

→ Avalanche Safety

by Kevin Jackson



The lure of fresh powder and the chance to avoid the crowds makes backcountry skiing and boarding an ideal way to create that picture-perfect day. On a recent trip to the Chilean Andes we had the amazing opportunity to snowcat ski some remote regions of the country, and experience snow similar to what you would expect in Valdez, Alaska. However, with ideal conditions come the dangers of backcountry exploration. Thankfully, our team was prepared and prudent – and we enjoyed possibly the greatest day of powder anyone has ever known. But while our experience was surreal, all too often the results of backcountry exploration end in unfortunate situations.

Each year, avalanches claim more than 150 lives worldwide, and thousands more are caught in avalanches partly buried or injured. With the amount of snowfall we had so early in the season the avalanche danger, particularly in the Eastern Sierras, can be high. So please consider these important safety precautions and instructions when entering avalanche-prone areas! (Particularly: how to test for avalanche conditions and what to do if you are caught in an avalanche, as well as proper rescue techniques.)

→ How to Determine a Safe Snowpack

There are numerous ways to gauge the stability of the snowpack without technical equipment. First, watch for any cracks jetting across the surface or small slabs shearing off. Also, listen for hollow or thumping noises as you walk or ski across the surface. This indicates that there is a weaker layer underneath, leaving the surface layer prone to collapse. More reliable measurements, such as snowpits and shear tests, will help you predict how stable the snowpack is with better accuracy.

→ Snowpits

The most effective snowpits should be dug near potential avalanche starting zones, but without putting you or other members of your party at risk. With a shovel, dig a hole four to five feet deep and approximately three feet wide. Smooth the uphill wall until it is vertical and you can see the different layers of snow. By simply pressing your hand against each layer to feel its hardness, you can determine whether there are weak layers.

→ Shear Tests

From the vertical wall of the snowpit, on the uphill side, dig around a column of snow without pulling it free from the wall. Insert a shovel at the back (uphill side) of the column and gently pull on the handle. If weak layers pull loose quite easily, the snowpack is very unstable. If it takes a few tugs on the handle before any layers pull loose, the snowpack is slightly unstable.

When conducting these tests throughout the day, pay attention to the slope angle. Most avalanches occur on slopes between 30 and 45 degrees, but can occur on any slope given the right conditions. You can measure the slope angle with an inclinometer, or you can eyeball it by dangling a ski pole by the strap and estimating. Layers that seem strong on a 30-degree slope may be much weaker on a steeper slope. Also, remember that the shear test relies on the pull of a shovel, not the weight of a person. You can test the snow further by standing or jumping on the uphill edge of the snowpit, but only if you already know the snowpack is stable after conducting a shear test.

→ Getting Caught in a Slide

Once you realize you are caught in a slide, yell and try to let go of your ski poles and squirm out of your backpack to make yourself lighter. Use swimming motions, driving upward to try to stay near the surface of the snow. When an avalanche comes to a stop the snow can set, and become as hard as cement – and unless you are on the surface, it is almost impossible to dig yourself out.

If you are fortunate enough to end up near the surface, try to stick out

an arm or a leg so that rescuers can find you quickly.

If you are buried over your head, try to maintain an air pocket in front of your face by punching the snow with your hands and arms. Many avalanche deaths are caused by suffocation, so creating an air space is one of the most critical things you can do. When an avalanche finally stops, you may have only a few seconds before the snow sets and hardens, and it is important to hold your breath beforehand as you may not be able to breathe after the snow compacts around you.

Above all, do not panic. Keeping your breathing steady will help preserve your air space and extend your survival chances. If you remain calm, your body will be better able to conserve energy.

→ Rescuing a Victim

If you see somebody getting caught in a slide, try to watch as he is carried down the slope – paying particular attention to the point at which you last saw him. After the avalanche appears to have finished and settled, wait a minute or two and observe the slope carefully to make sure there is no further avalanche danger. If some danger does still exist, post one member of your party in a safe location away from the avalanche path to alert you if another one falls.

Look for clues on the surface, beginning with the point where the victim was last seen. As you move down the slope, kick over any large chunks of snow that may reveal clues. Since equipment and items of clothing may have been pulled away and scattered during an avalanche, things you find may not indicate the victim's exact location; but they can help determine the direction the avalanche carried him. Mark these spots as you come across them. Once the victim is found, it is critical to unbury him as quickly as possible. Survival chances decrease rapidly depending on how long a victim remains buried. Treat for any injuries, shock or hypothermia if necessary.

For those using probes, begin at the point where the victim was last seen and stand in a straight line across the slope, shoulder to shoulder. Repeatedly insert the probes as you move downhill in a line. Pay particular attention to shallow depressions in the slope and the uphill sides of rocks and trees, since these are terrain traps where an avalanche victim may have been buried.

When venturing into the backcountry, be sure to have all the necessary equipment, check the local weather report and notify the authorities of where you will be going. Above all be safe and enjoy the places you've worked so hard to get to! ✦

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Five Things to Keep in Mind When Backcountry Skiing

1. Are there any signs of excessive wind loading on the slopes?
2. What have the weather conditions been like the past few days? Any large snowfalls?
3. Do you have a good sense of the snow pack and have you done any snowpit or shear tests?
4. Have you noticed many fracture lines, heard thumping or cracking sounds or hollow noises in the snowpack?
5. Are you keeping an eye on the orientation and steepness of the slopes as you cross them?

