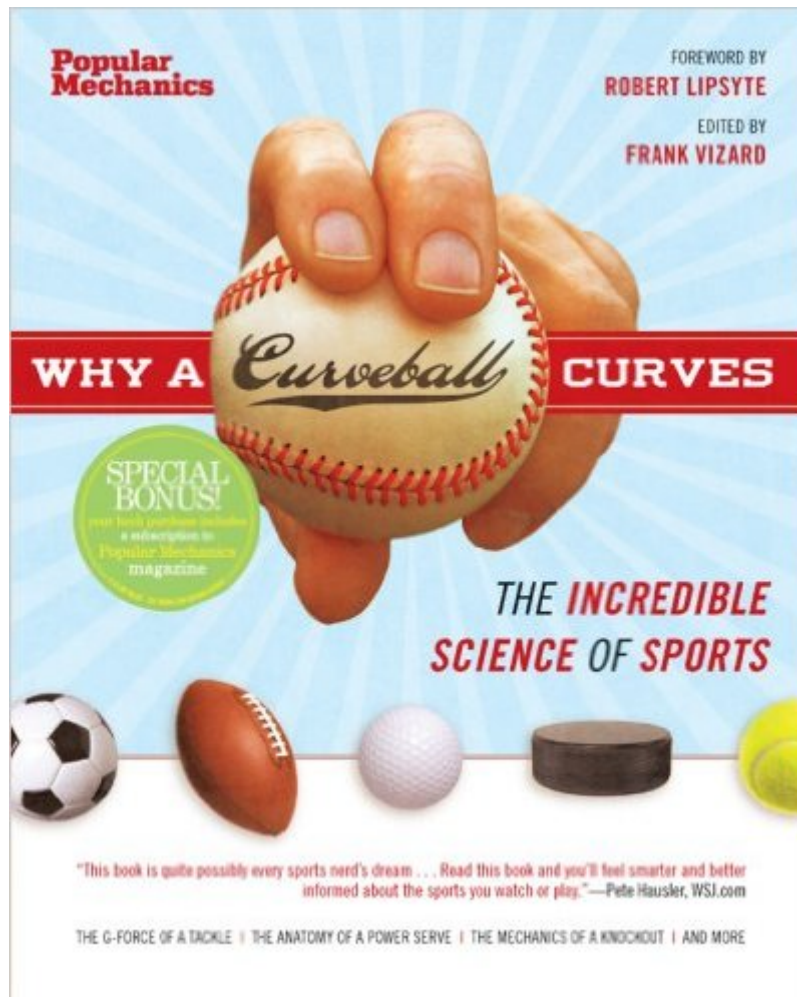


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# Why A Curveball Curves: The Incredible Science Of Sports (Popular Mechanics)



## Synopsis

Sports. They get our blood pumping and our hearts racing. Fans scream and cheer as their favorite athletes run, throw, pedal, dive, or swing their way to victory. But what makes an athlete successful? Why do some players excel when others fall behind? In *Why a Curveball Curves*, the experts at *Popular Mechanics*, along with top athletes, coaches, and sports journalists, explore the science behind sports. Fluid dynamics, biomechanics, and technology determine everything from speed in cycling to protection in football to performance measurement in all sports. This book is designed for both the player and the fan, helping athletes become better-prepared and giving enthusiasts a more complete understanding and appreciation of competition. The issues discussed range from Tiger's swing to Lance's legs, from gene doping to the physics of why a seemingly straight kick curves drastically just before its target—in other words, how to bend it like Beckham—plus so much more. [View more details](#)

## Book Information

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## Customer Reviews

As a kid, I was never a big science fan . . . I've now become more interested in the subject and you will, too, if you read *WHY A CURVEBALL CURVES*--edited by Frank Vizard. This book is a collection of articles from *POPULAR MECHANICS* by such contributors as Chicago Cubs manager Lou Piniella, Olympic swimming coach Bob Bowman and Buzz "The Shot Doctor" Graman . . . you'll learn how certain hockey players achieve greater speed on the ice, why swimming is all about reducing drag and even what Babe Ruth had to say about the mechanics of his home-run swing.\*

Coordination, that is perfect timing and harmony of action, is a great essential. You have got to develop rhythm and full utility of every muscle. My whole body goes with every swing. I swing right from the hips. And those who have seen me take a healthy sock at the ball know what I mean. With that coordination there is the fact that I assume that strength is behind it. Whatever your favorite sport is, you'll probably find it covered in this book . . . baseball, basketball, bowling, boxing, cycling, football, golf, hockey, running, skiing, soccer, swimming and diving, and tennis all get covered in separate chapters, often accompanied by memorable photos. I often found out some surprising information; e.g., about the importance of the follow-through in golf: Irrelevant. In truth, a golfer could release the club from his hand the moment after impact and it would make no difference--except, of course, to your playing partners, who might not appreciate having your eight-iron embedded between their shoulder blades.

This book approaches sports from a scientific viewpoint, but is free of mathematical calculations. Owing to its breadth, I will only focus on a few items--mostly those not mentioned by previous reviewers. For a long time, lactic acid buildup in the muscles was interpreted as evidence of shortage of oxygen in the muscle. It turns out that lactic acid is produced by the body as a fuel for metabolism. (p. 20). A hit in baseball can impose over 4,000 pounds of force, over a split second, on the ball. A graph (p. 42) indicates that a swing speed (of the bat) at 20 mph results in a speed of the batted ball of 63 mph. Other combinations include (30, 73), (40, 83), and (50, 93). The chapter on boxing makes it clear how the knockout takes place. The skull experiences a sudden acceleration, and the brain within the skull accelerates separately, temporarily stunning it and causing disorientation or unconsciousness. The discussion of hockey has fascinating information. Did you realize, for instance, that were it not for the boundaries of the rink, a puck shot at 100 mph would slide nearly 1.2 miles before coming to a stop, doing so in 2 hours and 15 minutes? (p. 158). The chapter on soccer discusses the Magnus Effect on the kicked soccer ball. A slightly off-center kick imposes a spin on the ball. This spin interacts with the airflow around the ball, causing a slight deceleration on one side of the ball. This, in turn, produces a new force--one that causes the ball to spin. Another change in the ball's motion occurs when the airflow around the soccer ball changes from turbulent to laminar flow as it slows down. The drag on the ball suddenly increases, and the ball suddenly dips in its trajectory.

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