



# Fixing skiing's painful problem: KneeBindings prevent ACL tears

Dan D'Ambrosio, USA Today Network

(All Photos: RYAN MERCER/FREE PRESS)



Anyone who has heard the sound of an anterior cruciate ligament tearing on the ski slopes will understand why KneeBindings were invented.

The Vermont-made ski bindings claim to prevent painful ACL injuries — the most common injury in skiing — by releasing before the ligament snaps.

"It really does work," said John Springer-Miller, chairman and majority owner of the Stowe-based company.

Springer-Miller doesn't have scientific studies to back up his claim, but he said he does have

eight years of sales of the bindings without a single reported case of a rear-weighted ACL injury. If the bindings didn't work as advertised, Springer-Miller said, there would have been "hundreds" of this type of ACL injury among skiers using KneeBindings, according to the accepted rate of injuries per skier days.

"It's not peer-reviewed scientifically published data, but it's empirical evidence at this point," he said.

Springer-Miller said KneeBindings are sold in about 500 retail shops in 12 countries.

The rear-weighted ACL injury happens when a skier is in the "back seat" on his or her skis, with hips and knees bent.

"You catch an inside edge and it pulls your foot sideways and rips your knee apart," Springer-Miller said. "This has been going on since shaped skis. That's when it started to get bad."

Springer-Miller explained that on shaped skis, the tail and tip are wider, so that in certain situations they "dig in like shovels." The resulting force is resolved in the middle of the ski — the "dead zone" — where regular bindings don't release. The resulting torque on the knee tears the ACL.

The unique feature of KneeBindings is that they include both a lateral toe release and a lateral heel release, allowing the binding to release in the dead zone.

"It's so straightforward, so simple," Springer-Miller said. "KneeBinding adds a second point of rotation. We do what everybody else does, but we also, once you get into the dead zone, release sideways at the heel by rotating around the toe."

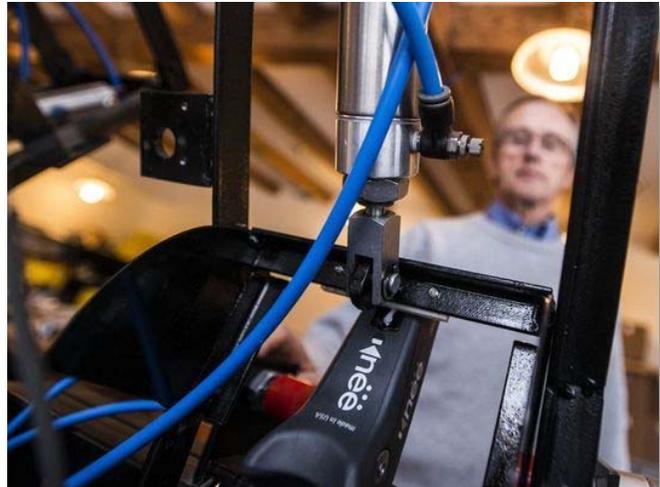
Dave Byrd, director of risk and regulatory affairs for the National Ski Areas Association, said an ACL injury costs ski resorts between \$40,000 and \$100,000 per employee, making it "one of the largest, if not largest expenses from a workers' compensation standpoint."

"For ski instructors and patrollers, an ACL injury is enormous, you're likely out for the season," Byrd said. "You have the loss of income, there's a time and cost expense with medical bills and doctors' visits, and there's a sizable psychological cost as well as to how well you're going to be able to ski next season."

Chris Bates, president of Cataloochee Ski Area in Maggie Valley, North Carolina, requires his on-snow employees to use KneeBindings. Bates said he has about 175 employees ski on the bindings, which he provides free of charge.

Prior to adopting KneeBindings, Cataloochee averaged two and a half ACL tears among staff each season, according to Bates. Since making KneeBindings mandatory two years ago, Bates said there have been no ACL tears among staff.

"Statistically we've saved four to five ACL tears," he said.



Chief Operating Officer Steve Walkerman explains one of several machines he engineered to test the KneeBinding product before being sold.

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Springer-Miller said about 35 resorts are in KneeBinding's resort program, including Smugglers' Notch. Sugarbush Resort in Warren is not among them. Win Smith, owner of Sugarbush, said he needs to see more evidence the bindings work before adopting them for his staff.

"We certainly would be very interested in anything that would reduce knee injuries to guests or employees," Smith said. "You want to see empirical evidence and research done."



The KneeBinding family, from left, John Springer-Miller, principal owner of KneeBinding, Accountant Simone Youkel, Chief Operating Officer Steve Walkerman and Production Lead Jordan Lehouillier at their office and workshop in Stowe.

Bart Pierce, owner of Pierce Skate & Ski in Bloomington, Minnesota, is convinced KneeBindings work. Pierce started small with the bindings four years ago, selling 10 pairs. In his second year, Pierce sold 25 pairs; in his third year, 50 pairs; and this year, Pierce expects to sell between 75 and 100 pairs of KneeBindings.

The bindings are relatively expensive, Pierce said, at about \$370 for women, and \$400 for men. That compares to about \$230 for other brands of bindings. But Pierce has what he says is an effective sales pitch for KneeBindings.

"Without sounding like a wisecrack, ACLs are expensive, too," Pierce said. "There's certainly no guarantee (KneeBinding is) going to eliminate all the risks associated with skiing, but it helps greatly reduce injury to the ACL."



Chief Operating Officer Steve Walkerman explains one of several machines he engineered to test KneeBinding products before being sold. Quality control and making sure every binding works are top priorities.