

Survival Skills 101

Everything you need to know to get out of trouble fast

>> **You won't find the key** to outdoor survival in a fancy first-aid kit. Or on page 236 of a dusty manual. Nope, your ability to adapt and endure is dependent on what's stored inside your head. In the following pages, we'll help you upgrade your survival smarts with inventive advice on staying warm, dry, hydrated, and focused as you negotiate any do-or-die situation.

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Before You Go:

- >> Leave your itinerary with a trusted friend or family member, along with a designated call-in time for your return.
- >> Describe your car and where you'll park.
- >> Register at the appropriate park office or trailhead kiosk.
- >> Put a note on your dashboard, detailing your route and estimated return time.
- >> Bring all necessary maps or photocopy the essential map pages from a book.
- >> Pack a signaling device, such as a whistle or mirror.
- >> Carry a reliable fire starter, such as a butane lighter or flint striker.
- >> Determine an emergency bearing to hike to a road or a town.
- >> Do a gear shakedown at the trailhead, if you're in a group.

Thou Shalt Not Panic

How to avoid a potentially crippling response to emergencies

You hear the crunch of snapping bones a second before pain flares up your leg. You look down; a gopher hole has wrecked your ankle, turning a pleasant solo hike into a survival epic. Fear surges through your brain, and your body begins to shake. What's going on?

Know the symptoms

Panic is both a physical and a mental reaction, and it can occur independent of shock. You're likely to experience an adrenaline spike, muscle trembling, throat constriction, hyperventilation, loss of fine motor skills, nausea, and/or dizziness. Your mind may react with hallucinations, irritability, and a movie reel of worst-case scenarios culminating in your death. These responses can spiral out of control and cloud your judgment.

Tame your emotions

"Anxiety is fueled by catastrophic thoughts," says Jonathan Abramowitz, a professor of psychology at the University of North Carolina at Chapel Hill. To check the spiral, sit down and breathe deeply. Tackle a right-brain task, like taping your ankle.

Apply logic

Once you've calmed down, "you need to analyze your situation and think rationally," says Abramowitz. Instead of trying to solve the emergency all at once, focus on one small task at a time. Eat. Drink. Look for shelter. Study your map for escape routes and water sources. Test your ankle. If it doesn't work, pitch your tent. Collect wood. Build a signal fire. And so on.

Promote the positive

Don't worry about the distance to your car, recommends Gino Ferri, author of *The Psychology of Wilderness Survival*. Remind yourself of your training, and repeat a helpful phrase such as, "I can do this." Think about family and friends, and the story you'll tell about this experience.



Lead Us into Salvation

Taking charge in a crisis is more art than science

Speak up “It takes a lot of courage not to get swept along by a group,” says John Graham, mountaineer and author of *Outdoor Leadership*. Graham almost died when rough water knocked him off his feet during a river crossing in Denali National Park in Alaska. He now realizes the incident could have been averted if someone had said, “Hey, this risk isn’t worth it.”

Express empathy When bad things happen, there’s a clear correlation between staying calm and surviving, Graham says. If someone in your group freezes on narrow ledge, show concern for your panicked comrade. “Speak softly, make eye contact, explain the situation honestly, and describe the options,” he advises. Your friend may be embarrassed as well as scared, so discourage others from gawking or offering conflicting advice.

Take command “If your group is falling apart, there’s no time to take a poll on what to do,” Graham says. The more immediate the danger—a lightning storm on a high ridge, for example—the less group harmony matters. “Sometimes top-down leadership is needed, but that doesn’t mean barking orders.” Instead, lead with quiet but firm instructions and ask for group input only when time allows, or after the crisis passes.



Edible Plants

Pine tree

Cut and boil needles for tea rich in vitamin C; eat the protein-rich brown-and-yellow pollen cones in spring.



Acorn

Boil to remove bitter tannins. Those from white oaks (rounded leaves) and pin oaks (pointy leaves) are less tannic.

Cattail

Eat the cucumber-like cores of young shoots, or mash the starch-filled rhizomes (horizontal rootstalks).



Clover

These sweet-tasting leaves and roots can be eaten raw or steamed like spinach.

Daisy

Pick and eat the young green leaves, or boil the dried white flowers for a bitter tea.



Yucca

Slice, peel, and boil the stems; the white petals and thumb-sized fruits can be eaten raw during the summer.

How to ...

Thaw cold feet

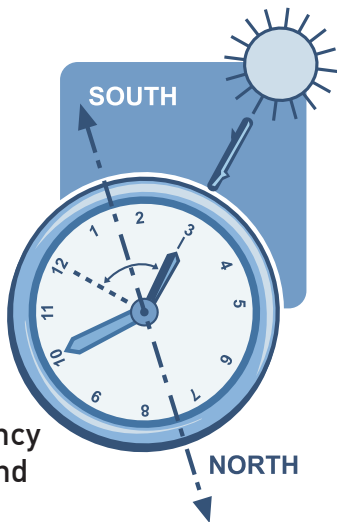
Swing your leg forcefully back and forth, like a pendulum. Inertia will force the blood to the tips of your toes.

Estimate your distance traveled

The average footstep is 30 inches, and a fit person can walk 3 mph over flat ground. Determining how far you've walked is critical for navigating through a whiteout or dense forest—or if you're trying to pinpoint the exact location of a trail junction or landmark.

Find north using a clock face

Hold an analog watch flat, with the hour hand aimed at the sun. South will be halfway between the hour hand and 12. North is 180 degrees in the opposite direction. Adjust for daylight saving time by using 1:00 instead of noon. If you wear a digital watch, draw a clock face on the ground. This technique works for North America below Alaska, but it should only be used for emergency navigation. Always bring a compass and a map of your route.



Orient yourself using the moon

If the crescent moon rises before the sun goes down (a first-quarter moon), its illuminated side will face west. If it rises after midnight (a last-quarter moon), the bright side will face east. (Using the North Star is easier and more reliable, but try this lunar method if stars are obscured.)

Find a natural bandage

Gather dried sphagnum moss—soft, bushy, green clumps—from bogs or swamps. WWI soldiers used it to stanch their wounds because it's antibacterial and as absorbent as cotton. Press it against a bleeding wound, or bind it on top of a sterile pad after the blood clots.



Escape biting insects

Seek out windy spots, or apply mud to exposed skin. Rub flakes of birchbark on your skin and clothing—the oil repels bugs. Mosquitoes are attracted to wet and dark-colored clothing, as well as to perspiration. They are most active at dawn and dusk, when the air is calm.



Identify a coral snake

Remember: "Red on yellow, kill a fellow. Red on black, friend of Jack." Poisonous coral snakes, with adjacent red and yellow bands and a black head, live predominantly in the Southeast and Southwest. Similar-looking scarlet king snakes, with their adjacent red and black bands, are harmless constrictors that range from Florida to New Jersey.

Rewarm frostbitten skin

Place the white, waxy frozen skin in lukewarm water or apply hot, wet cloths until it becomes pink as blood flow returns. Never apply dry heat; frostbitten skin burns easily. To avoid damaging tissue, don't rub or massage skin. Taking ibuprofen manages pain and can reduce the chance of blood clots.

How to ...

Self-arrest without an ice axe

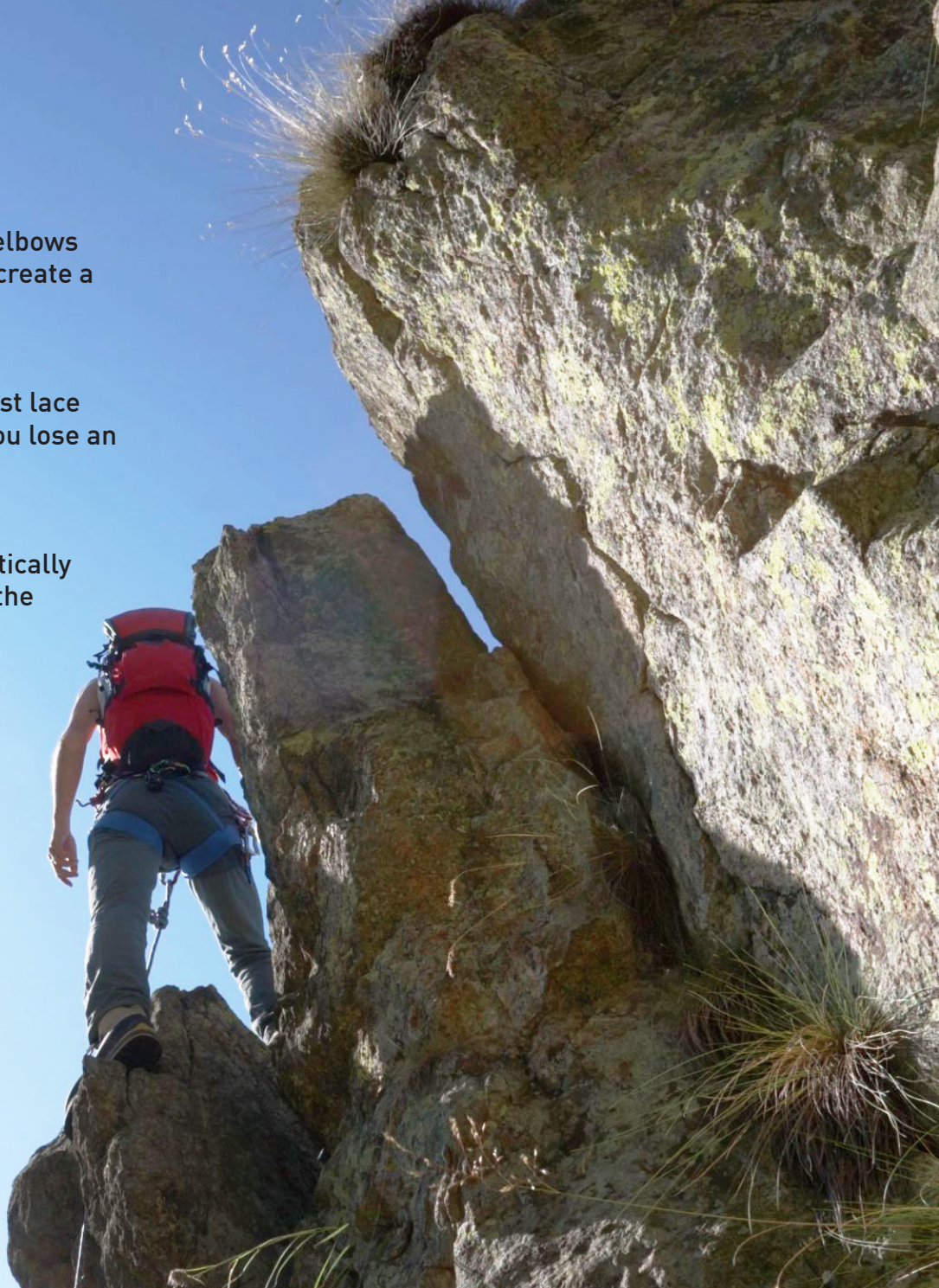
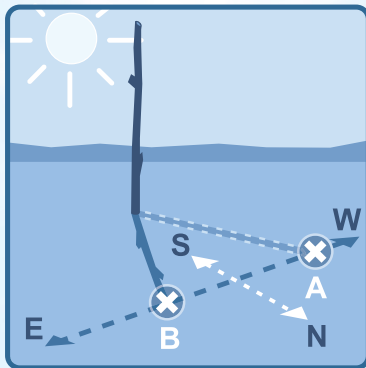
Roll onto your stomach, facing uphill. Push up with your elbows to shift more weight to your legs and feet. Your body will create a natural wedge as your boots dig into the ground.

Fix a broken shoelace

If your lace is too short, skip the eyelets near the toes. Just lace up the ankle and cuff of the boot to achieve a tight fit. If you lose an entire shoelace, cut the other one in half.

Find north using the stick-and-shadow method

When the sun is casting shadows, place a 3-foot stick vertically into flat ground. Clear the area around it of debris. Mark the tip of the stick's shadow with a stone (A). Wait at least 15 minutes and mark the end of the shadow again (B). The line connecting the marks roughly coincides with the east-west line. A line perpendicular to this line through the central stick indicates the north-south line.



How to ...

Identify and treat heat exhaustion

A victim will be sweating heavily, with cool, wet, flushed skin. Dizziness, vomiting, headache, and a rapid pulse are also possible. Have the person lie down in a cool, shaded place. Elevate the feet, fan the person, spritz with water, and provide cool drinks and salty snacks.

Ascend a scree slope

Scree slopes often provide obstruction-free access to higher elevations, but they can also be tiring to climb. Kick a step with your toe into the loose stones and shift your weight onto your forward foot. Repeat by bringing your back foot up.



Descend a scree slope

Walk using short, shuffling steps with your feet pointed downhill while digging in your heels. In open areas without hazards such as cliffs or boulders, try taking longer, plunging steps as if you were descending powder snow. An ice axe or trekking poles are helpful. Group members should move close together or side by side to avoid dislodging rocks that could injure someone moving below.

Make water from snow

Melt snow over a stove by adding a little water to the mixture. Choose the wettest snow you can find. Icicles also work. No fire? Fill a bottle one-third full with snow or ice and one-third with water. Shake it well and place it between layers of clothing. Do not put the container next to your skin; it will rob your body of heat through conduction.

+Quick Clinic

Easy treatments for 2 common trail injuries

Minor ankle sprain

Cause A bad landing or misstep that twists your foot inward, tearing the lateral ligaments.

Treatment If your foot can bear some weight, it's probably a minor sprain or fracture. Swelling can set in quickly, so sit down and begin RICE (Rest, Ice, Compress, Elevate). Bind the ankle with an Ace bandage (or sock) soaked in cool water, while keeping it elevated. After 20 minutes, wrap your ankle tightly, or apply tape in a stirrup pattern (down one side, under, up the other side) followed by figure 8's around the ankle. After resting, pop some ibuprofen and try to walk using a trekking pole. If you feel extreme pain or can't even limp, you could have a serious sprain or fracture. Stay put, continue with RICE, and initiate an assisted rescue.

Bleeding wound

Cause Slash from a branch, rock, or errant blade.

Treatment Stop the bleeding by applying direct pressure. As bandages become soaked, don't remove them; place more on top. Once the bleeding stops, irrigate the cut with high-pressure water pumped from a filter or squeezed from a plastic bag. Be sure to remove all flakes of dirt or dried blood to reduce the chance of infection. Close the wound with a butterfly bandage, or use several quarter-inch strips of duct tape, leaving space between them for fluid to escape. Secure a nonsticky dressing over the closure. Apply clean bandages each day and check periodically for signs of infection such as redness, swelling, pus, or a fever.

How to ...

Escape an avalanche

If you're caught in a snowslide, move your arms and legs in swimming motions to remain near the surface and upright. Grab any objects that you can push off against to maintain your balance. As the slide slows down, cup your palms in front of your face to create a breathing space before the snow hardens around you.



Estimate daylight

Approximately four fingers of your outstretched hand between the sun and horizon indicate 1 hour of sunlight remaining. Each additional finger represents 15 more minutes of daylight.

Know your water needs

In a temperate climate, a person loses an average of 1.5 liters of water every 24 hours through sweating, breathing, and urination. Physical exertion and high heat can increase that loss to as much as 1 liter per hour. The minimum level of necessary water replacement depends on the air temperature and your activity level. If you're resting at 80°F, you'll need to consume a minimum of 1 liter every 24 hours to stay alive. If your water supplies are limited, you need to stay in the shade and avoid exertion.



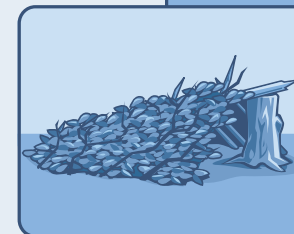
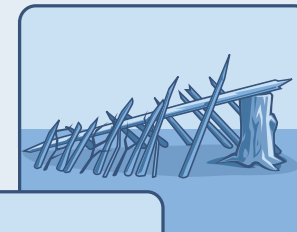
Collect dew

Wrap absorbent clothing around your lower legs and walk through tall, dew-covered grasses. Then wring the moisture from the clothing into a container or your mouth.

Backcountry Shelters

>> Debris shelter

Build this with pine boughs and forest undergrowth in a sheltered spot. Use leaf litter as insulation between you and the ground.



<< Platform shelter

If the ground is too wet for a debris shelter, build a platform. Find two large trees and lash stout branches between them, 3 to 4 feet off the ground. Overhead, hang a tarp or cloth on branches lashed between the trees.

>> Tree pit

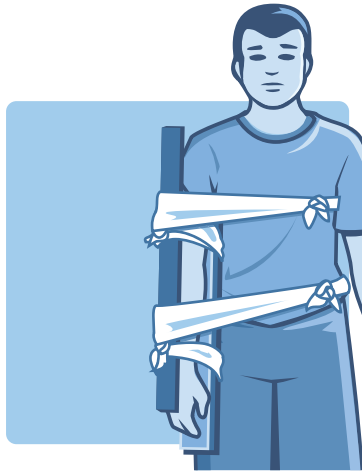
Dig a foxhole in the snow beneath a tree with thick, low branches, typically an evergreen. Line it with leaves or pine boughs; the snow will reflect your body heat.



How to ...

Splint a broken arm

Wrap a deflated sleeping pad tightly around the broken limb; secure the pad with pack straps, and then inflate it. No pad? Place straight sticks as splints on either side of the arm and secure them with straps or cloth strips. Don't tie knots directly against the skin. Immobilize the limb by securing it against the victim's body. For wrist fractures, rest the forearm on a flat piece of bark and suspend it horizontally with straps from the torso and neck.



Tie a prusik loop

Besides the bowline, the prusik loop is another knot that can save your life. Tie it to a climbing rope using smaller-diameter cord (usually 5-mm to 7-mm nylon) to use for ascents and descents along the main rope. As a friction knot, it grips the line when your weight is on the loop but slides easily when the pressure is released.

Make rope

Peel away the outer bark of dead tree trunks to get at the long strands of dried inner bark. Or strip and roll together the fibrous stalks of hemp plants such as dogbane, which has red stems and smooth leaves and grows along riverbanks and marshes.

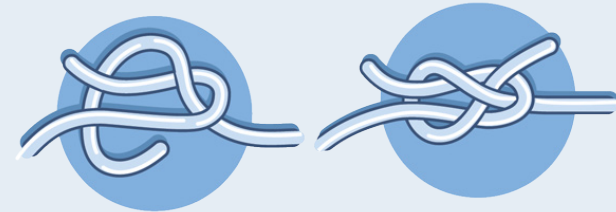
Signal distress

Build a large X (as large as you can make it) on the ground with rocks or gear; signal SOS (three dots, three dashes, three more dots) with a whistle or a mirror; or wave your arms in a circle if you are spotted. For signal fires, create black smoke by burning petroleum products.

Knots to Know

Sheet bend

Best for tying together two ropes of unequal diameter



Taut-line hitch

Sliding knot for adding tension to tent or tarp lines



Trucker's hitch

Tie-down knot used to secure heavy loads



Was Lost, Now I'm Found

A level head is your best tool when a hike goes awry.

Calm down Rash decisions will only make you more lost, so get out of the weather and assess your situation, says Brian Wheeler, founder of the Northwest School of Survival. Your top priorities are keeping warm, dry, and hydrated.

Take an inventory Check your water, food, and gear. If you're low on water, consider returning to the last known source, especially in an arid environment. If bad weather or nightfall is imminent, pitch your tent or build a shelter. Becoming chilled or dehydrated will diminish your confidence and your ability to problem-solve.

Stay put Often, hikers aren't as lost as they think they are, Wheeler says. But unless you're confident of finding the exact spot where you took a wrong turn, don't try backtracking. If nothing looks familiar, locate a water source, find shelter, and start signaling with a whistle, fire, or mirror. "The environment and physical condition of the hiker will dictate the best decision," says Wheeler.

Set priorities Lost hikers often erroneously focus on getting "unlost" instead of taking care of their basic needs, according to Scott Robertson, a senior NOLS instructor. Don't compound the problem by wandering without a plan, neglecting water supplies, ignoring your core temperature, and falsely convincing yourself that you remember a terrain feature. Getting lost was your first mistake. Make sure it's not the first of many.

