Photo courtesy Nick Logan

Dale Atkins at the site of a 2005 avalanche in Brown's Gulch. Long an avalanche forecaster for the Colorado Avalanche Information Center in Boulder, Atkins now has his own avalanche consulting business in Boulder.

No swimming

Dale Atkins says much of what you know about surviving an avalanche is wrong

By Clay Evans
Get Out Editor

For a century and a half, ever since a Swiss writer first described the technique in 1864, the message has been the same: If caught in an avalanche, start swimming.

Makes sense. After all, the human body is more dense than snow, so it will have a tendency to sink — right? And as the Wiki How Web site advises, "Try to stay afloat by using a swimming motion. ... As the avalanche slows down, quickly try to get yourself to the surface before the snow settles."

Sure. If you want to suffocate.

Boulder's Dale Atkins, for nearly two decades the top forecaster at the Colorado Avalanche Information Center in Boulder and one of the world's top avalanche experts, says swimming kills more people than it saves.

Atkins acknowledges that there are anecdotal tales of swimming to survive an avalanche, but "the problem is, it's a very biased sample," he says with a pleasant smile. "They're all survivors."

In fact, says Atkins, who has studied avalanches all over the world and is now an avalanche consultant after leaving CAIC last year, much "common sense" about surviving avalanches is wrong.

And when Atkins speaks, people in the avalanche business listen.

"He has done so much with thinking about accidents, investigation, doing research, what he says carries a lot of weight," says Spencer Logan, a forecaster at CAIC.

The wiki entry above is a perfect example of avalanche misinformation.

Error No. 1: Yes, the human body is more dense than snow (technically, Atkins says, we're talking about specific weight, which takes gravity into account, not density) but that doesn't mean you sink in an avalanche.

"What we've done with being in an avalanche is treat it like water," says Atkins, 45. "The problem is, an avalanche is not water. It has a fluidized state, but it's not a liquid. It's a solid. It's actually a granular flow."

And granular flows behave very differently from liquids: Smaller "particles" — of whatever: rocks, cereal, snow clumps – settle toward the bottom, while larger particles move toward the surface.

"A person is like a really big particle, and rises to the top," says Atkins, who grew up in Evergreen and first joined an alpine rescue team at 13, describing the principle of "inverse segregation."

Don't believe him? Check out your cereal box or next bag of chips: The crumbs sift to the bottom, while the biggest pieces stay on top; he also calls this the "Brazil nut effect," because smaller nuts sink to the bottom of the bowl.

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Avalanche advice goes against traditional wisdom

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The stats are on Atkins' side: Since 1975, some 1,748 people have been caught in American avalanches, but only 309, or roughly 18 percent, were buried.

"And we only hear about serious accidents," he says. "Probably twice that many people have been caught, but we probably hear of nearly all the burials. So the actual burial number might be only 10 percent."

Error No. 2: The classic advice about "swimming" actually may kill more avalanche victims than it saves. The most important thing to do if caught in an avalanche is maintain a breathing space around your mouth. But if your hands are doing the breaststroke, you can't do that.

"All these people I've dug out, rescues I've been involved in, pictures I've seen, their hands aren't near their faces," Atkins says.

Error No. 3: Advice to wait until "the avalanche slows" to put your hands to your face, Atkins says, is a recipe for death if you are unlucky enough to be buried.

"That may be physically impossible because of what happens. In a matter of a second or two, an avalanche can slow, stop, and all those clumps of snow interlock. As soon as that happens, you go from a fluidized flow to a solid block," he says. "You can't get your hands to your face."

Logan still advises "fighting like hell" when an avalanche clearly is still moving, then still protect an air space and "ball up," as long as you are in control. But he acknowledges that sometimes, "there's no way you can be in control," and Atkins says don't bother swimming at all once you've cast off your ski poles, ice ax or other "anchors."

Atkins realizes his advice goes against 150 years of avalanche wisdom, but as a longtime member of Colorado's Alpine Rescue Group (which helped dig out cars buried in the Jan. 6 avalanche on Berthoud Pass), former Loveland ski patroller, member of the International Commission for Alpine Rescue, and co-author of "The Snowy Torrents," Vol. 4, which details every American avalanche from 1980 to 1986 (Vol. 5, now in process, will cover 1987 to 2000), he knows of what he speaks.

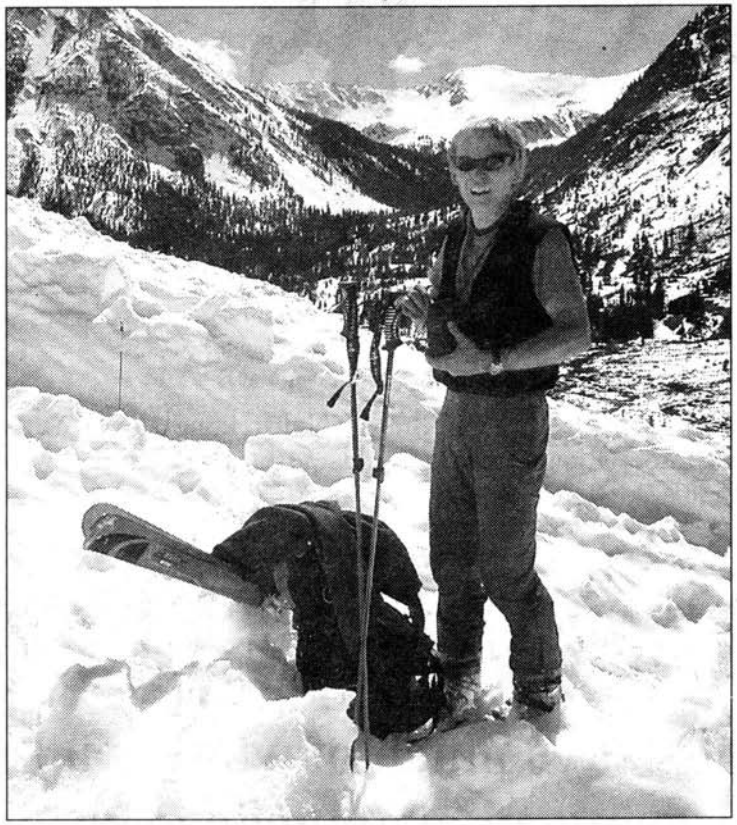

Photo courtesy Nick Logan

Boulder avalanche expert Dale Atkins stands on the site of a 2005 avalanche in Brown's Gulch, Colorado. Atkins, one of America's foremost avalanche experts, says the standard advice to "swim" if caught in an avalanche may kill more people than it saves.

And sometimes, he says, conventional wisdom needs to be shaken up.

"Think of bloodletting. Sometimes it may have worked. ... The logic was, something 'bad' needed to be let out of the body. And if it didn't work, the physician or barber or surgeon just said, 'We tried everything, they were too sick, their time was up,' Atkins says. "That's sort of what we've done with being stuck in an avalanche. The logic is to treat an avalanche like water. ... But for all the 150 years of saying 'swim,' there is no statistical evidence that it works. It's become a kind of conventional wisdom. The logic is sound, but the premise is wrong."

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