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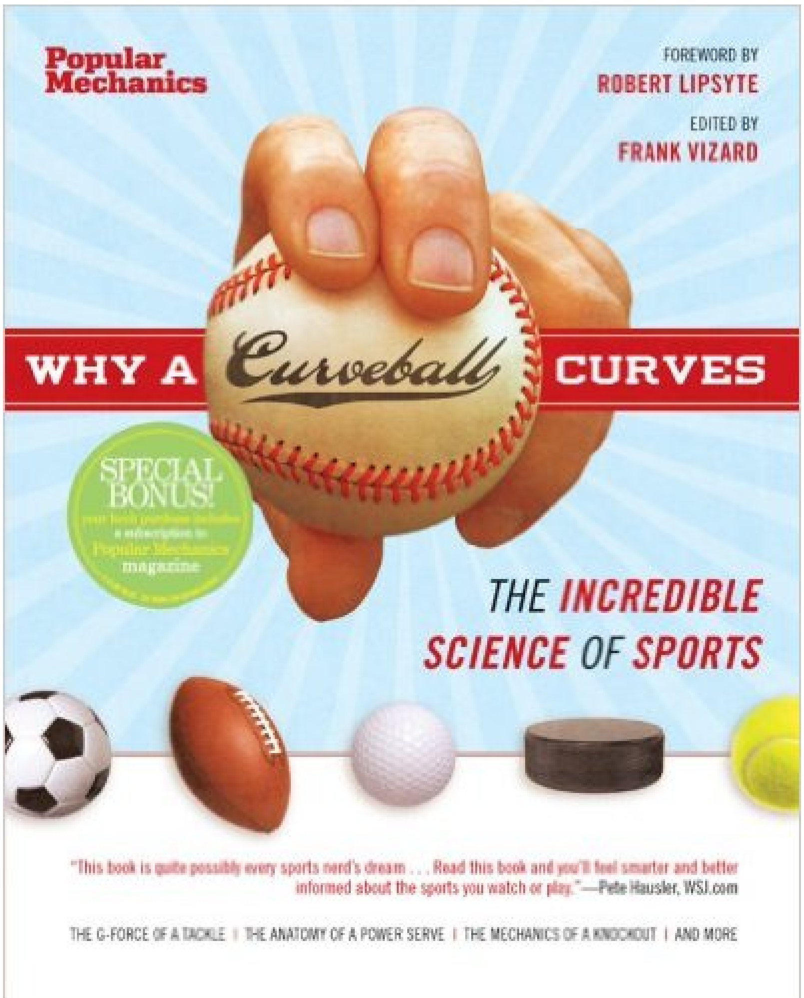
# Why A Curveball Curves: The Incredible Science Of Sports (Popular Mechanics)




## 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 Tigerâ ™s swing to Lanceâ ™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.Â  Â

## Book Information

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## Customer Reviews

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

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

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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