

Will the new World Cup soccer ball bend? Physics plays a role in on-ground action

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Physics experts at the University of Adelaide believe the new ball created for the 2010 World Cup, called the *Jabulani*, will play "harder and faster", bending more unpredictably than its predecessor.

But why? And what will it mean for the game?

"The *Jabulani* is textured with small ridges and 'aero grooves' and represents a radical departure from the ultra-smooth *Teamgeist* ball, which was used in the last [World Cup](#)," says Professor Derek Leinweber, Head of the School of Chemistry & [Physics](#) at the University of Adelaide, who has previously written about and lectured on the aerodynamics of cricket balls, golf balls and the 2006 World Cup soccer ball, the *Teamgeist*.

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Along with student Adrian Kiratidis, who is studying for his Master of Philosophy (MPhil) in Physics, Professor Leinweber has been reviewing the physics behind soccer balls and what that means for the *Jabulani*. Adrian is also a soccer enthusiast.

"While the governing body FIFA has strict regulations on the size and weight of the balls, they have no regulations about the outside surface of the balls," Professor Leinweber says.

"The *Teamgeist* was a big departure at the last World Cup. Because it was very smooth - much smoother than a regular soccer ball - it had a tendency to bend more than the conventional ball and drop more suddenly at the end of its trajectory.

"By comparison, the aerodynamic ridges on the *Jabulani* are likely to create enough turbulence around the ball to sustain its flight longer, and be a faster, harder ball in play.

"The *Jabulani* is expected to 'bend' more for the players than any ball previously encountered. Players are also discovering new opportunities to move the ball in erratic ways, alarming the world's best goalkeepers. By the time the ball reaches the goalkeeper, the *Jabulani* will have swerved and dipped, arriving with more power and energy than the *Teamgeist*."

University of Adelaide students have also put the new World Cup soccer ball to the test on the soccer field. Based on Professor Leinweber's theories, they've attempted to "bend" the *Jabulani* and have also kicked the *Teamgeist* and a regular soccer [ball](#) for comparison.

More information: www.fifa.com/worldcup/news/new...

[d=1143498/index.html](#)

Provided by University of Adelaide

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