

# Avalanche Safety Basics

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## For Mountain Riders, or Those Going Into the Mountains to Ride

There is one common theme when the avalanche experts go investigate any incidents. The responses they get almost every single time are some form of these:

"I've never seen that area slide before"

"I didn't think it would/could slide there"

"I didn't think it was steep enough to slide"

"I've been riding here for years, and never any trouble before"

"This area isn't known for avalanches"

"I saw other tracks there and thought it was safe"

Many of us never give a second thought to avalanche safety. We just assume that our lives will never be touched by an avalanche incident. This is just a delusion we create for ourselves so that we don't have to face the reality that this could happen to us, one of our friends, or a loved one. An avalanche can happen to anyone at any time. There are many ways in which we can raise our avalanche awareness and encourage our families and friends to do the same. Snowmobiling is a social sport, and if you tell others you won't ride with them if they don't have the proper gear and training, they will want to get it so they aren't left out, and without anyone to ride with. Everyone who does any sort of riding in any area where avalanches are possible needs to become knowledgeable about and prepared for them. Since most of us are skilled in our chosen sport of snowmobiling but have little or no avalanche skills, trouble begins. This becomes a critical deficiency. Avalanches can happen naturally, or be caused by us. Most avalanche incidents are caused by the human factor. Modern machines can climb higher than ever before. However, there are things we can do to be safer.

## **The Avalanche Beacon**

Purchasing an avalanche beacon is an investment in your life. There are several different brands available, such as the "Tracker", "Pieps", "SOS", "Pulse", or "Ortovox", to name a few. You need to become familiar with the use of your beacon. Just having one isn't enough! Don't get a false sense of security that just owning (or borrowing or renting) one will save you. Are your friends or family knowledgeable in their use? You can't expect to be saved or save someone else if you don't know the proper use of this valuable tool. The time to learn is not during an actual crisis where someone's life is dependent upon this knowledge. Practice is important. You have to rely on knowledge first and the equipment second. Wear your transceiver around your neck and inside your jacket. If you carry a radio, cell phone (turned off), etc., you will want to wear your beacon on the opposite side of the body from that equipment (left and right). You don't want electrical interference, which can occur with these items, to interfere with your life being saved. Make sure you have good batteries installed in your unit. After all day use for several rides, you may want to replace the batteries with new ones. You can use those other batteries in something else that doesn't have to do with saving your life. The other tools which go hand in hand with the avalanche beacons are probe poles and shovels. These items are also crucial to a successful recovery in conjunction with the transceivers. The little bit of extra weight is worth carrying. It is a far better option than the heavy weight that could live on your shoulders for the rest of your life had you needed those items and neglected to have them with you because of the few extra pounds they add. Having the proper avalanche awareness training is also key. Take a class. Just having the avalanche gear alone does not make you safe. You need to learn to read the signs that mother nature provides us, and how to stay away from high avalanche danger areas.

## **Some Avalanche Statistics**

- There is a 92% chance of survival if the buried victim is found within 15 minutes. That drops to 30% at 35 minutes, and just 3% at a little over 2 hours.
- One half of completely buried victims die within the first half-hour.
- Only one third of avalanche victims die from trauma. The other two thirds die from suffocation.
- Only 2% of victims live long enough to die from hypothermia.
- The average avalanche burial is 4-5 feet down.
- The most common type, and the deadliest of avalanches, is the slab avalanche.

## Getting Ready For and Riding

Ok, so you have your transceiver, and you have practiced its use. Now the morning of a ride arrives. Pick up your phone and call the avalanche hotline to find out what the danger in your area is and in the area you will be riding. You should do this every time before you go out for a ride. Most all areas have a number you can call for this information.

Danger Level and Color	Avalanche Probability and Avalanche Trigger	Degree and Distribution of Avalanche Danger	Recommended Actions in the Backcountry
What...	Why...	Where...	What to do...
LOW (Green)	Natural avalanches very unlikely. Human triggered avalanches unlikely.	Generally stable snow. Isolated areas of instability.	Travel is generally safe. Normal caution is advised.
MODERATE (Yellow)	Natural avalanches unlikely. Human triggered avalanches possible.	Unstable slabs possible on steep terrain.	Use caution in steeper terrain on certain aspects.
CONSIDERABLE (Orange)	Natural avalanches possible. Human triggered avalanches probable.	Unstable slabs probable on steep terrain.	Be increasingly cautious on steeper terrain.
HIGH (Red)	Natural and human triggered avalanches likely.	Unstable slabs likely on a variety of aspects and slope angles.	Travel in avalanche terrain is not recommended. Safest travel on windward ridges of lower angle slopes without steep terrain above.
EXTREME (Red with Black Border)	Widespread natural and human triggered avalanches certain.	Extremely unstable slabs certain on most aspects and slope angles. Large destructive avalanches possible.	Travel in avalanche terrain should be avoided and travel confined to low-angle terrain well away from avalanche path run-outs.

While out on your ride, pay attention and be aware of the conditions around you. Have there been recent avalanches in this area? Is the area capable of producing an avalanche? These are just a couple of the questions you need to ask yourself. Avalanches can occur on long or short slopes. A 38-degree angle is most common for avalanches. 30 degrees is barely steep enough to slide (but it still can), and seldom do slides happen above 45 degrees (the snow tends to continually sluff off by itself due to the steepness). You can purchase an inexpensive compass with an inclinometer built into it for measuring slope angles.

Practice safe riding techniques on your sled. Cross high-risk areas one at a time. That way you have lots of eyes on you should the unthinkable occur, as well as there only being one victim. It's much better to have only one victim, with many persons for a rescue, than to have several victims at the same time. If you are dropping off a ridge, the same thing applies, one at a time. You can keep an eye on the person going down before you as well as not start an avalanche above that person which could envelope both of you. If highmarking, again, it's only one at a time. Do NOT allow peer pressure to force you into doing something you are uncomfortable with. Just because your family member or friend climbed a certain spot doesn't mean that you have to do it! Don't be afraid to speak up. If something doesn't look or feel right to you, say so.

## **Caught In an Avalanche?**

If you do happen to be caught in an avalanche, fight for your life. The first thing you need to do is yell, and yell loud. You want all eyes on you for rescue purposes as well as to alert others of the danger. If possible, try to ride to the side and out of it. If you can't get off to the side, then try to outrun it, and don't be shy on the throttle. If the avalanche does overcome you, then do try to keep to the top of it. Do this with a swimming motion (if you happen to be on your back, then backstroke). Your chances of survival, when buried in 6 or more feet of snow, are almost negligible. When you feel the slide coming to a stop, try to clear your mouth of any snow that may have gotten in it. Try to create an air space if possible. Finally, try getting an arm to the surface for an indicator of where you are buried. Once things have completely stopped, you are going to be tightly packed in place, as if in cement. You have from 1 - 3 seconds before the snow sets, which isn't long to try to accomplish the above things. After everything is stopped, conserve your energy. Try NOT to panic and waste valuable oxygen and energy you will need for survival.

## **Witnessing an Avalanche, and Finding a Buried Victim**

If you witness someone caught in an avalanche, keep your eyes on them as long as possible (make sure you are out of harms way when doing this). This will help to locate that person. Once the avalanche has stopped, don't just go off wildly. That doesn't help anyone. You need to keep calm. First, make sure it's safe, with no further avalanche danger to yourself or others, before you enter the area. You don't want yourself or anyone else to also fall victim. You want everyone in your group to stay there to help with the rescue. Don't send anyone out for help at this point. Every single person is needed for the search and digging. REMEMBER, half die within the first 30 minutes. Time is of the essence. By the time someone got out to contact an outside rescue party and that rescue party readied itself and arrived on scene, they're going to be helping dig out a dead body.

Search in an organized manner. Go to the place the person was last seen. Turn your beacons to receive. Mark this spot where the person was last seen for future reference. Search downhill from this spot. Look for clues (a hand sticking up, a glove, etc.), and leave any items such as loose gloves in place. Make sure you have your probe poles and shovels with you during your search. You don't want to waste any time. Work quickly, but efficiently. You want to be able to find that person with the first hole you dig. If there is more than one person buried, once you find the first one, you may want to just give them airspace (if they are still breathing and able to speak to you) then go on to find the second person. If you have enough people, then have one or two persons finish getting the first person completely out while the others search for the other victim. When this first person is out, turn off this person's transceiver so that it doesn't interfere with the search for others. After you have the person(s) found and dug out, then you can send someone for help if assistance is needed. If it has been approximately an hour (use judgment on this) into your search with no luck (this shouldn't happen if you have taken the time to become knowledgeable on avalanche safety and the use of your transceivers), then you can send a person out for help.

## Finding More Info on Avalanche Safety and Tips

You can find more avalanche info in many other places. What I've written by no means contains all the info available. This is just meant to begin your avalanche education, to encourage you to be safe, as well as to be prepared. You can find more information out on the net. Take an avy class. There are videos that you can buy. Two videos I highly recommend are: **A Dozen More Turns**, and **Winning The Avalanche Game**. Some very good books are: **Backcountry Avalanche Awareness; by Bruce Jamieson** (smaller, easy to read and informative book), **Staying Alive in Avalanche Terrain; by Bruce Tremper** (larger more in depth book), and **The Avalanche Handbook; by David McClung and Peter Schaerer** (this is more like a textbook and goes into great depth).

**A Dozen More Turns** can be purchased for \$5.49 shipped at:

[http://www.backpackinglight.com/cgi-bin/backpackinglight/dozen\\_more\\_turns\\_dvd.html](http://www.backpackinglight.com/cgi-bin/backpackinglight/dozen_more_turns_dvd.html)

Or you can watch, or download it for free at:

<http://revver.com/video/310519/a-dozen-more-turns/>

### Some other informative links:

An Avalanche Beacon Review site:

<http://www.beaconreviews.com/transceivers/>

Avalanche.org:

<http://www.avalanche.org/>

Avalanche.ca:

<http://www.avalanche.ca/>

Avalanche and Snow Dynamics; an Online course:

[http://ocw.usu.edu/Forest\\_\\_Range\\_\\_and\\_Wildlife\\_Sciences/avalanche-and-snow-dynamics/Course\\_listing](http://ocw.usu.edu/Forest__Range__and_Wildlife_Sciences/avalanche-and-snow-dynamics/Course_listing)

Avalanche First Response Interactive site:

<http://access.jibc.bc.ca/avalancheFirstResponse/course.htm>

Beacon Searching 101, Probing 101, Shoveling 101, as well as PowerPoint Presentations:

<http://www.backcountryaccess.com/english/education/teaching.php>

Forest Service National Avalanche Center:

[http://www.fsavalanche.org/basics/sled\\_index.html](http://www.fsavalanche.org/basics/sled_index.html)

Training for safe travel in Avalanche Terrain:

<http://www.avalanchetraining.info/>

White Risk; an Interactive CD you can purchase (VERY good). Click on “E” at the top left of the page to go to English:

<http://www.whiterisk.org/>

Take the time to educate yourself and to practice what you learn. Encourage those with whom you ride, to become knowledgeable as well (you may have to rely on them to save your life). For all of the time and money we spend on our sleds, our lives are still the most valuable of all!!