

Membership Services Jobs Cars Real Estate Subscribe Ren

# Los Angeles Times

LOCAL U.S. WORLD BUSINESS SPORTS ENTERTAINMENT HEALTH LIVING TRAVEL  
POLITICS NATION NOW POLITICS NOW TOP OF THE TICKET SCIENCE SCIENCE NOW

YOU ARE HERE: LAT Home → Collections

Ads by Google

1 Tip for a tiny belly :  
 Cut down a bit  
 of your belly  
 everyday by  
 following this  
 1 weird old tip.



Tip

Advertisement

## SCIENCE FILE

### Blame the referee's brain

Researchers studying Wimbledon games find hu when hit close to the line.

November 01, 2008 | Karen Kaplan | Kaplan is a Times staff w

Email

Share

0

Tweet 0

UC Davis scientists have confirmed what tennis great Jo McEnroe so colorfully alleged on the court: Wimbledon referees make bad calls when judging balls hit close to th line.

It's not a matter of incompetence, as McEnroe frequently asserted. Rather, the human brain is hard-wired to misr the true position of fast-moving objects, including tennis balls whizzing by at more than 100 mph.

Ads by Google

## Kauai Vacation Deals

BookIt.com® Saves You Up To 60% Off Kauai  
[BookIt.com/Kauai](http://BookIt.com/Kauai)

---

### FROM THE ARCHIVES

---

A Bad Call Is at the Root of Olympic Controversy

*October 15, 2004*

Stern Has Criticism for Officials' Protest

*February 29, 2004*

Irate Italians' E-Mails Lead to Crash of FIFA System Server

*June 23, 2002*

---

It takes about 100 milliseconds for the image of an object and a little longer for the brain to become aware of it. The brain is anticipating the object's location.

At the All England Lawn Tennis Club, the inevitable result of a ball being farther along in its trajectory than it actually is, according to a journal Current Biology.

David Whitney, a vision scientist at the UC Davis Center for Vision and Behavioral Science, lost 4,457 points from the 2007 Wimbledon championship as a result of a ball being out or close to the out-of-bounds line. Using slow-motion replays and a computerized ball-tracking system, the researchers identified the calls.

Without any delay in the brain, the referees would be equal to the ball. Instead, the researchers found that 70 percent of the calls that were called "out" but were actually in.

A follow-up analysis of the 2008 Wimbledon tournament found that the same year went the same way.

"This is not a problem with referees," Whitney said. "This is a problem with human perception."

Bad calls are probably evenly distributed between teams and don't influence the outcome of a match.

"If there's a missed call, it could change your psychological state."

The researchers concluded that tennis players should focus on the ball. A ball that was incorrectly called out, since they are more likely to be called out. They also suggested that Hawk-Eye replace human judgment.

Wimbledon spokesman Johnny Perkins said the tournament organizers had embraced the idea, "and that would apply to the entire sport."

--

[karen.kaplan@latimes.com](mailto:karen.kaplan@latimes.com)

Ads by Google

## East Bay Tennis Leagues

Fun and flexible leagues for all ages and skill levels

[www.InstaTennis.com](http://www.InstaTennis.com)

Email

Share

0

Tweet  0

---

### FEATURED

---



Are raspberry ketones a 'miracle' fat burner? Dr. Oz weighs in.



Hard crash ends Patrick's NASCA Indianapolis



Upsets abound in Farmers Classic quarterfinals as Ram, Berankis advance

**MORE:**

She finally has a home: Harvard

Top 10 cars: best gas mileage, lowest sticker price

