

Low-altitude Olympic venues lessen chances for speedskating world records, pose challenges

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Speedskating fans should expect to see few new world records at the Winter Games. Despite improvements in technology and the training levels of the athletes, speedskating competitors in Sochi, Russia, will face off at sea level, where air resistance is enough to slow times compared to races held at higher altitudes.

"All the [world records](#) in speedskating were set at Olympics or events that were held at altitude, like Salt Lake City or Calgary, where there is less air resistance slowing the skaters down," said Robert Chapman, whose research at the Indiana University School of Public Health-Bloomington includes performance issues at altitude. "Usually, we think that altitude makes you slower, and that is true for distance running, but not for 'high velocity' events like speedskating. At lower altitudes, air resistance is a greater factor than the lower oxygen delivery to the muscles."

The air resistance also affects athletes in skill sports, requiring competitors in sports such as figure skating, ski jumping and snowboarding to retool highly technical moves to accommodate more or less for [air resistance](#). This year some events, such as figure skating, hockey and speedskating, will take place at [sea level](#), while others, such as the biathlon and skiing events, will take place at higher altitudes.

"After thousands upon thousands of moves, certain motor patterns

become ingrained for athletes," Chapman said. "A different altitude will change the feedback they get from balance and proprioception. It's something that needs to be incorporated into their practices."

Provided by Indiana University

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