



Chapter 4. Winter Safety

It was the day after Thanksgiving and snow had yet to fall on the valley floors. Checking the weather didn't make it on my list of things to do because, though I'd been hoping for snow, day after day, it had not come. I had given up on it. With a sense of fun and adventure, my husband and I headed toward a backcountry yurt with five young boys clad in hiking boots and backpacks. Two boys brought snow pants (I had insisted they pack them in case the hoar frost at the higher elevation was enough to slide on), but for all intents and purposes, we were ill-prepared for the weather to come.

As we snuggled into the yurt, snow began to fall. By morning, 12 inches of fresh powder hugged the forest floor. My husband and I surveyed the sleeping kids, ranging in age from 4 to 12, then noted the sky still heavy with quarter-size flakes. The hike back to the car stretched 4.5 miles before us. All I could think was that we need to appear calm. We need to get started. And *why* hadn't I checked the weather?

To put a long, hard 4.5 miles into one paragraph, my husband and I each carried a very cold and whimpering 4- and 5-year-old child, in addition to our full packs, out of the wilderness that day. The foot-deep snow meant slow, cold progress, as our hiking boots filled with snow and our socks became sponges. What might reasonably be handled by adults, can quickly turn dangerous with children. Their extreme discomfort filled me with reproach as we struggled through the wind and falling snow toward the buried trailhead.

Though we made it, frozen but alive, back to the Suburban, it was a mistake that shouldn't have been made. Had I checked the weather before leaving, we could have packed the needed snowshoes and warm clothes.

Fortunately, the experience was merely uncomfortable. The weather in the Wasatch changes quickly, and it could have been much worse. If winter catches you unprepared, it can be brutal or even fatal. Many fatalities result from hypothermia, frostbite, getting lost, or getting caught in an avalanche. As you look for adventure, do your homework. You are responsible for your safety. Always check weather and avalanche reports before you go, and prepare accordingly.

Winter Weather

Though winter snow pack fluctuates year to year, the higher elevations in the Wasatch Range receive plenty of snow every winter. Ski resorts like Alta, Snowbird, Brighton, and Solitude routinely receive more than 500 inches of snow per season. Often, snow falls in extreme amounts. It's not uncommon for 2 or more feet of snow to fall in one storm. This being the case, heading into winter conditions requires some forethought. Storms come suddenly and can last for days. Your planning can keep a good time from turning tragic.

Average Temperature Chart

	December	January	February	March
Salt Lake City	33°F	28°F	34°F	41°F
Alta	21°F	21°F	21°F	24°F
Ogden	28°F	26°F	32°F	39°F
Sundance	30°F	28°F	34°F	42°F
Park City	23°F	21°F	26°F	32°F
Midway/Heber	24°F	21°F	24°F	33°F

Your Body

Covering the safety bases allows you to head into the backcountry prepared for a great time. Though the topics may seem pessimistic, the smart outdoor enthusiast will take them seriously. The body gets cold, wet, hungry, thirsty, sunburned, and disoriented. Understanding the risks will help you make the best decisions.

Remember not to head into the backcountry alone. There is safety in numbers.

Hypothermia

Hypothermia occurs when the body temperature drops below normal. The human body performs best when within a few degrees of 98.6°F. When the body is unable to maintain that temperature through its natural defense of shivering, hypothermia begins.

When the body first starts to cool, the blood in the extremities will retreat to the body core. This will leave your hands, feet, ears, and other outer extremities cold. When you feel these areas begin

to chill, exercise more vigorously and make sure you are not losing heat from an exposed head. These first symptoms are fairly normal things we run into often during winter months. They are also signs that tell you about your body's temperature.

Once the body hits about 95°F, violent shivering and slowing of brain activity occurs. At 90°F, mental capacity declines further, and muscles begin to stiffen. When the body cools to 85°F, confusion and a state of uncaring set in. Death is possible at below 80°F. Hypothermia is particularly dangerous because it begins subtly. Victims of hypothermia may not notice the symptoms in themselves. Stay aware of those in your party. As the mind slows and the body stops shivering, often a false sense of warmth settles on the victim. It is not uncommon for hypothermic victims to remove clothing believing they are too warm, and to cease caring about hunger or thirst.

Your first ticket to thwarting hypothermia: Dress right and eat right. With enough food for your body to metabolize, you can create heat. If dressed properly, you will keep warm and dry. To avoid the inevitable trouble of wet clothes that make you vulnerable, remove layers when you start to perspire. (That's why you wear the layers, after all.) If you don't, and you allow yourself to continue to sweat, it will quickly cool you and wet your clothes, making you susceptible to freezing when you stop moving. Generate heat by setting your pace at a level that allows you to keep warm, and add and remove clothes to maintain the correct body temperature.

If you notice symptoms of hypothermia in yourself or someone in your party, act quickly to halt further heat loss. Wet clothing should be replaced with dry clothing and additional layers should be added. If possible, something should be eaten to increase the body's fuel level. Exercise vigorously. If help cannot be found and the body temperature continues to drop, build a fire and find shelter. The victim may need to be bundled in parkas or slipped into a sleeping bag. If the body cools enough that it can no longer generate its own heat, advanced hypothermia has set in; evacuate immediately.

Frostbite

Frostbite is a condition where body tissue freezes due to exposure. The body parts (usually hands, feet, ears, nose, and cheeks) first feel cold. Once frozen, circulation to the tissue slows further and the area turns white. If the area continues to be deprived of blood, the frostbite will worsen and the tissue will die and turn black. Even mild cases can have a lasting effect on your nerves. I have a dear friend who, more than a decade ago, received a mild case of frostbite on her hands. Even today, her hands are sensitive to cold, and she's at much higher risk of frostbite during winter exposure.

To prevent frostbite, make sure you have sufficient layers—gloves, socks, a hat, and warm clothing. Work your fingers and toes throughout your trek to keep blood circulating, and when you

feel numb, warm the area and increase circulation. Be on the lookout for white spots (indicators of frostbite) on others in your group.

Sun

A clear blue sky means the views will be grand and the sun will take off the chill, but remember to protect your eyes with sunglasses or goggles, and your skin with sunblock. Companies like Native® and Smith® make glasses with interchangeable lenses for medium, low and very low light conditions. I primarily use my Natives, but carry a small pair of backcountry goggles in case a blizzard blows in. Polarized glasses reduce glare, and side shields, if desired, reduce side reflection.

Dehydration

Your first impression of snowshoeing may be that it's an easy sport and does not require a great deal of work. Unfortunately, more than one or two first-timers have turned back early because the exertion was more than expected. Take plenty to drink, plan on working up a sweat, and remember that you have to melt an awful lot of snow to get an adequate amount of drinking water.

Hydration systems abound on the market. You can get waist-mounted models or larger daypacks that have a built-in hydration system for longer excursions. Camelback® has a waist-mounted hydration pack, the Alterra, with a 28-ounce capacity, ideal if you're out for a trail run. Their pack, a 70-ounce women's hydration system with a thermal control kit (tube insulation,) works well for longer day hikes and provides enough room for safety items and lunch. Camelback as well as other hydration companies make the equivalent for men. Backcountry packs, like the Backcountry Access® Stash packs, have a larger carrying capacity and a built-in hydration system, nice for longer excursions where more water and space are needed for the trip. Hydration packs of all sizes and styles exist – find one that works for your snowshoe groove.

For cold weather, consider buying an insulated sleeve to slip over your hydration tube to keep it from freezing. But keep in mind that it may not work. Mine constantly freezes. If your hydration system allows for the drinking tube to be slipped into the shoulder strap, you can also insert instant hand warmers into the shoulder strap and the heat from the hand warmers will keep the tube thawed. If you prefer water bottles, and temperatures slide below freezing, store them on the inside of your pack, close to your body.

Fuel

Like any machine, your body needs fuel to run. It also burns fuel to keep you warm, like a furnace. Fuel up with a good meal before you hit the trail, and make sure to pack snacks or meals. Including extra food in a first-aid kit is a good idea in case you or one of your companions need more fuel to help the body generate heat and energy. Snack every 30 minutes or so to keep your body energized while exercising.

Altitude

The trails in this book regularly reach 9000-plus feet. If you are not accustomed to such altitude, you may suffer the effects of altitude sickness, such as headache, fatigue, shortness of breath, drowsiness, nausea, memory loss, and vomiting. Acclimate to the surroundings, stay hydrated, and eat well. If you start to feel these symptoms, descend immediately.

Avalanche Safety

On December 11, 2004, two snowshoers, Bruce Quint and Melvin Dennis, did not return from a day of training for an upcoming mountaineering expedition. Their car, sitting at Mineral Fork drainage in Big Cottonwood Canyon, was found that night. Wasatch Backcountry Rescue volunteers followed their snowshoe tracks several miles up the bottom of Mineral Fork, where they disappeared under fresh avalanche debris.

This is just one of many fatal avalanches in the Wasatch Mountains. According to the Utah Avalanche Center, Utah accounts for nearly a third of all the avalanche fatalities in the US each year, but at one point in the 2004/05 season, Utah accounted for more fatalities than all the other states combined.

The rugged Wasatch Range notoriously claims national status as an avalanche-prone location. When you consider that most avalanche accidents happen in the backcountry, and around 90% are set off by a member of the victim's party, it's worth learning about them before you venture out.

Avalanches are violent, powerful forces of nature. Victims can be strained through trees, tossed off cliffs, smashed against rocks, or suffocated in cement-like snow coffins. Ski resorts provide avalanche control within their boundaries, and when needed, the roads up Little and Big Cottonwood canyons close for avalanche control. Other areas in the canyons receive no such care. Victims caught and buried in an avalanche typically have no more than 15 minutes to live after the snow stops—if the trauma doesn't kill them first.

If you plan to be in the backcountry often, take an avalanche-awareness class. A schedule of Utah avalanche courses can be found at www.avalanche.org. Also prepare for the backcountry travel by purchasing—and learning how to use—an avalanche beacon, probe, and shovel. Locating a buried person in an avalanche, without a beacon, borders on impossible. You cannot over practice with how your beacon communicates. The shock felt in an avalanche rescue effort complicates matters even further. The use of the beacon needs to be second nature and fast. Always check the weather forecast and the avalanche report before heading out. The Utah Avalanche Center records a new report each morning: 888-999-4019. Or check out their website, www.avalanche.org, which allows you to choose the mountain range you will be heading into.

Another great resource is the book *Staying Alive in Avalanche Terrain* (The Mountaineers Books, 2001), by Bruce Tremper, director of the Utah Avalanche Center.

Navigation

The canyons of the Wasatch form a natural puzzle linked by sets of peaks. Canyons that are miles away by road lie just over the next mountain when you're climbing in the range. Major landmarks, such as the ski resorts in Big and Little Cottonwood canyons and along the Park City side of the range, as well as the cities of the Wasatch Front to the west, help orient us. One canyon drainage drops into the next, and coming to understand the layout opens the entire range.

Once you get a feel for the lay of the land, you can explore and make your own trails and tracks in every direction. More than once, as I initially became familiar with the Wasatch Range, I'd summit one mountain, only to find myself atop a ski resort in a canyon I didn't expect to see. With the help of this book, and the maps in it, your familiarity with the range will deepen, and your explorations broaden as you explore on your snowshoes

Route Finding

One of the many outdoor winter hazards that can quickly turn a pleasant excursion into a tragedy is getting lost in the backcountry. Though following your tracks back the way you came seems easy enough, even a light wind blowing freshies over your tracks, or light, new snow flurries, can cover tracks in a matter of hours or less

Snow changes the landscape. Signs that are visible in the summer—trails worn into the earth and even streams and lakes—lay beneath a winter layer so deep that sometimes even trees and outhouses are covered. Trail markers familiar to you may no longer be there. Landscape markers, even large ones, can be buried or look differently. If it hasn't snowed for awhile, you may have the tracks of others to follow, but if you're first on the trail, you'll have to know how to find your way. Once you're into the backcountry, unless you know exactly where you're headed, you may miss turns and important points of orientation. Your first orienteering skill requires that you simply stay alert and aware. Look closely at the layout of the land and the geographic landmarks as you travel. Stay found.

Navigation Aids

Topographic maps, GPS systems, and a compass will supply you with the navigational information you need. A GPS has, more than once, lead me back to tent or trail when I wasn't sure the direction I needed to head. GPS coordinates are included in this book to help you locate spots on the trails that might be difficult to find, depending on snow conditions. GPS systems also have compasses on them that you can use in conjunction with your map. The trip odometer on your GPS can help you track how far you have gone, and a virtual bread-crumbs trail can lead you back the

way you came. But remember, electronic devices may fail. Carry them close to the body to keep them warm, as alkaline batteries will run low quickly when exposed to cold. Also carry an extra set of batteries. To be on the safe side, always carry a map and compass in case your GPS fails.

Commercial maps are most often based on the US Geological Survey (USGS) 7.5 Minute topographic maps. These maps (at 1:24,000 scale) show roads, trails, summits, towns, streams, lakes, and contour lines. Take the time to print or buy a topographic map for any long, backcountry snowshoe route you're uncomfortable with. Topographic map companies like National Geographic Topo! or iGage have software that offer USGS topographic maps that can be printed from your home computer. Regional or state-specific mapping software allow you to customize your printout by plotting your route on the map before you print.

Always practice safe route-finding skills. Stay aware of your surroundings and of changing conditions. With the right tools and the knowledge of how to use them, your trips will be safer and more successful.

For additional help on orienteering you can refer to the following websites:

www.mapcard.com

www.us.orienteering.org

www.igage.com

maps.nationalgeographic.com/topo/