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DRUNK ON SUGAR?

BY LON KILGORE

Study results suggest guzzling a beer after a workout might actually be more productive than chugging a sugar-laced sports drink.





A cold one after a tough one:
Probably not ideal, but no sillier
than downing a sports drink
loaded with added sugar.

I just finished a barely sub-four-minute Grace. It's not a great time, but it's what I can do, and I'm spent from the effort. It's Texas hot, and on this piece of pavement at 9 p.m., it's 103 F. I'm old, tired, sweaty and thirsty.

What should I drink when I separate myself from this sweat angel?

The media and academic exercise organizations favor Gatorade or some other sports drink to help people rehydrate and recover after exercise, and we are led to believe a body of sports science says high-fructose-laden drinks with some salt are optimal for those purposes. But are sports drinks really optimal or is the belief based on exceptional marketing?

Well, we know water is best for rehydration—adding carbohydrate and salts can reduce water uptake in the gut—and there is your answer (5,10). But is there something that rehydrates as well as water but tastes good and doesn't contain sugar and salt?

Well, there might be good news: A recent study by David Jiménez-Pavón and company indicates beer can be an effective rehydration fluid (7). But beer is a mild diuretic and central-nervous-system depressant. It can't be a recovery drink.

Or perhaps it's actually more effective than sports drinks loaded with sugar.

The Breakdown

When compared to sports beverages, stout beer has approximately 33 percent less sugar, regular beer has 60 percent less sugar, and low-alcohol beer has over 70 percent less sugar. Low-alcohol and regular (4.5 percent) beer actually have more water per volume than sports drinks.

All beers contain a relatively larger—but still small—spectrum of dissolved electrolytes, vitamins and minerals than sports drinks.

If we're worried about sugar consumption, it seems beer provides all the water and less of the sugar, plus it provides more electrolytes and other nutrients than sports drinks.

	Sweat	Beer	Sport Drink
Component¹			
Carbohydrate	0.048	0.9	2
Protein (amino)	0.021	0.1	0
Component²			
Calcium	4.5	1.2	0.3
Iron	0.3	0.0003	0
Magnesium	0.39	2.1	0
Phosphorus	9	3.9	3
Potassium	12	9.8	4.6
Sodium	270	0.9	11.9
Zinc	0.12	1.32	0

1. in g per 30 g

2. in mg per 30 g

Table 1: Comparison of the constituents of sweat, beer and sports drink (adapted from 2,3,4,7,8,9,11,12,13).

But what about the diuretic effect of alcohol? What about the effect of increased dissolved contents slowing the uptake of fluid across the gut? Surely that will make beer a worse recovery drink.

It seems beer provides all the water and less of the sugar, plus it provides more electrolytes and other nutrients than sports drinks.

In the experiment, after one hour of running in heat at up to 95 percent of maximum heart rate, the subjects lost 2.4 and 2.3 percent of body mass (dehydration) in two separate trials. Subjects rehydrated in one trial with 660 ml of beer followed by ad lib water; in a second trial they consumed water alone. The volume of total fluid intake was constant between the trials. The rehydration period was two hours. Of note, 660 ml of beer is equivalent to 1.86 12-oz. bottles of beer or 1.4 pint glasses, so we know the researchers didn't send the 165-lb. subjects home hammered.



Beer isn't considered a sports drink for obvious reasons, but at least it has 60 percent less sugar than the beverages commonly seen in gym bags.

Both the water and the beer-followed-by-water treatments increased post-dehydration body mass to the same extent. In fact, beer and water also resulted in virtually the exact same recovery improvements in blood tests across the board. The researchers concluded that beer seems to be as effective as water in rehydrating individuals who have lost more than 2 percent of their body mass via exercise exertion in the heat (35 C/95 F).

The diuretic effect of alcohol was not present in these dehydrated subjects—a finding similar to an experiment conducted by Hobson and Maughan (6). If you are fully hydrated, alcohol is a diuretic, but if you are dehydrated it doesn't seem to have the same effect.

Beer as a recommended and beneficial adjunct to sport performance isn't actually new. In 1979, the American Medical Joggers Association recommended that 1 L of beer be consumed during a 40-km race to prevent runner's haematuria, a condition in which running causes breakage of the blood vessels in the bladder and discolored urine (1).

Let's actually compare the biochemicals lost in sweat with the contents of sports drinks and beer. Marketing tells us sports drinks replace what is lost—but do they really?

On Page 3, we see a lot of zeroes in the sports-drinks column but none in the beer column. It appears as though beer contains much of what is lost in sweat, so if we use the same logic as sports-drink manufacturers—well, you see the relationship.

By detailing the superiority of a real but likely untenable alternative, it should be obvious that sports drinks are not the high-tech answer for rehydration and performance.

Beer ticks off more replenishment boxes than sport drinks, and the data from the Jiménez-Pavón paper indicates it would be effective to add beer to a rehydration strategy.

So am I recommending everyone start keeping a six in their gym bag for easy access post-workout? No. But by detailing the

superiority of a real but likely untenable alternative, it should be obvious that sports drinks are not the high-tech answer for rehydration and performance.

Adding sugar and salt to water makes for a palatable and extremely cheap high-margin product. That's it. Corporate beverage companies shouldn't fund the creation of some mythology of optimal hydration simply to drive sales. But we, as customers, are also to blame for the current circumstances because we have unquestioningly bought into the hype for decades.

Beer probably is not the answer to optimal rehydration; then again, neither is a sports drink.

In the end, I tend to agree with Ellen Kushner, who wrote, "Across the troubled maelstrom of time, people always need a beer." ■

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To your health: Neither beer nor sports beverages are the answer when it comes to hydration.

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About the Author

Lon Kilgore earned a Ph.D. from the Department of Anatomy and Physiology at Kansas State University's College of Veterinary Medicine. He has competed in weightlifting to the national level since 1972 and coached his first athletes from a garage gym to national-championship event medals in 1974. He has also competed in powerlifting, the first CrossFit Total event, wrestling and rowing. He has worked in the trenches, as a qualified national-level coach or scientific consultant, with athletes from rank novices to the Olympic elite and as a consultant to fitness businesses. He was co-developer of the Basic Barbell Training and Exercise Science specialty seminars for CrossFit (mid-2000s) and was an all-level certifying instructor for USA Weightlifting for more than a decade. He is a decorated military veteran (sergeant, U.S. Army). His illustration, authorship and co-authorship efforts include several best-selling books and works in numerous research journals. After a 20-year professorial career in higher academia, he currently delivers vocational-education courses through the [Kilgore Academy](#), provides online commentary and analysis of exercise-science papers, and works as a writer and illustrator.