

# Safer Slopes

## A new cushioned pad protects snowboarders from crash landings

Stephanie Warren

**E**ight years ago, 20-year-old Aaron Coret was snowboarding down a mountain in British Columbia, Canada. He sped toward a jump to perform a trick he'd done several times before. But this time, something went wrong. As Coret flew off the 15-meter (50-foot) snow ramp, he lost control. He landed on his back and was paralyzed from the neck down.

While recovering after the accident, Coret had an idea for protecting snowboarders, at least while they're practicing. If the boarders had a cushioned pad to land on, they could practice tricks without getting hurt as he did. Coret got the help of Stephen Slen, his best friend and a fellow engineering student at the University of British Columbia. Together they turned Coret's quest for safer snowboarding into a reality.

### Softer Landing

Snowboarders use **gravity** to gain the speed they need to do amazing airborne twists and flips. This invisible force pulls a snowboarder down a mountainside. The boarder zooms faster and faster down the slope, gathering **momentum**. Faster, heavier objects gain momentum more quickly.

By the time the snowboarder nears a jump, he or she has enough momentum to overpower gravity and go flying through the air! But boarders need to get the jump just right. Otherwise, gravity can send them crashing to the ground.

To help snowboarders land unharmed, Coret and Slen created the Katal Landing Pad. When a boarder lands on the pad, it absorbs the impact. "It's like falling on a pillow!" says Slen.

## Mimicking the Mountain

The landing pad allows snowboarders to practice stunts safely. Then when they try the trick on actual snow, they'll have a better chance of landing it. Coret and Slen knew that to make the landing realistic the pad had to feel like it was part of the mountainside.

First, the team had to get the landing pad's shape just right. When snowboarders fly off a jump, they move along a curved **trajectory** as gravity pulls them downward. Coret and Slen gave the landing pad a downward angle that mimics a mountain's slope.

Next, the landing pad needed a surface that was slick like snow. A rough surface would create **friction** between the snowboard and the pad. This slowing force could make the boarder fall. So Coret and Slen made the landing pad out of a slippery type of plastic called vinyl.

Finally, the landing pad had to cushion a snowboarder when he or she landed. But it couldn't be so soft that the boarder sank into the padding. Coret and Slen designed the landing pad with two air-filled chambers. The top one is sealed. It's firm enough for a boarder to stay upright after landing. The bottom chamber has valves that release air on impact. "It's like a bouncy castle with a hole in it," explains Slen. That provides enough give to protect the boarder's body.

## Love of the Sport

All kinds of snowboarders, from beginners to Olympians, now use the landing pad to perfect tricks. Coret believes his invention will lessen their chances of having an accident like his. "If I'd had the landing pad, I'm absolutely sure it wouldn't have happened," he says.

Even though Coret's injury keeps him from snowboarding, creating the Katal Landing Pad has given him a way to stay involved in the sport he loves. "I'm still pursuing my passion," he says, "just in a different way."

## Words to Know

**gravity**—invisible force that pulls two objects toward each other

**momentum**—motion of an object based on its mass (amount of matter in an object) and speed

**trajectory**—curved path taken by a flying object

**friction**—resistance to movement when two surfaces rub together

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