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Sugar Bombs

Believing sports drinks are a necessary part of athletics, many athletes fail to notice substantial amounts of added sugar can affect their health and performance.

By Emily Beers

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Dave Re/CrossFit Journal

Many athletes are unaware of the added sugar they consume in sports drinks and other supplements.

Tommy Marinoff used to live off pizza, burgers and Coke.

When he went to the gym, he often guzzled a Gatorade mid-workout.

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Sugar ... (continued)

He knew sugar-laced sodas weren't the healthiest options but believed Gatorade was a wise choice, especially for athletic performance and recovery.

"It's so highly advertised for an athlete to drink Gatorade. You see the commercials of athletes drinking them before and during a workout. I was brought up thinking it's what athletes should drink," said 22-year-old Marinoff, who trains at CrossFit North Marin in Novato, California.

Indeed, sports beverages are nothing less than essential athletic fuel, according to advertising.

"We were there for real. Inside the bodies of some of the greatest athletes on Earth," a 2012 Gatorade commercial boasts just as world-record holder Usain Bolt pops a Gatorade product into his mouth.

Marinoff never read the labels on the beverages he consumed. Good nutrition wasn't on his list of priorities two years ago when he was attending Butte College in Chico, California.

"Access to good food (in college) was there, but it was out of the way and harder to get. And nobody was eating it," Marinoff said. "You didn't want to be the one showing up with the chicken salad."

At 5 foot 3 and 112 lb., he wasn't overweight, so he wasn't concerned with consuming too much sugar. It was "always just so easy," he said, to get his hands on sodas and sports drinks. They tasted good, and he believed Gatorade helped athletic performance.

Everything changed in October 2014, when Marinoff started experiencing unusual symptoms: frequent thirst, constant urination, muscle weakness, unexplained weight loss. He ignored the symptoms for a month before he saw a doctor.

Marinoff weighed just 100 lb. when he was diagnosed with Type 1 diabetes, an autoimmune disease that limits or prevents the body's production of insulin. While Type 1 diabetes is considered a genetic disease, Marinoff's doctor told him he believed a simple cold caused his



Courtesy of Thomas Marinoff

After being diagnosed with Type 1 diabetes, Tommy Marinoff put an end to drinking soda and Gatorade.



Emily Beers/CrossFit Journal

These bottles each contain 34 g of refined sugar.

autoimmune response. Researchers are not certain what triggers the onset of Type 1 diabetes in adults, according to Mayoclinic.org.

With Marinoff's body no longer able to produce insulin, he was unable to regulate blood-sugar levels. When he was diagnosed, his blood sugar was measured at 900 milligrams per deciliter of blood (mg/dL). Doctors told him normal blood-sugar levels range between 80 and 120 mg/dL.

Marinoff said he felt lucky to be alive at that moment.

"Nine hundred (mg/dL) is unheard of. The normal couch potato who doesn't work out, there's no way he would be able to live with a blood-sugar (level) that high. You can go into a diabetic coma if you're at 600 (mg/dL)," Marinoff said.

For the first time in his life, Marinoff knew it was time to start learning about the sugar he was consuming on a daily basis. One of the first things he learned was he'd have to give up sodas and sports drinks if he wanted to take control of his health.

Sugar Truths

A 20-oz. bottle of Gatorade's G-Series—the original Gatorade drink—contains 34 g of sugar (136 calories), while a 24-oz. bottle of Ion4 Powerade contains 40 g of sugar (154 calories) in the form of high-fructose corn syrup. This is equivalent to 10 tsp. of sugar. The lower-calorie G2 Gatorade has considerably less sugar—12 g in a 20-oz. bottle—but also contains sucralose, an artificial sweetener.

Although 20 oz. of Gatorade has less sugar than the same amount of Coca-Cola (64 g) and Mountain Dew (77 g), Caryn Zinn, a dietician from Auckland, New Zealand, explained Gatorade's sugar content is still problematic.

"The bottom line is that it is still refined sugar and needs to be minimized in our diet for optimal health," said Zinn, who has a doctorate in public health nutrition from Auckland University of Technology.

The [American Heart Association](http://AmericanHeartAssociation.org) recommends people limit added-sugar intake to no more than 100 calories (26 g) a day for women and 150 calories (38 g) a day for men. This means consuming one 20-oz. bottle of Gatorade during a workout exceeds the amount of added sugar most people should consume in one day. Zinn said even 100 calories of added sugar—such as the high-fructose corn syrup found in many sports drinks—a day is usually too much.

Excess sugar in our diets today is contributing to what has become nothing short of a sugar epidemic.

"I think that it's a matter of the lower, the better," she said about added sugars.

In "Clinical Report—Sports Drinks and Energy Drinks for Children and Adolescents: Are They Appropriate?" the American Academy of Pediatrics warns about the potential health dangers caused by consuming sugary sports and energy drinks.

"Frequent or excessive intake of caloric sports drinks can substantially increase the risk for overweight or obesity in children and adolescents," the report stated.

Excess sugar in our diets today is contributing to what has become nothing short of a sugar epidemic, Zinn said.

"I'd say it's colossal."

The 2012 article "[The Toxic Truth About Sugar](#)," published in the international weekly science journal *Nature*, echoed Zinn's views. Global sugar consumption has tripled in the last 50 years, according to the article.

"Evolutionarily, sugar as fruit was available to our ancestors for only a few months a year (at harvest time), or as honey, which was guarded by bees. But in recent years, sugar has been added to virtually every processed food, limiting consumer choice. Nature made sugar hard to get; man made it easy," wrote authors Robert H. Lustig, Laura A. Schmidt and Claire D. Brindis.

Sports drinks are only making the sugar crisis worse, Zinn said.

"Drinks contribute a lot to this."

The Electrolyte Myth

Paris Vannata is the owner of CrossFit Bradenton in Florida. Like Marinoff, Vannata discovered he was a Type 1 diabetic as an adult and has become more conscious of his diet since being diagnosed.

As a CrossFit trainer, Vannata encounters clients like Marinoff all the time—clients who believe sports drinks will help them replace electrolytes, avoid dehydration and improve performance.

"For years, we've been told Gatorade is a sports drink, and we don't look at the label. (So people believe) it's good for recovery, it will help performance, we need the electrolytes," Vannata said.



Courtesy of Paris Vannata

CrossFit Bradenton owner Paris Vannata dissuades clients from consuming sports drinks because of the refined-sugar content.

For years, Gatorade's ad campaigns have touted the beverage's ability to improve performance and recovery. The sports-drink maker also claims it **hydrates more effectively than water** and that it helps with dangerous **electrolyte loss**.

Gatorade's marketing and advertisements are problematic, Zinn explained.

Most athletes don't need to worry about replacing carbohydrates or electrolytes as they exercise, she said, and most athletes are better off hydrating with water because Gatorade causes an insulin spike.

"By creating cool sports-drink colors, flavors and advertisements that use cool, high-profile athletes—whether or not they actually use the product—this just makes people want to buy the product more in the often-erroneous belief that they need it," Zinn said. "(It's) not good for sales if the real message comes through."



Courtesy of Caryn Zinn

Caryn Zinn, who holds a doctorate in public health nutrition, says society is in the midst of a sugar epidemic.

Much of the time, the marketing is directed at children.

"Sports drinks are seen by children as being cool and a good high-energy drink to consume. Much of the time it is an unnecessary source of refined sugar that does more harm than good," she said. "These companies always claim that they market their products to athletes. ... Kids and adults not in the know think that it is necessary for everyone doing exercise to drink it."

"I now realize that you cannot trust research that is funded by the very company who wants to make money by selling their product."

—Caryn Zinn

One reason Vannata thinks Gatorade has been successful is because it has convinced the public its claims are based on science. The **Gatorade Sport Science Institute's website** features scientific publications that often talk about the supposed health benefits of consuming Gatorade products.

For example, a 2014 GSSI publication titled "**Optimal Composition of Fluid-Replacement Beverages**" suggested fluid-replacement beverages can "augment physiological functions."

Many times, the GSSI sponsors and funds research for organizations the public considers credible, such as the American College of Sports Medicine (ACSM). The ACSM lists the GSSI as an **official corporate partner**.

Zinn suspects the GSSI could have an agenda beyond its **website's stated mission** to help athletes "optimize their health and performance through research and education in hydration and nutrition science."

She said: "I now realize that you cannot trust research that is funded by the very company who wants to make money by selling their product."



Dave Re/CrossFit Journal

Sports drinks such as Gatorade contain a notable dose of processed sugar.

For his part, when Vannata encounters a client who's influenced by the GSSI's performance claims or ads featuring stars, he encourages him or her to consider the sugar.

"I also use myself as an example of someone who only drinks water and (has been) without any issues for years."

And if a client is fearful of electrolyte loss, Vannata explains to the client this is mostly a concern when exercising continuously for more than two hours.

"If they really feel like they need to replace electrolytes, coconut water is a better choice," Vannata said.

He added: "I find that the trade-off of possible benefits versus the negatives of drinking sports drinks just isn't worth it."

Sugar Regulation

Months have passed since Marinoff was diagnosed with Type 1 diabetes. He said his life is better today because he's conscientious of the food and drinks he consumes.

He works with a nutritionist and endocrinologist who teach him about insulin and sugar levels and encourage him to focus on clean eating. Marinoff no longer guzzles sodas or sports drinks. The small amount of sugar in his diet today comes from fruits and vegetables.

"I can tell my energy is pretty much the same all day. It's not up and down all day like when I drank Coke and soda all day. It's noticeably different," Marinoff said. "Before all this, I just kind of ate whatever."

Had Marinoff not been diagnosed with Type 1 diabetes and forced to learn about sugar, he wouldn't have had a reason to stop pumping his body full of Coke and Gatorade.

This is why he supports [new legislation in San Francisco](#) that requires warning labels on ads for sugary beverages.

The legislation will go into effect this summer and means advertisements for drinks such as Coke and Gatorade will be required to state, "Warning: Drinking beverages with added sugar(s) contributes to obesity, diabetes and tooth decay. This is a message from the City and County of San Francisco."

Marinoff, who lives just 30 miles from San Francisco, said he hopes the law will help educate people—especially adolescents—about the sugar they consume every day.

"I think it's a great learning process for the younger generation."



About the Author

Emily Beers is a CrossFit Journal contributor and coach at [CrossFit Vancouver](#). She finished 37th at the 2014 Reebok CrossFit Games.