Avalanche Q&A
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Every year we teach almost 100 avalanche classes to nearly 5,000 people across a wide swath of the recreating public: grade school and graduate students, skiers, snowmobilers, ice climbers, search and rescue groups, and ski patrols. Though the groups are diverse, the questions are similar. Here's some answers the most common ones.

What do I need to know about avalanche transceivers before buying one?
Avalanche transceivers (also called beacons) are crucial to our personal safety. They should be a standard piece of equipment for everyone in avalanche terrain. All avalanche transceivers work on the same frequency (457 kHz) and all brands are compatible with each other. Most are intuitive to use, although they require practice to become proficient. The speed of a rescue is the difference between life and death; a person has an 80% chance of survival if dug up in 10 minutes and only a 40% chance at 12 minutes! Finding a buried person that quickly requires a beacon in trained hands. Beacons display how much battery life is left and batteries are cheap. I replace mine when my beacon falls below 80% capacity. Use only alkaline batteries. Lithium batteries discharge unevenly and give erroneously high readings. Rechargeable batteries should never be used since they do not hold a charge for very long.

As long as I stay off the big, open slopes I'm safe, right?
In southwest Montana there have been three avalanche fatalities in the last three years that we attribute to folks not recognizing avalanche terrain. In all three cases there was an Avalanche Warning (High avalanche danger) which means human triggered slides were likely and avalanche terrain should be avoided. Each party knew that big, open slopes and steep chutes were off limits and they acted accordingly. Their mistake was they failed to recognize they were playing in the less steep runout zone of an avalanche path where the debris comes to rest. Improbable as it sounds, the folks triggered the avalanche from these flatter areas. During times of High instability it's very possible to collapse a weak layer in the snowpack on the flats (aka a whumph) with the fracture propagating up the slope and releasing an avalanche far above. This is called remote triggering. It's crucial to always ask, "What if the slope above avalanches? Where will the debris end up?" If the answer is where you are hanging out and playing, you, my late friend, are in avalanche terrain even though it may be relatively flat.

Once a slope has avalanched, can it avalanche a second time?
Yes! Weak layers are not easily destroyed, especially thicker ones. New snowfall can rebury the weak layer a second time setting it up to avalanche again. Last year a layer of weak snow at the ground called depth hoar was thick enough that it did not get swept away with the first avalanche. A few slopes had repeat avalanches when this layer got reburied. I experienced this first hand many years ago in Cooke City when another

forecaster and I were investigating slopes that recently avalanched. After a day of looking at crown lines (the wall of snow that did not slide at the top of a slope) it snowed a couple feet that night. The next morning I traversed onto a 30-degree slope that appeared intact and found a freshly buried crown, indicating it avalanched the day before. I was excited at my find and I called my partner over thinking the slope was safe since it previously slid. As we were digging our snowpit the entire slope cracked and moved a few inches. The weak layer was still there, as unstable as ever, and we were very lucky the slope didn't fully avalanche again.

Is a slope more stable after it collapses or "whumps"?
When conditions are very unstable we hear and feel whumphs of a buried weak layer collapsing in the snowpack. When a slope collapses but does not avalanche it does not mean the slope is now safe and stable. Slopes can avalanche after collapses. Research shows that slopes may be extra sensitive to avalanching hours after a whumph. Treat slopes that have fractured or collapsed with caution. They may not be immediately safe and should not be trusted.

Can I ski out of an avalanche by aiming towards the edges of it?
If the slide is small *and* you're near the top of the slope when it breaks *and* you're an expert skier *and* your bindings don't release *and* your skis are pointed towards the edge--maybe. An avalanche can accelerate to well over 100 m.p.h. in seconds, too fast to outrun. If caught in an avalanche, something has gone terribly wrong. Once caught, unmanageable outside forces are working against you. As long as you can stay on top of your skis it's worth trying to ski out, but the odds are against you.

Don't ski tracks on a slope mean it is safe?
Ski tracks on a slope give a false sense of security. Many people have been caught and killed in avalanches on heavily tracked slopes. Once a weak layer is buried deep enough the weight of a skier may not impact it. The snowpack is not a uniform depth: some areas are thin while others are thick. If a skier hits a thin spot it can collapse the weak layer and trigger a slide, taking the thicker slab, tracks and all. We have seen this multiple times on Saddle Peak in the Bridger Range when hundreds of tracks get wiped away when one skier triggers the slope.