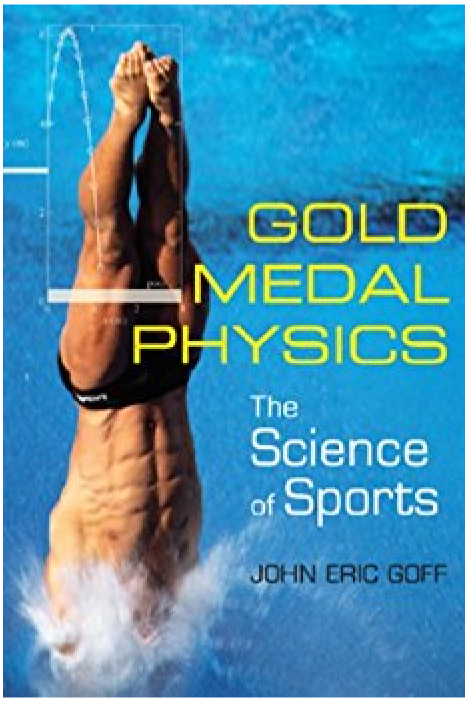
Gold Medal Physics: The Science Of Sports



Synopsis

Nothing is quite as thrilling as watching superior athletes do the seemingly impossible. From Doug Flutie's "Hail Mary" pass to Lance Armstrong's record-breaking climb of Alp d'Huez to David Beckham's astounding ability to bend a soccer kick, we marvel and wonder, "How did they do that?" Well, physics professor John Eric Goff has the answers.This tour of the wide world of sports uses some of the most exhilarating feats in recent athletic history to make basic physics concepts accessible and fun. Goff discusses the science behind American football, soccer, cycling, skating, diving, long jumping, and a host of other competitive sports. Using elite athletes such as Greg Louganis and Bob Beamon as starting points, he explains in clear, lively language the basic physical properties involved in amazing and everyday athletic endeavors. Accompanied by illustrations and mathematical equations, each chapter builds on knowledge imparted in earlier portions of the book to provide a firm understanding of the concepts involved.Fun, witty, and imbued throughout with admiration for the simple beauty of physics, Gold Medal Physics is sure to inspire readers to think differently about the next sporting event they watch.

Book Information

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Customer Reviews

Instead of repeating other reviewers, I focus mostly on unmentioned content, with a concentration on soccer.Vectors are used to decompose the motion of balls into their horizontal and vertical components. The angular motion of an ice skater is analyzed. The effects of air drag on a bicyclist are figured. There is a helpful bibliography of other books and articles which deal with the physics of sports.A standard soccer ball, kicked at a speed of 5 m/sec, experiences a drag force of about 0.25 newtons. (Fig 7.7, p. 130). The corresponding numbers for higher speeds are: (7.5 m/sec, 0.5 newtons), (12 m/sec, 0.75 newtons), (15 m/sec, 1.0 newton), (18 m/sec, 1.5 newtons), and (20 m/sec, 2.0 newtons).A sphere having a rough surface, as it flies through the air, experiences less air drag than a smooth sphere of the same diameter and flying speed. This owes to the fact that the rough sphere creates a boundary layer that is decoupled from the main air stream that is resisting the movement of the ball. In effect, the boundary layer serves as a "lubricant" relative to the air stream. At a speed of over 7 m/sec, the hypothetical perfectly-smooth-surface soccer ball would experience a drag force of about twice that of its actual non-smooth-surface counterpart. Baseballs, soccer balls, golf balls, etc., all experience the same phenomenon to varying degrees.The interaction of the rotating boundary layer with the airflow around the kicked soccer ball is not symmetrical. This creates a force (the Magnus force) that causes the ball to curve as it flies through the air. The player who is kicking a penalty shot tries to get the ball to curve to an impact point in the corner of the net. When successfully executed, the goalie has almost no chance of stopping the kicked soccer ball.

What an interesting way to look at sports. I’m surely not a physicist, but this book was a clear and easy read to understand the relationship between physics and sports. I can see that the writer really has a passion for both. I’d recommend this book to anyone who has a love for all sports and wants to see "how its done".

Gold Medal Physics: The Science of Sports pairs discussions of some amazing recent feats in athletic history with surveys of physics and science behind soccer, cycling, football, skating, jumping and other competitive sports. The result is an explanation that explains physics in clear layman’s terms and offers illustrations and math equations to build upon and reinforce sports knowledge. Perfect for sports and science libraries alike.

Puts a difficult subject into perspective by applying directly to real life sports, an area that most people are familiar with. Well done.

This book combines a geek's love of science with a jock's love of sports and explains the physics behind some of the greatest moments in sports: the Doug Flutie hail Mary pass vs. Miami, the last play of the 1982 Cal-Stanford game, etc. Good stuff!

Gold Medal Physics: The Science of Sports My Marathon:Ã Â Reflections on a Gold Medal Life The Amateurs: The Story of Four Young Men and Their Quest for an Olympic Gold Medal The Solid State: An Introduction to the Physics of Crystals for Students of Physics, Materials Science, and Engineering (Oxford Physics Series) Sports Science Projects: The Physics of Balls in Motion (Science Fair Success) Sports Betting for Beginners: How To Read The Sports Odds So You Can Turn A Few Dollars Into Big Winnings With Sports Betting! Sports Betting: Tools, Strategies, and Principles Behind Winning Sport Predictions: Sports Investing and Making Money in NBA, NFL, NCAA, Football and Basketball ... Sports Wagering, NFL Betting, NBA Betting) Sports Illustrated Almanac 2015 (Sports Illustrated Sports Almanac) Olympic Sports - When and How? : History of Olympic Sports Then, Now And Beyond: Olympic Books for Kids (Children's Olympic Sports Books) Money That Changed the World: A History of Gold Coins and Gold Currencies Gold, Silver and Rare Coins: A Complete Guide To Finding Buying Selling Investing: Plus...Coin Collecting A-Z: Gold, Silver and Rare Coins Are Top Sellers on eBay, and Etsy Find Gold! How to Find Gold Using Proven Sampling Methods The Nature of Gold: An Environmental History of the Klondike Gold Rush (Weyerhaeuser Environmental Books) Faure Gold - The Essential Collection: The Gold Series Who Really Owns Your Gold: How the Jesuits Use Gold Economics to Control Humanity Rachmaninoff Gold: The Easy Piano Collection (Gold Series) The Rhine Gold (Rhine gold - Das Rheingold), Vocal Score (First Part of The Ring of the Nibelungen) St Mary's BSc Sports Science Bundle: Physiology and Biomechanics: Introduction to Sports Biomechanics: Analysing Human Movement Patterns [Paperback] [2007] (Author) Roger Bartlett Light Science: Physics and the Visual Arts (Undergraduate Texts in Contemporary Physics) Perspectives on the Renaissance Medal: Portrait Medals of the Renaissance (Garland Studies in the Renaissance)