

# Duluth News Tribune

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## Now popular on the slopes, ski helmets have their limits

Thirteen-year-old Inger Eckman, the youngest of Philip and Julie Eckmans' three children, died in 1986 in a skiing accident. Helmets were seldom worn in those days, and there's no way to know whether one would have saved her life.

By: [John Lundy](#), Duluth News Tribune

On the afternoon of Jan. 15, 1986, Julie Eckman kissed her daughter goodbye for the last time.

Thirteen-year-old Inger, the youngest of Philip and Julie Eckmans' three children, the girl with "a goofy, goofy spirit about her that was filled with laughter and generosity and kindness," in her mother's words, caught a ride with a friend to Spirit Mountain. A promising alpine skier in a family in which everyone skied, Inger was headed for an evening of downhill slalom training with Team Duluth, the team that's based at Spirit Mountain.

Julie Eckman was playing tennis and Philip Eckman, then president of the Duluth Clinic, was at a meeting when each got the call every parent dreads.

By the time they got to St. Luke's hospital, Inger was being kept alive until her organs could be donated — something everyone in the family had agreed the summer before that they'd do if the time ever came.

Witnesses at the time gave differing accounts about what happened. The Eckmans were told that a recreational skier crossed into Inger's path, causing her to veer into woods. She struck a tree head-on.

She wasn't wearing a helmet.

"I don't regret that she wasn't wearing a helmet, because nobody did," Philip Eckman said in a recent interview.

In 1986, helmets were coming into use in downhill ski races at larger ski areas, the Eckmans said. But on Minnesota slopes, helmets just weren't seen.

Fast forward to 2013, and helmets are almost as much of a given as poles and boots at ski areas across the nation.

Yet helmets, though widely recommended, offer little defense against the most serious head injuries sustained by skiers and riders, some researchers say. And one nonprofit agency argues that the helmets currently on the market aren't as effective as they should be.

### Mixed results

Jake Shealy, professor emeritus in industrial engineering at the Rochester Institute of Technology, has studied safety on the slopes for 40 years. When asked whether helmets help prevent head injuries for skiers and snowboarders, Shealy had to qualify his response.

"The answer is: They do, but not as much as you might think," he said. "They do precious little, at present, for anything in the way of a significant concussion."

Shealy, who is 72 and has been skiing for 50 years, was lead author of a 2006 study with the provocative title: "Do helmets reduce fatalities or merely alter the pattern of death?"

The authors looked at deaths in alpine sports from 1978 to 2004 and found that the rates remained essentially constant: 0.75 deaths per million visits for skiing and 0.53 for snowboarding. The percentage of deaths attributed primarily to head injury remained at 60 percent, even as helmet use rose, the study said.

That's not to say that helmets are ineffective. A variety of studies concluded that wearing helmets does reduce the number of head injuries while skiing or snowboarding by anywhere from 35 percent to 60 percent, depending on how head injuries are defined, Shealy said. But they are most effective at preventing relatively minor injuries, such as skull fractures.

"A skull fracture sounds really bad," Shealy said. "But the reality is that a skull fracture is not that bad of an injury. ... The injury that really needs attention is, in fact, the concussion."

Shealy continues to track head injuries on the slopes, and he said nothing has happened in the past seven years to change his conclusions.

### Good enough?

Yet Shealy's own research prompted him to start wearing a helmet, he said. He's satisfied with what's available to skiers and snowboarders. "What's on the market today, I think, is pretty good," Shealy said.

But one nonprofit agency disagrees.

"I think it's a good thing that a lot of people are conscious" of the need for helmets, said Hong Zhang, director of education for the California-based Snell Memorial Foundation. "I hope they will be asking for more protection than they have now."

The Snell Foundation sets standards for helmets used in a variety of activities, from auto racing to snowmobiling. It has a standard for snowboard and skiing helmets as well, Zhang said, but no manufacturer currently meets those standards. Two manufacturers that did meet the higher standards stopped making those helmets after a few years.

To achieve Snell approval, the manufacturer has to submit its design, Zhang said. And Snell randomly tests that company's helmets to make sure they really are meeting it.

Most helmets conform to standards set by ASTM International, formerly known as the American Society for Testing and Materials, Zhang said. But the ASTM standard achieves only 63 percent of the protection helmets made to the Snell standard would provide, she said.

Zhang still has the Leedom ski helmet she bought that was made to Snell standards, she said. But she can't get helmets made to that standard for her children.

She attributes the absence of helmets built to Snell standards to lack of demand from consumers and lack of competition among manufacturers.

### **'Bigger, heavier, clunkier'**

But Shealy said consumers might reject a stronger helmet if it were also bulkier.

"Where I think it would make a difference is if helmets were bigger, heavier, clunkier," Shealy said. "That's where I think you might start to see some resistance."

The "bulk" factor may have contributed to the earlier demise of Snell-standard helmets, Zhang agreed. Early U.S. ski helmets were imports from Europe that appealed to the fashion-conscious, she said. The brands built to Snell standards suffered by comparison.

But U.S. helmets have changed enough so that the appearance wouldn't be as much of an issue today, Zhang said. The issue now is getting consumers to demand a better product.

"The technology certainly is there," Zhang said. "It's not high-tech science. The manufacturers will always make something that the consumer wants."

The problem may be the way skiers and snowboarders behave, not their helmets, people in the industry say.

Scott Neustel, owner of the Ski Hut stores in Duluth, said a couple of trends might keep the number of injuries up even as helmet use increases.

One is the growing popularity of side-country skiing at mountain resorts. That allows skiers to take the resort's ski lift but ski beyond the resort's boundaries, placing skiers in ungroomed, extreme terrain, Neustel said. The risk of injury is greater in that sort of terrain, especially if skiers lack the necessary skills, he said.

The second trend is present at Northland slopes: the increasing popularity of terrain parks for freestyle skiing.

"They build up piles of snow, and kids are jumping, and they have boxes and rails they slide on," Neustel said. "Well, a lot of them get hurt doing it. But if they didn't have helmets, I would think that head injuries would be significantly higher."

### **'Superman syndrome'**

High-level snowboarding has become much riskier since Shaun White introduced the double cork in 2006, said Michael Aguirre, whose children Molly and Mason began their professional snowboarding careers in Duluth. The double cork was the maneuver Kevin Pearce was trying on

Dec. 31, 2009, when he suffered the traumatic brain injury that ended his professional career.

"There's only so much a helmet can do," Aguirre said. "Look at Kevin Pearce. He had a full helmet on. At some impact or velocity, it's not going to do much good."

Kids want to emulate what they see the pros do, Neustel said. "They're seeing their heroes jumping higher and doing more tricks."

Helmets themselves might be part of the problem if they create a false sense of security, people in the industry say.

"There's the 'superman syndrome,' where you put a helmet on a child (and) they think they can't get hurt," said Michael Cameron, general manager of Mont du Lac recreation area.

That might be one reason increased helmet use hasn't led to decreased head injuries, said Dr. Brionncq Tonkin, staff physician in the physical medicine and rehabilitation department at Hennepin County Medical Center in Minneapolis.

"We hypothesize that people feel more secure wearing a helmet, and so they take bigger risks," said Tonkin, who grew up skiing on Colorado's mountains. "They go faster. They do things that they wouldn't normally do."

### **The speed factor**

In examining hundreds of death certificates from skiing accidents, Shealy's team discovered one factor was almost invariably present: higher-than-average speed.

How fast is fast on the slopes? Shealy and his team took a radar gun to the base of three different slopes, hiding its presence to avoid influencing skiers' behavior. After timing 650 consecutive skiers and snowboarders, they came up with an average speed of 27 mph.

"People who die while skiing probably are going faster than 27 miles an hour, usually," Shealy said. "If you impact a tree at 27 miles an hour, would a helmet make a difference? The answer is: Probably not."

The National Ski Areas Association encourages wearing helmets, said Dave Byrd, director of risk and regulatory affairs for the trade group. But wearing a helmet is no substitute for other safe-ski and snowboard practices, such as staying in control and yielding the right of way to people ahead of you, he said.

"It's far more important to ski safely and responsibly than any one piece of equipment," Byrd said. "Following the industry's 'Your responsibility code' is the best way to prevent against injuries."

Team Duluth was a trend-setter when it comes to wearing helmets in competitive skiing. Inger Eckman's death provided the impetus.

"They required after that that all kids who were going to be skiing at Spirit Mountain — racing — would wear helmets," said Neustel, who was one of the

team's coaches at that time.

The Eckmans have no way of knowing if a helmet would have made any difference in Inger's case. They haven't dwelled on the what-ifs. They think their daughter's death was truly an accident that happened despite proper precautions.

"There was no blame," Julie Eckman said. "There was no one to blame. Accidents happen."

Within a couple of years after Inger's death, the Eckmans noticed many more skiers wearing helmets. They kept skiing, as did their son Philip Jr., now 47, and their daughter Brita, 45. Philip Jr.'s three daughters also have taken up the sport.

"And they all wear helmets," Julie Eckman said.

"I sure feel better wearing a helmet," Philip Eckman said. "My goodness."

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