

# AVALANCHES

Many people think of a snow capped mountain as a peaceful scene, but things can get ugly pretty quick if an avalanche comes! Learn about what causes avalanches, the effects they have on the world around them and some avalanche safety tips.

## What Is an Avalanche?

An avalanche can reach speeds of 80 miles per hour and kills more than 150 people every year.

Avalanches occur when a big mass of ice and snow comes off of the side of a mountain and rushes down the mountain's side.

Basically, when there is an excess of snow on a mountain, the snow comes tumbling down. Think about it like playing a game where you stack blocks on top of one

another. The stack gets higher and higher, but eventually, it falls down. While some avalanches are massive and have the ability to destroy buildings, other avalanches are small with only minimal amount of snow and ice. This is called **sluff**.



*There is nothing calm and peaceful about the snow in this avalanche!*

# Causes of Avalanches



*This scientist is looking for factors that might cause an avalanche on the mountain!*

While avalanches can occur at any time of the year, there are certain factors that might increase the chance of an avalanche taking place. For example, avalanches are most likely to happen within 24 hours of a snowstorm that drops 12 or more inches of snow. Also, layers of wind-driven snow run a high risk of causing an avalanche. Other variables that might cause an avalanche include the mountain's **slope** (how steep the

mountain is), wind, terrain and general conditions of the snow.

# Effects of Avalanches

If you get trapped in an avalanche, it is basically like getting buried alive. Since the snow is so heavy, avalanche victims are rarely able to dig themselves out. Once the avalanche stops, the snow settles like concrete and makes it nearly impossible to move. Victims of avalanches are also at risk for **frostbite**, a potentially deadly disease that occurs when the human body is exposed to extremely cold temperatures for an extended period of time. Victims are much more likely to survive an avalanche if they are rescued within 15 minutes, but after 45 minutes the survival rate drops drastically. Besides being dangerous to humans, avalanches can also cause flash floods and changes in weather patterns.

# Avalanche Safety



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1. “Loose snow” avalanches account for only a small percentage of deaths and property damage. “Slab” avalanches (the most lethal) are cohesive plates of snow sliding as a unit.<sup>[1]</sup>
2. Each year avalanches kill more than 150 people worldwide.<sup>[2]</sup>
3. In 90% of avalanche accidents, the victim or someone in the victim’s party causes the snow slide.<sup>[3]</sup>
4. The human body is 3 times denser than avalanche debris and will sink quickly. When the slide slows, clear air space to breathe, then punch your hand skyward. Once the avalanche stops, it settles like concrete.<sup>[4]</sup>
5. Unlike its portrayal in movies, noise does not trigger avalanches. Avalanches are caused by four factors: a steep slope, snow cover, a weak layer in the snow cover, and a trigger.<sup>[5]</sup>
6. The vast majority of avalanches (90%) occur on slopes with angles between 30 and 45 degrees. Steeper slopes tend to continually slough snow, keeping a deep snowpack from building up. The snowpack on flatter slopes requires more force to move.<sup>[6]</sup>
7. Avalanche risk is at its greatest 24 hours following a snowfall of 12 inches or more.<sup>[7]</sup>
8. Avalanches can reach speeds of 80 mph within about 5 seconds.<sup>[8]</sup>
9. The deadliest avalanche in American history was due to a train wreck in 1910. Roughly 96 people died in the incident.<sup>[9]</sup>
10. If a victim can be rescued within 18 minutes, the survival rate is greater than 91%. The survival rate drops to 34% in burials between 19 and 35 minutes.<sup>[10]</sup>
11. After one hour, only 1 in 3 victims buried in an avalanche is found alive. The most common causes of death are suffocation, wounds, and hypothermia.<sup>[11]</sup>