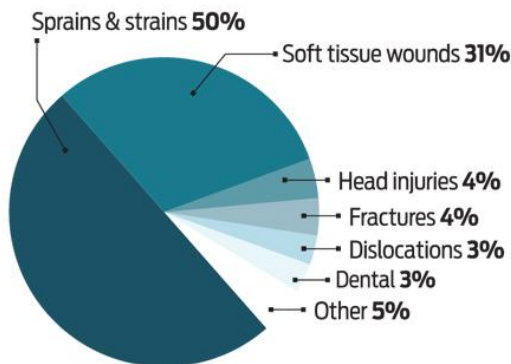
**Can the rescuer(s) handle it?** You'll need strength, stamina, and skill to navigate the terrain with an injured person in tow.

**What's the weather like?** Stay put if severe weather puts the rescuers in danger of getting lost or injuring themselves.

**Is there imminent danger?** Even severely injured patients might need to be moved if the current location is unsafe—e.g., lightning is striking or you're on an unstable slope.

## Risk Factors

Most common backcountry injuries.



### CONTRIBUTING FACTORS

