

tennis science

BRUCE ELLIOTT, MACHAR REID & MIGUEL CRESPO

how player and racquet work together

racquet shaft
forearm
angle ϕ
4700 rpm
velocity v_x/g
post impact head path

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The image features a female tennis player in a white athletic outfit, captured in a dynamic pose during a backhand stroke. Overlaid on the image are several scientific diagrams. A large blue arc represents the racquet's path. A yellow dashed line shows the ball's trajectory, with a label '4700 rpm' indicating the ball's rotation and 'velocity v_x/g ' indicating its speed. Red and white circles and lines illustrate various angles and velocities. Labels include 'racquet shaft', 'forearm', 'angle ϕ ', 'post impact head path', and 'velocity v_x/g '. The background is dark, and the overall aesthetic is high-tech and scientific.

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Resumo de Tennis Science: How Player and Racquet Work Together

If you have watched a Grand Slam tennis tournament in the past decade, you are probably aware that the game is dominated by just a few international powerhouses. At the conclusion of each tournament, it is likely that you will see Serena Williams atop the women's podium and a member of the Big Four—Roger Federer, Rafael Nadal, Novak Djokovic, and Andy Murray—hoisting the trophy for the men.

And while there is not a lot of variety in the outcome of these matches, the game of tennis itself has changed drastically over the decades, as developments in technology and conditioning regimens, among other factors, have altered the style of play.

Underpinning many of these developments is science, and this book explains the scientific wonders that take the ball from racquet to racquet and back again. Each chapter explores a different facet of the game: learning, technique, game analysis, the mental edge, physical development, nutrition for performance and recovery, staying healthy, and equipment—and is organized around a series of questions.

How do we learn the ins and outs of hitting the ball in and not out? What are the main technological developments and software programs that can be used to assist in performance and notational analysis in tennis?

What role does sports psychology play in developing a tennis player? What is the role of fluid replacement for the recreational, junior, and professional player? What rule changes have been made with respect to the racquet, ball, and ball-court interaction to maintain the integrity of the game in the face of technological change?

Each question is examined with the aid of explanatory diagrams and illustrations, and the book can be used to search for particular topics, or read straight through for a comprehensive overview of how player and equipment work together.

Whether you prefer the grass courts of Wimbledon, the clay courts of the French Open, or the hard courts of the US and Australian Opens, "Tennis Science" is a must-have for anyone interested in the science behind a winning game."

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