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Lindsey Vonn's Olympic dream was crushed. Here's how she will recover

A MIN AGO

By Michal Ruprecht

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(Handout/Getty Images)



Lindsey Vonn's right arm snagged a bright, neon-red slalom gate on Sunday, **snapping** the Alpine skier into a violent tumble during the women's downhill final at the Games. The three-time Olympic medalist **underwent** two surgeries to treat a fracture of the lower leg and is in "stable condition."

It's an injury severe enough to topple Vonn's Olympic dream — what even a **ruptured** ACL had not.

"Similar to ski racing, we take risks in life. We dream. We love. We jump. And sometimes we fall," Vonn **wrote** on Instagram. "Sometimes our hearts are broken. Sometimes we don't achieve the dreams we know we could have. But that is ... the beauty of life; we can try."

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Experts CNN spoke with said a fracture would have likely happened regardless of an ACL injury.



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"I think she was so well aware of the risk of injury," said Dr. Anthony Petrosini, an orthopedic surgeon at Hackensack Meridian Health who has not treated Vonn. "I don't think this injury tells you that she made the right or wrong decision."

Vonn said her past injuries "had nothing to do with [the] crash whatsoever."

"While [Sunday] did not end the way I had hoped, and despite the intense physical pain it caused, I have no regrets," the athlete wrote. "Knowing I stood there having a chance to win was a victory in and of itself. I also knew that racing was a risk. It always was and always will be an incredibly dangerous sport."

What is a tibial fracture?

Vonn announced on Monday that she suffered a complex tibial fracture. Vonn and the United States Ski and Snowboard Team did not share any additional information. The team declined to comment and directed CNN to Vonn's Instagram post.



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The tibia — also known as the shinbone — is the large, **weight-bearing** bone between the knee and ankle. Breaking the tibia **takes** immense force — the kind seen in car crashes and pedestrian collisions. In skiing, high speeds generate similar forces, which are often transmitted to the leg just above the edge of the ski boot.

“It’s what’s **called** a stress riser,” Petrosini said. “That lower part of the bone is protected, and right where it transitions to the unprotected part is where the fractures tend to occur.”

Why did Vonn undergo two surgeries?

According to Reuters, Vonn **underwent** two surgeries. The hospital where she was treated **issued** a statement to Reuters, stating that the first surgery stabilized the fracture.



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Petrosini says that typically **happens** using internal fixation — a metal rod inserted into the bone to stabilize it — rather than external fixation — a metal frame attached to the outside of the leg that holds broken bone pieces together.

CNN could not confirm the nature of the second surgery or whether Vonn experienced any complications. Reuters **reported** that the procedures also prevented “complications linked to swelling and blood flow.”



Lindsey Vonn snagged a gate during the women's downhill final on Sunday. (Jacquelyn Martin/AP)



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Leg muscles are organized into sections called compartments, which are surrounded by tight tissue that doesn't stretch much. When bleeding or swelling inside one of these compartments builds up, pressure rises and begins to squeeze the muscles, nerves and blood vessels.

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If the pressure isn't quickly released, compartment syndrome can lead to permanent damage and, in severe cases, be life-threatening or cost a person a limb. The complication is treated with incisions in the leg.

In the early weeks, Vonn will likely rely on a wheelchair or crutches for longer distances, according to Petrosini. Vonn said she will undergo "multiple surgeries" to



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Commentators and the public questioned whether Vonn and her team made the right call to ski with a ruptured ACL.

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Peter Gerdol, the women's director of the International Ski and Snowboard Federation Alpine Ski World Cup — an annual competition hosting the best skiers in the world — said Vonn was cleared to compete by medical staff at the US Ski and Snowboard Team.

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"We have to place some degree of confidence in her medical team," Lindsey Lepley, an associate professor of athletic training at the University of Michigan, said. "I trust that they thoroughly vetted this issue. They had a lot of eyes on it, and they believed that they were taking a calculated risk."

What went well on Sunday



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Several other safety features likely prevented further injury, Gerdol says. Those **include** cut-resistant underwear designed to reduce the risk of skin lacerations from sharp ski edges, an air bag to protect the chest and torso and newer helmet designs.



Lindsey Vonn is airlifted away after a crash during the women's downhill race on Sunday.
(Jacquelyn Martin/AP)

Despite these precautions, Alpine skiing remains dangerous — and Vonn's injuries are a stark reminder of that danger.

"The difference between a strategic line and a catastrophic injury can be as small as 5 inches," Vonn wrote on Instagram. "I was simply 5 inches too tight on my line when ~~my right arm hooked inside of the gate, twisting me and resulted in my crash~~."



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The road to recovery will be a long one. Tibial fractures typically take months to heal and sometimes require additional surgeries. The ACL injury, Petrosini says, will likely be addressed in a subsequent procedure and may prolong recovery time.

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"Everything points in the direction where she can achieve a full recovery from this," Petrosini said, noting that if Vonn experienced any complications, they could slow the healing process.

Petrosini says the injury alone would likely not prevent Vonn from returning to the slopes. Vonn's father told the Associated Press, "There will be no more ski races for Lindsey Vonn, as long as I have anything to say about it."

Lepley adds that rebuilding physical strength should go hand in hand with addressing mental health. Fans, she says, can help by offering support and empathy.

"She put it all on the line," Lepley said. "Now it's our job just to lend support. She's done a lot for the sport — a lot for women's athletics — and that shouldn't be forgotten."



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