

INNOVATION

# The Science of Being a Sports Fan

What does it mean to be “addicted” to your favorite team?



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La Salle fans during March Madness. Associated Press

Imagine an avid sports fan in the throes of a nail-biter. With seconds left in the tight game, the jersey-wearing fan jumps up from the couch, muscles tensed, and barks some final orders to the athletes. A desperate “Run the ball!” or “Shoot the three!”

But, what is going on inside the fervent fan's body? Blood pressure rises, no doubt. What else? What is happening in the brain, and how are hormone levels changing?

In his new book, *The Secret Lives of Sports Fans*, San Francisco-based journalist Eric Simons discusses the biology and psychology of sports fandom. The zealous admirer of hockey and football tries to get to the bottom of a question he and other sports fans often wonder: Why am I so hooked?

### **You call sports fandom a “species-level design flaw.” Can you explain?**

I follow very closely the San Jose Sharks and the UC Berkeley football team. I care very deeply about the outcome [of their games]. But, then I think about all the things that are just horrible about me loving these teams. With hockey, I don't think anybody can look at all the concussion stuff—same with football—and feel like you are anything other than a Roman paying at the Colosseum to watch people kill each other. It is kind of sick. College football may be the worst of all, and I love college football. They are not even getting paid to destroy themselves. This is ruinous to their bodies. That's not even mentioning all of the incredibly horrible things that athletic departments do, fighting over money with the academic side of things, for example. I question the entire enterprise.

Then, you look at how many people in the world are sports fans, and you have to think that this is not something that can be overcome just by saying, “Well, but this is bad. We should stop doing it.” That is part of what interests me so much. The urge is so powerful that even when we know that this leads to a lot of bad consequences, still we stick around.

**Speaking of sticking around, what is the strongest evidence to explain why sports fans continue to be loyal fans to teams, even when there are no rewards in it for them?**

That's the problem. There is a reward, even if it often doesn't feel like it. The book is kind of a confirmation for human beings of the primacy and importance of interpersonal relationships and love. There is a lot of really cool science coming out of psychology labs about how our brains perceive relationships and how they operate with relationships. The way that relationships work, your brain often has trouble distinguishing between you and the other person.

In the case of sports, there is compelling evidence that this is basically a real relationship in your brain. In a very real sense, the sports team becomes a part of you. You just feel like whatever success it achieves is a personal success, and whatever failure it has is a personal failure. You can't cut the team off without cutting off a part of yourself. Even if the team is losing, you have so much of yourself wrapped up in it that you can't just walk away. To do so is to give up on a part of yourself.

### **How would you describe yourself as a sports fan?**

I think that I am a passionate sports fan. I love my teams very much. I think that I am also a little bit of a lonely sports fan. I don't necessarily follow sports as much to connect with a group or because I like to feel part of a group. For me, I know that I have this very important connection with my favorite sports teams, but I don't quite feel like it is tribalism. I kind of wanted to understand that connection.

**Daniel Wann, a sports fan researcher at Murray State University, came up with the "Sport Spectator Identification Scale" 20 years ago. In just seven questions, the test determines how much a sports fan cares about his or her team. How do you fare?**

*How much do you feel like part of the group?* I don't score very high on that.

*How often do you wear team stuff?* I really don't ever wear team stuff.

But, *how important is it to you that they win? And, how much do you identify as a fan of the team?* Those sorts of things are pretty high.

In his terminology, for both the Sharks and the Cal football team I am a “highly invested” fan. I score somewhere in the 40s. It is out of 56. It is seven questions on an eight-point scale. I am 43 on one team, Cal football, and 42 on the other, the Sharks.

**We have all experienced an obnoxious sports fan—someone who seems to get a little too fired up over a game or whose mood seems overly affected by a game’s outcome. How much of this is beyond his or her control?**

I would argue, actually, very little. One of the lessons for me of this book was that self-control is really quite powerful. Look at something like hooliganism in England. The country has really made progress in dealing with this, and it is not like people’s fundamental biological nature has changed in 20 years. If you make a cultural change, where hooliganism is not expected or tolerated, you can really reduce it. If you set people up to have an expectation that they will exert their self-control, they usually will.

It is the people who can’t [exert self control]—for whatever reason their prefrontal cortex isn’t strong enough to tell the rest of the brain to shut up and be quiet—that actually have a problem. Very few of us are actually like that. Most sports fan do it just fine. The people who are acting out you almost have to treat individually. Is this person a low self-control person? Is this person just a jerk to begin with? Is this person just really drunk, in which case the alcohol is inhibiting his or her self control?

**So we don’t need to cut these folks some slack?**

No, I don’t think so.

**In some sense, you have been your own lab rat. Can you explain what you’ve done to analyze how watching sports affects your own biology?**

All of us feel like something has taken over a little bit when we are watching sports. This is governable, but at the same time there are things happening that you can't control. With men in particular, your hormones are changing.

There is pretty good evidence that when males are directly competing, their testosterone goes up when they win and it goes down when they lose. There is also pretty good evidence that it just goes up in response to a challenge of any kind. It can go up at the beginning of a competition, and it could go up even more if he wins.

I found out that it is actually not that hard to test your own testosterone. You just spit into a test tube. I drooled into a test tube before, during and after some important hockey games and sent it off to a lab that analyzed my testosterone. What is interesting about these results is that there wasn't actually a very clear story. My testosterone just went up every time—whether the team one, whether they lost.

Even though one person spitting into a test tube is not science, it turns out that in any individual it [testosterone level] is really hard to predict. You take 100 men and you show them all a game that they are very invested in. You can be pretty sure that the testosterone in the winners will go up, and the testosterone in the losers will go down, averaged out among all of them. But, it doesn't allow you to predict an individual at all. Again, that gets back to this idea that self-control and some other things do play a role in governing this response.

### **It's interesting when scientists compare the testosterone responses in fans versus the players themselves, right?**

Most researchers who study testosterone will tell you that fans are having the same hormonal response that the players are. Basically, whether you played the game or watched the game, if your team won, your testosterone is probably going to go up. [Between players and fans] the magnitude of the change is going to be pretty similar.

There is this famous study that Steven Stanton did at Duke, where he studied hormonal responses to the 2008 presidential election. He found the same thing. For Barack Obama supporters, testosterone went up or at least stayed level, which Stanton says is as good as going up. For McCain supporters, testosterone went down. There is pretty compelling evidence that you have a significant response whether you are directly involved or not. Of course, nobody tested Barack Obama and John McCain and their testosterone.

### **Is there an evolutionary benefit to this?**

Possibly. I think what scientists would argue is that a lot of what testosterone does is regulate social status. For all animals that have a social hierarchy, it is really important to figure out where you are in this hierarchy. Your testosterone level is kind of an indicator of where you are.

If you think that fans of winning teams have a vicarious social benefit, which I think you could argue, then, yeah, actually there is an evolutionary reason that your testosterone goes up. Your social rank has increased as a result of this competition.

### **Biologically speaking, what is different, if anything, about how males and female fans react to sports?**

Testosterone affects mostly men. Scientists are really unclear about women—whether they just have a smaller change or whether it is delayed. But in a lot of studies of women in competition, researchers don't see this clear effect that they see in men.

Going back to that election study, the testosterone levels of women in that study didn't change. One of the difficulties with studying hormones is trying to figure out all of these other variables. How much do you care? How important is this to you? With men and women watching sports, you might say, "Well, the women just don't care about sports as much." But if you look at the election, and you ask them, how much

do you care about this election? Women cared about the election just as much. Researchers measured their cortisol levels. They were just as stressed out about it. Really, this was just as important in every respect for the women Stanton studied, except that following it, their testosterone didn't go up or down. You can get into a pretty lengthy discussion about why that happened, and I am not quite sure scientists know.

**Some people are sports fans, and some people cannot care less. Is there something different, at a biological level, between these two groups?**

I don't think so. I was really interested in this question too, because it is not just my wife, but almost all of my friends [who are not sports fans]. I spend most of my life hiding this side passion that I have. I am out at dinner trying to check my phone beneath the table and trying not to be mad when we are having a nice dinner with our friends. I don't want to be the insane one here.

People have these setups to do this, to have these relationships with sports teams, but you could be perfectly satisfied with your personal relationships. You could have other passions that you find rewarding. People get significant rewards from sports. It just makes you feel good. You get dopamine from feeling happy about it, but that doesn't have to be what makes you feel good.

More importantly, I think the magnitude of the reward goes up the longer you spend with it. So, for people who have been hopelessly hooked since they were little, like me, there are too many memories of things that I have done with my family for me to be able to give it up easily. But if you have never been exposed, don't start!

**Here we are, in March Madness—three weeks of basketball that, for some people, have mind-altering affects. Tell me this: How are sports like drugs?**

That's a good question. The human brain doesn't have that many ways of processing the world; it tries to be very efficient. So, we have this general reward system that is

set up to make us feel good when we get something useful—food or sex, basically. What scientists have found is that this system is co-opted to be used for a lot of different stuff. For example, there are some researchers who think that very intense, romantic love is processed in the same area of the brain. In an fMRI scan, it is the same area of the brain that lights up very, very intensely when you take cocaine. And, it probably is the same area of the brain that lights up when your team wins—particularly when your team wins in a way that is unexpected.

I think part of why everybody loves March Madness so much is there is the chance for these big upset wins. When the 12 seed beats the 5 seed in a game, everybody is going nuts. The magnitude of this reward in your brain is greater for an unexpected win. It is like when you find food in the wild and it's unexpected. Your brain thinks you are getting something evolutionarily useful and wants you to remember how to do it.

### **Is sports fandom an addiction?**

No. For a drug addict, the motivation to seek the drug again becomes so powerful that it overrides self-control. The reward is so great, and the memory of the reward is so great, and the motivation to get this again is so great that your self-control isn't able to interrupt this cycle. Most sports fans are able to say, "Okay, well that was fun, but there are other things that are more important."



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