

MIKE WARKENTIN

THE END OF TOLERANCE

CrossFit questions the leadership of the fitness and exercise-science communities.



THE **CrossFit** JOURNAL

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“Consume the maximal amount that can be tolerated.”

The line seems innocuous at first, just a recommendation in a [1996 position stand](#) on hydration published by the American College of Sports Medicine (ACSM).

But if you read it a few times, the words don't sit well.

Their imprecision alone seems enough to disqualify them from a publication titled *Medicine & Science in Sports & Exercise*, the ACSM's “flagship monthly journal.” Far from scientific, the words sound more like the kind of thing you'd hear a bad personal trainer tell a client at a water fountain between sets.

Consider this farcical, tragic and extreme application of drinking to tolerance: On Jan. 12, 2007, a radio station in California asked listeners to consume the maximum amount of water they could tolerate without urinating. At KDND 107.9, participants in the Hold Your Wee for a Wii contest were first given 8-oz. bottles of water to drink every 15 minutes. The bottles increased in size as participants dropped out. The winner would receive a video-game console.

Later in the day, participant Jennifer Strange, 28, died of water intoxication, also known as hyponatremia, after speaking to a co-worker about the extreme pain she was experiencing.

Prior to the 1970s, hyponatremia was almost unheard of. And while not common today, it is not nearly as rare as it should be. It occurs when a person consumes so much fluid that the body's sodium becomes diluted, causing swelling of the cells and intercranial pressure. It's a painful condition that can result in everything from seizures to death.

You can perhaps blame Strange's death on a foolish contest, but athletes have also died following questionable hydration guidelines. Updated by the ACSM in 2007, the guidelines [are still woefully inadequate](#). Misinformation and bad science persist, and people still suffer.

Last August, Zyrees Oliver, 17, died in Georgia after consuming 2 gallons of water and an equal amount of Gatorade after cramping up in football practice. According to [news reports](#), Oliver believed the cramps were related to dehydration. Sadly, [researchers don't know what exactly causes muscle cramps](#), so Oliver's fluid intake was probably as pointless as it was injurious.

Also in August 2014, football player Walker Wilbanks, 17, died of hyponatremia in Mississippi. In August 2008, 17-year-old football player Patrick Allen died of hyponatremia in California. And there are others.



Some members of the exercise-science community have simply ignored the fact that current hydration guidelines don't stand up to scrutiny.



Expert Tim Noakes has suggested over-hydration issues could be eliminated simply by telling athletes to drink to thirst.

So why do people drink too much? Stupid contests are one answer. But another answer is that authorities in the medicine and exercise-science communities have told people to drink “the maximal amount that can be tolerated” in the interests of safety and athletic performance. Athletes have also been told to drink before they’re thirsty, and to consume sports drinks to maintain sodium levels. Interestingly, the authorities producing these guidelines are sponsored by Gatorade and the Gatorade Sports Science Institute.

Cases of exercise-associated hyponatremic encephalopathy—EAHE, or brain swelling related to over-hydration—have been seen [when people are told to drink when they aren’t thirsty](#), according to Tim Noakes and D.B. Speedy. Noakes is also the author of “Waterlogged: The Serious Problem of Overhydration in Endurance Sports.” For example, in the ‘90s the U.S. Army

instituted hydration guidelines for personnel, and incidences of EAHE increased, prompting reduction of the intake requirements in 1998. After the change, rates of EAHE fell.

It doesn’t take a genius to see an obvious question: If Noakes says EAHE can be prevented “simply by always drinking to thirst,” shouldn’t we be concerned when athletes still follow other guidelines based on questionable science?

If the answer is yes, shouldn’t we be horrified when athletes die?

Why Does This Matter to You?

Intelligent human beings will ask why hydration guidelines are so confusing or erroneous as to put athletes at risk.

Trainers concerned with athletic performance will want to know exactly how to keep athletes safe and help them perform optimally.

Science-minded individuals will wonder what research supports current hydration recommendations when the British Medical Journal in 2012 launched a “[shock and awe assault](#)” on the demonstrably questionable science behind the sports-drink industry.

Health-care professionals will take notice of Mitchell H. Rosner and Justin Kirven’s contention that [dangerous conditions are actually caused by established guidelines](#): “EAH can be viewed as an iatrogenic condition because of the prevailing view that exercising athletes should drink as much fluid as tolerable during a race.”

All this matters to CrossFit trainers because they make a living on precision: Clients are getting fitter or they are not, based on the numbers on the whiteboard. These trainers should be concerned that the American College of Sports Medicine (which is actually neither a college nor a medical body) allows questionable hydration guidelines to exist, and they should be concerned by a lack of precision equivalent to that of the National Strength and Conditioning Association (NSCA), a leading sports-science organization that can’t decide how humans should squat and has never defined “fitness.”

The NSCA’s lack of precision was on full display in an article recently published in the organization’s [Journal of Strength and Conditioning Research](#), and CrossFit Inc. has taken [legal action](#) to prove supposed injury rates at CrossFit 614 in Ohio were either reported in error or falsified entirely.

Also of concern is the fact that both the NSCA and ACSM support legislation that would require licensure of personal trainers. This licensure would essentially give control of all personal training to whatever body is named in the legislation, meaning CrossFit trainers could be forced to pass NSCA or ACSM tests before they can teach a squat—a movement the NSCA has failed to define with any accuracy, as demonstrated on [The Russells blog](#) by Lon Kilgore, Ph.D.

These issues matter to licensed CrossFit trainers and affiliates because those who claim to lead and seek to regulate our industry have not demonstrated they are fit to do so.

This article is but an introduction, a 10,000-foot view of an industry that has been characterized by imprecision, poor science and corporate sponsorship for far too long. Readers are encouraged to start exploring these topics by clicking the embedded

links, reading the articles listed in the sidebar (below) and by doing their own research. Start asking questions and looking for answers; we’re doing the same thing, and our journalists are digging into the issues already. Over the next months, expect to see a number of CrossFit Journal articles on these topics.

Also expect to see reports out of the [2015 CrossFit Conference on Exercise-Associated Hyponatremia](#), to be held Feb. 20 in Carlsbad, California. The world’s top hydration experts will be in attendance, and they’ll be explaining exactly how lives can be saved by preventing over-hydration. They’ll be presenting hard science and building a new foundation to replace the one that’s washed away when real experts examine the [unsupported claims of the sports-science industry](#).

CrossFit Founder and CEO Greg Glassman has tasked the CrossFit Journal, its staff and its contributors with unraveling the whole issue and presenting it to the community, and CrossFit Inc. is mobilizing as a whole to protect its affiliates and trainers from vague guidelines, bad science and oversight by organizations with more respect for corporate interests than fact-based research.

As Glassman said on the [CrossFit Message Board](#) Feb. 19, 2014, “It’s time to drive Big Soda out of fitness and by extension, the health sciences.”

About the Author

Mike Warkentin is the managing editor of the CrossFit Journal and the founder of [CrossFit 204](#).

Additional Reading

[The ACSM Let Gatorade Distort Science](#)

[The NSCA to CrossFit—Why Should We Know if What We Publish Is True?](#)

[The NSCA’s William Kraemer Vs. CrossFit Part 4](#)

[Intro to Personal Training Licensure](#)

[Waterlogged: The Serious Problem of Overhydration in Endurance Sports](#) by Tim Noakes.