

New World Cup football will unsettle goalkeepers, predicts scientist

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Adidas's 'Teamgeist' World Cup ball

The new football that will be used for the first time in the World Cup's opening game today is likely to “bamboozle” goalkeepers at some stage of the tournament, a leading scientist has warned.

The ball, which has been used by teams competing in the World Cup in practice sessions, has already been criticised by England and Tottenham goalkeeper Paul Robinson for its light weight and unpredictable behaviour.

The unusual panel pattern of the Adidas's Teamgeist football has just 14 panels, making its surface considerably smoother than conventional footballs which have 26 or 32 panel hexagon-based pattern.

This, says Dr Ken Bray, a sports scientists at the University of Bath and author of the new popular science book *How to Score – Science and the Beautiful Game*, will make the ball less aerodynamically stable, giving it a more unpredictable trajectory in flight.

“With a very low spin rate, which occasionally happens in football, the panel pattern can have a big influence on the trajectory of the ball and make it more unpredictable for a goalkeeper,” said Dr Bray.

“Because the Teamgeist ball has just 14 panels it is aerodynamically more similar to the baseball which only has two panels.

“In baseball, pitchers often throw a ‘curve ball’ which is similar to a swerving free kick and the rotating seam disrupts the air flow around the ball in much the same way as a football does.

“Occasionally though, pitchers will throw a ‘knuckleball’ which bobs about randomly in flight and is very disconcerting for batters.

“It happens because pitchers throw the ball with very little spin and as the ball rotates lazily in the air, the seam disrupts the air flow around the ball at certain points on the surface, causing an unpredictable deflection.

“With the world’s best players in Germany this summer, there are bound to be plenty of spectacular scoring free kicks.

“But watch the slow motion replays to spot the rare occasions where the ball produces little or no rotation and where goalkeepers will attempt to keep up with the ball’s chaotic flight path.”

Ken Bray’s The Football Scientist blog (which will contain analysis and commentary on the scientific aspects of the World Cup):

<http://footballscientist.blogspot.com>

Source: University of Bath

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