



Family Protection
ASSOCIATION

SURVIVING ***AN AVALANCHE***

***TIPS & TRICKS
YOU NEED
TO KNOW***



SURVIVING AN AVALANCHE

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SURVIVING AN AVALANCHE

Tips and Tricks You Need To Know

FOREWORD

You never know when an outing that you've been planning for months, may turn into a nightmare. This is why; staying prepared and informed about the worst that can happen, is always a good idea. If you and your family have decided to go for a skiing holiday, suppose the unexpected happens and there is an avalanche; how will you survive?

Taking some time to think through such scenarios is a good thing, although most people would believe it to be thinking negatively. However, sometimes, thinking about the worst that can happen is the best way to prepare yourself mentally and program your body to act in the right way to save your life. The other word for this is survival instinct.

You need to work on your survival instincts when you are stuck in an avalanche. Have no doubt about the fact that facing death is a scary feeling. However, at the same time, giving in to the fear will not save you. You have to keep your mind focused on surviving and save yourself from the avalanche while there is still time.

In this book, we will address some simple ways of how to avoid becoming stuck in an avalanche and you will learn about what to do if you couldn't escape in time. In most cases, there will be a hope that rescue teams will come looking for you, therefore, it is important to know what you can do to keep yourself alive, long enough.

Continue reading to learn some important tips and tricks that will help you survive.



How to React Within the First Few Seconds

Most people find it difficult to determine what their reaction should be, when something goes terribly wrong. It is natural to be in this situation. You can react in different ways, and this varies from individual to individual. For some people, fear grips them so badly, they just forget to run or move out of the way. In some people, fear makes them think faster and they act instantly. In fact, they act even before their brain can acknowledge that there is a problem.

REACTION 1: TRY TO ESCAPE THE AVALANCHE

The first reaction you must have when you see an avalanche approaching is to escape it. For this purpose, you need to program your survival instincts to do the following.

The First Thing to Do

You have to jump up the slope!

There's no need to waste another minute thinking, just jump! Sadly, the cause of most avalanches, are the victims themselves.

Sometimes, an avalanche starts right underneath the victim's feet. If you are in such a situation, the first thing to do is to jump up the slope. Go beyond the fracture line and make sure that you act quickly because avalanches happen instantly, and it becomes almost impossible to go down fast enough to escape.

The Next Thing to Do

Move aside!

Regardless of whether the avalanche starts beneath your feet or above you, you have to find a way to get out of the path of the snow. You must not hesitate even for a second, be quick, and move to the side of the slope. This way, if the starting of the avalanche was above you, you will be able to get out of its path, and escape before it reaches you.

Keep in mind that the snow will move faster in the center of the flow, and remember that the center is where there will be the most quantity of snow. You have to avoid trapping ourselves in the excessive snow that is flowing downhill.

The Third Thing to Do

You have to let go of your heavy equipment.

In order to be able to escape the avalanche, you have to be light enough to run quickly. With the added weight of the equipment, escaping will be difficult, maybe even impossible. Let go of your backpack, and ski poles. Drop the equipment quickly and run for it. This will increase your chances of staying towards the surface of the snow even if you don't escape the flow completely. If you are heavy, you will sink right to the bottom of the snow, and this will reduce chances of survival.

However, DO NOT let go of the survival equipment like the transceiver, snow shovel, and probe. If the snow buries you, these things will help you make a way out of it. Moreover, people who come searching for you will be able to find you if some of your equipment are visible on the surface of the ice. You can let go of the extra gloves and other items that are not crucial for your survival.

The Fourth Thing to Do

Hold on tightly to something.

Try to grab a boulder or a sturdy tree if you know it's too late to run and you cannot escape the avalanche. If the avalanche is not large, or if you manage to get to the side of the avalanche, then you can hold on until it passes. Assuming the force of the flow rips you off the object that you are holding onto, delaying your departure downhill will give you a better chance at surviving, and the



snow may not bury you in too deep.

In case you are underestimating the force of an avalanche, let's make it clear that an avalanche has enough power to carry rocks and trees that are in its path. Imagine what it can do to you. Don't take it for granted.

The Fifth Thing to Do

Swim!

Try to find your way to the surface of the snow, and for that, you have to swim to the surface, otherwise, you will just sink in. The human body is denser than ice, which means you will go under while the snow will pile above you. It will be a struggle to keep your head up and above the snow. As the snow carries you downhill, it will also make you sink at the same time.

This will be a scary experience and is very risky. You must try everything possible to stay afloat, so kick as hard as you can and thrash your arms to swim through the flow.

It is a good idea to swim on your back; this will help keep your face up, towards the surface, allowing you to breathe well. If the snow buries

you, you will have better chances of getting enough oxygen to be able to survive until the rescue team gets to you. While you swim, make sure you do that uphill. Swimming upward will quickly get you closer to the surface of the ice.

REACTION 2: SURVIVING IF YOU GET BURIED IN THE SNOW

Assuming that your attempts in ‘Reaction One’ fail, and you somehow end up underneath the snow, what can you do to survive? Here’s a list of things you need to do in this case:

#1: MAKE A POCKET OF SPACE AROUND YOUR FACE

Once the avalanche stops, the snow will settle and form a heavy concrete surface. If you realize that you are too deep under the snow, maybe more than a foot, getting out of it by yourself will be next to impossible. The only hope that you have then, is to avoid asphyxiation (oxygen deprivation) for as long as you can or until rescuers come to dig you out.

Check your equipment and see if you can use something like an avalanche shovel to dig a pocket near your face. Alternatively, you can use your free hand to make a small pocket near your nose and mouth to allow you to breathe. This can give you enough air to keep you alive for thirty minutes.

Before the snow around you settles completely, you have time to take deep breathes so that your chest expands. This will make some space around you, creating some breathing room

before the snow hardens around you. If you don’t make that space, your chest won’t be able to expand to allow you to breathe while you remain buried in the snow.

#2: CONSERVE YOUR ENERGY AND AIR

Once the snow settles around you, you have to try to move but do this without losing the air pocket. If you are lucky enough to be close to the surface, you can easily dig your way upwards and out of the avalanche. However, if you are in too deep, you may not succeed in going anywhere, and the best thing will be, not to waste your precious breath while struggling in the snow. Stay calm and wait for help to come. Surely, people will be looking for you.

If you hear people nearby, it will be a good idea to call out to them, but without compromising your air pocket. If they don’t hear you, don’t keep it up much longer. Shouting will limit your air supply, so be cautious, and shout when you are sure that they can hear you.

#3: WAIT FOR RESCUERS – THEY WILL COME!

Rest assured that immediately after the avalanche subsides, there will be a team of people looking for survivors, and if you held onto the beacon and probe, your fellow skiers must have done the same. Someone will find you and dig you out. Just be calm and wait for them.

Nevertheless, there are some helpful things you can do while you wait for rescuers to find you.

Tips for When You Are Stuck in the Avalanche



Here are some crucial tips that will make surviving easier for you:

- Assuming you paid attention to the weather reports, you should never assume that the area where you are skiing is safe. Just be alert all the time.
- If you feel like urinating, don't stop yourself. Just do it! It may make you feel uncomfortable, but on the brighter side, it is what will help rescuers find you. The dogs they use will rely on smell while sniffing, and urine will serve as a useful tool in this situation.
- If you feel breathless, dig in the direction you see your breath rise, or look for light and dig towards it. If you feel sure that you can dig yourself out, make an effort.
- If you couldn't ditch your skis before the snow buried you, there's no need to worry. Somehow, it all works out because they help rescuers find victims by protruding out.
- Complete an avalanche survival course before going to an area prone to avalanches.
- Make sure you take your safety equipment with you on your trip.
- Try to save your breath and energy while you wait for rescuers to find you.



Increase Your Survival Chances



To increase survival in an avalanche, always make sure that you never go to the slopes without your survival equipment. Some pieces of equipment can drastically increase your chances of survival, so make sure you invest in them. These usually include:

1. **HELMET** – This is very important because most head injuries are the main cause of avalanche-related fatalities.
2. **SKIER'S AIR BAGS** – In recent years, these have become very famous. They help keep the body afloat, making it possible for your body to move towards the surface, preventing you from becoming buried underneath snow.
3. **SMALL SHOVEL** – This helps dig an air pocket around your face to allow you to breathe.

4. **AVALANCHE RECEIVER AND PROBE** – The receiver sends signals that show where you are, so if you are underneath layers of snow, the rescuers can use their probe to locate your signal and dig you out. Every person on the slopes must carry a receiver and probe because you never know when you might have to rescue someone.
5. **AVALANCHE TRAINING COURSE** – If this is your first time of going skiing, then taking basic training on how to avoid and survive an avalanche is very important.





Six Professional Tips for Surviving the Avalanche

Apart from the basic tips on surviving the avalanche, professionals have a more critical way of looking at things. They know what immediate actions can help you survive the avalanche, and based on their insight, here are six tips you need to keep in mind.

#1: Move Side-ways – When the avalanche happens, instead of running in the same path, move side-ways. The center of the avalanche is a dangerous place for you. It is crucial that you start moving immediately when you notice signs of sliding snow, because the quicker you move away, the greater the chances of survival.

#2: Jump Up-slope – This strategy can save you when the avalanche happens underneath you. Sadly, snowboarding and skiing are the most common cause of avalanches. This quick movement will help you move away from the fracture line in time to avoid the slide as snow moves from right under your foot.

#3: Move with an Avalanche Beacon – The avalanche beacon or transceiver increases your chances of survival largely. Most beacons transmit a radio signal, which helps rescuers find you and dig you out.

#4: Hold on To Something – If you don't get disoriented and confused, grab something nearby, even if it's a tree or a rock. This will prevent you from going with the snow.

#5: Swim Through It – If the snow starts dragging you down, use your swimming skills to prevent going under the snow. Try floating and keep your head up towards the open air.

#6: Make an Air Pocket – Cup your mouth so that when the snow surrounds you, there will be enough air to keep you alive for thirty minutes, during which someone will find you and rescue you.



AVALANCHE BEACONS DON'T ALWAYS SAVE LIVES

Although avalanche beacons are an important tool to carry with you, it doesn't always save lives. They have saved several lives by making it possible for rescue teams to find victims quickly; however, when snow traps you, your luck also plays a huge part in chances of survival. If you are too deep under the snow, the beacon cannot help rescuers much.

Besides, in some cases the victims have too many injuries to be able to move up towards the surface. Sometimes, while sliding, people lose the beacons, or the fall may damage them, and this can be very misleading for the rescuers. This is why; it is even better to try to make sure that you aren't under an avalanche in the first place. Good decision-making and knowledge about avalanches is more important than making sure you have the right tools.



EVALUATING HOW SERIOUS THE THREAT OF AN AVALANCHE IS

It is always good to evaluate the threat of an avalanche before you get to the skiing site. The reason for this is that avalanches are not just a single layer of snow falling from a great height. They are actually a whole season's accumulated snow. This means that when the avalanche happens it comes down with tremendous force, and can destroy anything in its path. It is a serious threat for travelers during winter.

If you are skiing or planning a snow-activity, you must make sure you learn how to avoid being in an avalanche prone area because prior knowledge will not just save you, it can empower you to save others as well.

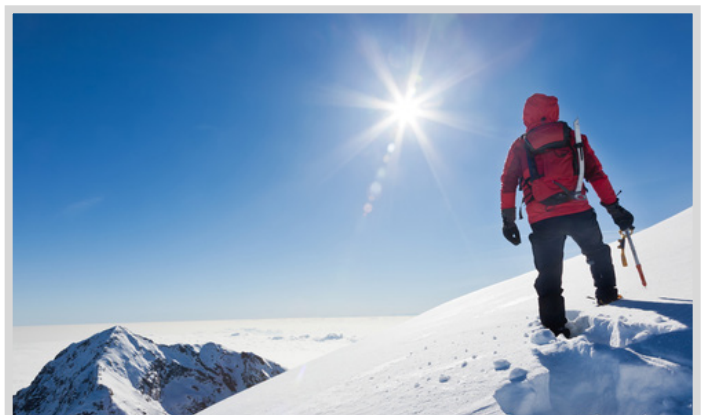


How to Read the Terrain to Avoid an Avalanche



To be able to read a terrain to avoid an avalanche means considering certain things and these include:

- ▶ **STEEPNESS OF THE SLOPE** – Slopes that are at a 300-400 inclination are more prone to avalanches. However, this doesn't mean other slopes at an angle of 250-600 are not prone to an avalanche under certain conditions.
- ▶ **SLOPE PROFILE** – Slopes with a convex shape are more dangerous and prone to an avalanche. You should stay away from them. Going to such places in December and January is never a good idea, so try to avoid it. On the other hand, slopes with a concave shape are less of a threat, though they also have avalanches sometimes.
- ▶ **SLOPE ASPECT** – It's an observation that slopes facing north are more prone to an avalanche in winter (particularly mid winter).
- Slopes that face south can be even more dangerous during spring and on sunny days because the heat can cause snow to slide. Slopes on which snow accumulates during windy season are also prone to avalanches because this causes formation of hollow and hard wind slabs.
- ▶ **GROUND COVER** – If the area has enough trees, rocks, and heavy bushes, then there is a good chance that these will anchor the snow. However, smooth and grassy slopes are threatening and you must avoid such places.



What Triggers the Avalanche

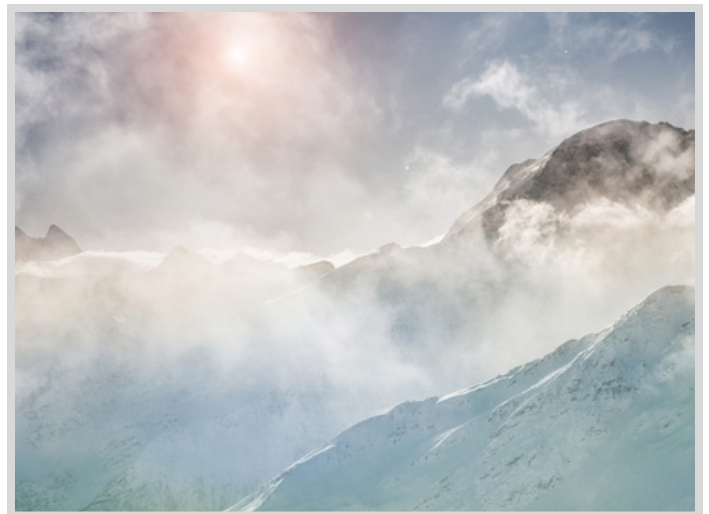
Several artificial and natural factors can cause an avalanche. The weather forecast plays an important part. If it is too windy, it can shake the snow and make it unstable, causing avalanches. Another cause of avalanches can be excessive snow. If it snows, it can build up more pressure and cause an avalanche. Therefore, before going to an avalanche prone area, make sure it is safe.

Earthquakes also trigger avalanches, which is a bad thing. When the landscape where snow has been lying shakes, it will slide off. If you are unfortunate to be there at that time, you'd better move out of the way.

New snow is also a trigger for avalanches, so you'd better stay on guard and watch out for soft snow. However, when snow settles rapidly it is a

good sign. You should look for settlement cones around rocks and tree trunks. On a windy day, unsettled snow can become a threat.

Among unnatural factors, the constructions we do at these areas weaken the structure and increase the risks of avalanches. Other human activities like drilling, explosions and tourist activities also contribute to increasing the risk of an avalanche.



What You Can Do As a Survivor

If you've been able to escape the avalanche or dig yourself out of one, then you are a survivor. However, it doesn't just end there; you have things to do as a survivor.

- **CHECK YOURSELF FOR INJURIES.** If you have any injuries, and if people rescued you then get first aid. If you are on your own, then try to find a way of controlling excessive bleeding, or tie the wound and try to walk to where you can find help and other rescuers
- **IF YOU ESCAPED UNSCATHED, THEN YOU ARE VERY LUCKY.** Try to look around for people who may be looking for you and inform them that you are safe. If someone setup a search and rescue party for you, they need to know you are safe and alive.
- **LOOK FOR OTHER VICTIMS AND HELP THEM GET TO SAFETY.** Assuming you were moving in groups when the avalanche hit, it's your duty to get those people to safety.
- **IF YOU CANNOT HELP RESCUE THEM ALONE, MARK THE PLACES WHERE YOU SAW**



VICTIMS AND LOOK FOR OTHER RESCUERS TO HELP YOU.

- **SEARCH FOR VICTIMS IN THE FALL LINE AND BELOW THE LAST SEEN POINT.** Other people may need help.
- **IF YOU ARE NOT SURE ABOUT WHERE TO START SEARCHING, FIRST LOOK IN PLACES WITH THE MOST SNOW DEPOSITS.**



In difficult times of an avalanche, do not abandon other trapped people because you may be their last hope of survival. Go to find help only if you are sure it is nearby. You have to consider the time it will take you to help and the time it will take for you to find and bring help. Besides, any victim only has less than 50% chances of surviving within an hour of falling under snow. If you go for help, mark the route so that it makes it easy to track your path back and for the rescue party to track you and the victim.

HELPING VICTIMS AND RESCUE DIGGING

Digging the victim out can be very tiring and it can take much longer than searching for victims. Therefore, it is very important to act quickly. Here are some things you can do.

If you have to dig him or her out, start digging away from the probe. It's a rule that the hole you dig for exposing the victim must be at least 1sq deep. If the victim is under to a depth of two meters (or six feet) then you must make a square hole that is at 2x2m (or 6ft x 6ft).

Dig downhill and throw the snow downhill. Use the probe as a marker. Plan the rescue well because too many people digging together will get into the way, and complicate matter. Take turns if it is better and this will save time and energy, and make rescuing easier for everyone. Besides time is crucial for the victim, so make the process systematic.

When you rescue a victim, first uncover the head and chest immediately. Clear the victim's mouth to allow air intake, and make sure the airway has no obstructions. Begin administering first aid immediately and let the person's body adjust to the surface.

You must use a probe line or a transceiver to find victims, so learn how to use them.



Use a Probe Line

Setting a probe line is not too complex, and you can easily do this. You must probe around to check likely burial areas to find victims. Probe anywhere you suspect victims can be, and be quick because every second counts. Mark the places where you've checked forming a probe line, and saving time by not relooking in the same place repeatedly. A probe line means you need six searchers to look for victims. If you don't have enough people with you, focus on probing.

THREE HOLE PER STEP *

This technique is very effective if you don't have enough people to form a successful probe line. To use this technique, first define the burial area. Tell the searchers to form a straight line, and make sure each one is spaced apart to an arm's length.

Each searcher must then probe the burial area in front three times: once straight in front, then on the left and then on the right. Each probe must be at least 1.5 feet on the other side of the middle hole. The searchers must take a normal step forward when they are sure there is nothing and repeat probing on the new area again.

This technique has a distinct advantage, and that is that small groups of rescuers can search a larger area within a shorter time. This is a widely used technique to rescue people trapped in an avalanche and has saved many lives.

THE OPEN SPACE COARSE PROBE

If you have few rescuers or if you are looking on a rough terrain, then it is a good idea for the probers to spread out, instead of wrist-to-wrist going fingertip-to-fingertip is a better idea. This means that the prober should probe once just at the tip of the left foot, then again outside the tip of the right foot. This technique is more effective than the three-hole per step technique, but it is slower.

USING A FINE PROBE

If you have tried the first two methods of probing but there was no success and you are running out of time, it can be good idea to try the fine probe approach. The fine probe technique has proved to be more effective in detecting survivors and has a success rate of almost 100%.

Probers have to probe at a closer area, this

requires more workers but it saves a lot of time. With this technique, you can recheck an area at least five times within no time.

PROBE FOR A VEHICLE *

Sometimes, vehicles also end up buried under an avalanche, and to probe for searching a vehicle, use a probe space of 4 feet (120cm). Between each probe, the probers must take two steps forward and then reinsert the probe. This helps maintain a uniform spacing.

USE THE AVALANCHE * TRANSCIVERS

Several years ago, avalanche transceivers became another important tool that transmits signals at a frequency of 457 KiloHertz. The advantage of using these for searching for people in an avalanche is that it is much faster than probing, and works using the “induction-line” technique. Before transceivers came about, the most common technique rescuers used was the “grid-search technique.”

However, to learn the induction-line technique you need more than reading a guidebook, you need to undergo special training. Moreover, when you learn this technique, you must practice it several times during the season to make sure you can handle it if the need arises. The device may need frequent checking to make sure that it is in proper working condition. Therefore, before going skiing, check the device to make sure that it is working.

The avalanche transceiver has an electromagnetic

field, and it picks the signals from another transceiver. The electromagnetic field is a 3D shaped area that surrounds the device and the person using it. This makes locating a victim very easy.

You have to use the transceiver in the “receive mode” as you move around searching for victims. If you pass along the flux lines of another transceiver, it will beep to let you know where to dig. This explains the name of the technique “induction lines,” which comes from flux lines.

When you locate the flux line, look for where the signal is strongest because that’s where it will make the loudest noise. The beacon has a visual indicator, and an LCD or LED display.

THINGS TO KEEP IN MIND

- When using the transceiver, only one person should pinpoint the signal. Many people using the transceiver will only complicate matters.
- Try to search faster and watch for a louder transceiver noise
- Use a logical patterns and slow down when you pick a signal
- Mark the area where you find the strongest signal
- Probe the area you’ve marked and be careful when you do this
- In case you hit the victim with the probe, do not remove the probe. Inform accompanying rescuers immediately. Note the depth of the victim before you start digging.
- Dig quickly and make sure you have first aid on standby

What do If You're Buried in the Avalanche with Your Vehicle



If your vehicle is under an avalanche, with you inside, it may seem like a scary situation, but you can and will get out of it – alive.

First, turn off the engine. If you have a cigarette, cigar, or matches, do not use them! The reason for this is that, it may not be too obvious at first but you have limited air available, and doing anything that will waste the precious air will reduce your chances of survival. Therefore, make sure that you do not do any of these activities.

Open just one window and try to get an idea about the depth to which you are under snow. Look for a stick, probe, or pole in the car that can give you an estimate. Whatever you do, do not leave the vehicle, unless you are sure that if you do so you will not risk your life. Most importantly, don't leave the vehicle unless you

are sure that you are not in a remote area.

Most vehicles have a two-way radio. Keep it turned on, because it may become your only way of surviving. Use it to contact searchers out there for help!



Get Help after Surviving the Avalanche



Assuming you managed to save yourself on your own, and there is no one nearby, how can you make sure you get home alive? Your best shot is to get help!

This is the last and most important issue of surviving an avalanche. If you are sure that there are rescuers nearby, then try to get to them. Alternatively, if you know there are help facilities nearby or a settlement, then go there. Staying where you are and waiting for help can be a risk because the rescue team may take a lot of time before getting to you. This delay can reduce your chances of survival even if you've come out from under the snow successfully.

However, before you go in search of help consider the following:

- * Where's the exact location of your avalanche accident?
- * Is there an easy access to get help like a road, helicopter, or trail?
- * What time did the avalanche hit you?

- * How long will it take before you get yourself to help?
- * What's the weather condition now?
- * Can you survive until you get help?
- * What can you do to make sure you get help before it's late?
- * If there are others, how many victims are there?
- * Are there any rescuers on site?

To wrap things up, it is important to reiterate that the best way to survive an avalanche is by avoiding one in the first place. When you go skiing, always make sure the area is safe, the weather is not a threat, and the snow is firm enough. Make a mental check of what you may have to do if you find yourself stuck in an avalanche. This helps prepare and act immediately to get you out of harm's way.

If, there are rescuers and other people at the site and at risk of the avalanche, try to educate them too. At times like these, you have to lookout for each other.

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