

The Athlete's Kitchen

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Carbohydrates: Why are they so confusing?

Carbohydrates seem to be a source of confusion for athletes and fitness exercisers alike. Due to the *Paleo Diet*, *Grain Brain*, *Wheat Belly*, and other trendy diet books, many active people don't know what to eat. They just think they should avoid pasta, bagels, juice, bananas and sugar—even if these foods are non-problematic for them. Yet, most of the *carbs are evil, fattening & bad for you* hype is targeted not to athletes but to the masses of overfat, underfit people whose bodies do not handle carbohydrates as healthfully.

What are “carbs”?

Some athletes are confused about carbs because they do not even know what carbohydrates are. One marathon runner claimed he “stayed away from carbs.” Yet, he routinely ate oatmeal for breakfast, whole wheat wraps for lunch, and sweet potato with dinner. He failed to understand that oatmeal, wraps, and potatoes are carbohydrates. He was actually limiting his intake of *refined sugars*; there is a big difference! Here's what he needed to know about *Carb Biochemistry 101*:

- Carbohydrates include both sugars and starches. Carbs are in fruits, vegetables, grains, and milk (lactose). These carbs all digest into the simple sugar glucose. Glucose travels in the blood and, with the help of insulin, is taken up for fuel by the muscles. Athletes who restrict carbs pay the price—“dead legs” and inability to perform at their best.
- All carbs—both sugars and starches—are equal sources of muscle fuel. Regardless of whether you eat a starchy potato or sugary candy, the end product is the simple sugar glucose. Some of that glucose feeds your brain; some of it fuels your muscles; and some gets stored in muscles as glycogen, ready to be used for fuel during hard and extended exercise.
- Sugars and starches are biochemically similar. For example, an unripe banana (or any fruit) is starchy. As it ripens, it becomes sweeter; the starch converts into sugar. In comparison, peas (and other vegetables) are sweet when young and their sugar converts into starch as they mature.

Are carbs bad for you?

Regarding health, some carbs are better for you than others because they offer more nutrients. For example, the sugar in sport drinks provides “empty calories” with no nutritional value (unless they are fortified to give a healthier appearance). The sugar in orange juice is accompanied with vitamin C, folate, potassium, and many other vitamins, minerals, and plant compounds that contribute to good health.

While juice offers slightly less nutritional value than you'd get by eating the whole fruit, most anti-juice hype is targeted at overfat people. Liquid calories from juice, soda and sports drinks

do not contribute to satiety (fullness). Hence, drinking sugary beverages with meals adds extra calories that can contribute to undesired weight gain. Yet, for active people who want to gain weight, juice can help a skinny athlete easily boost calorie intake while simultaneously adding carbs for fuel that enhances muscle-building workouts.

Even though refined sugar adds “junk calories” to a sports diet, you need not eat a sugar-free diet to have a good diet. A fit and healthy person’s menu can accommodate 10% of calories from refined sugar (World Health Organization's guidelines). Yet, if you frequently consume sports drinks, gels, and sports candies—as well as other sweets—you can easily consume more than 250 to 350 calories (10% of calories) from refined sugar. Please don’t displace too many fruits, veggies and whole grains with empty calories from sugar...

What about high fructose corn syrup?

High fructose corn syrup (HFCS), also deemed evil and fattening, is less evil and less fattening than portrayed by the media (1). (Ninety percent of 567 media reports on HFCS since 2004 replaced science with opinion and were biased to the erroneous (2).) HFCS is a double molecule comprised of 45% glucose, 55% fructose—the same as honey and similar to white sugar (50% glucose, 50% fructose). The negative hype about HFCS applies primarily to overweight folks who consume excessive calories of sweets, soda, candies and processed foods sweetened with HFCS. While no one needs excessive, lack-luster calories that could be better spent on nutrient-rich fruits, veggie and whole grains, does an athlete really need to fret about a few calories of HFCS in ketchup?

Are carbs fattening?

Despite popular belief, carbohydrates are not inherently fattening. *Excess calories* are fattening. Excess calories of carbs (bread, bagels, pasta) are actually less fattening than are excess calories of fat (butter, salad oil, cheese). That’s because storing excess calories of sugar as body fat requires more energy than does storing excess calories of dietary fat as body fat. This means, if you are destined to be gluttonous and want to suffer the least weight gain, indulge in (high carb) frozen yogurt instead of (high fat) ice cream!

What about sugar “highs” and “lows”?

Sugar “highs” and “lows” can easily occur in overfat, underfit people. Athletes, however, can metabolize sugar without problems. That's because exercise enhances the transport of sugar from your blood into your muscles with far less insulin than needed by the body of an unfit person. The unfit body contributes to the rise in blood sugar that triggers the need for excess insulin and leads to the “crash.”

The most common reason for “sugar crashes” (hypoglycemia) among athletes relates to running out of fuel. The shakiness and sweats are because the athlete did not eat enough carbs to maintain normal blood glucose levels and the brain is now demanding sugar. One marathoner thought the 100-calorie gel he took at mile 16 caused him to “crash.” More likely, he needed 200 to 300 calories to meet his energy needs, not just 100 calories.

You are an experiment of one

If you have intestinal distress relating to wheat, gels, onions, milk or any of a multitude of fruits, veggies and grains, your best bet is to figure out how much (if any) you can tolerate. The dose might be the poison. If you need to eliminate wheat due to celiac disease or gluten intolerance, you might have trouble getting enough carbs to fuel your muscles. That is, you'd need to eat 3 cups of blueberries to replace one bagel. Not only is that expensive, but also puts you at high risk for undesired pit stops. Consulting with a registered dietitian (RD) can be a smart idea! The referral network at SCANdpg.org can help you find a local sports RD who can address your food concerns and take the confusion out of carbohydrates.

Boston-area sports nutritionist Nancy Clark, MS, RD counsels both casual and competitive athletes at her office in Newton, MA (617-795-1875). Her best selling *Sports Nutrition Guidebook* is available at www.nancyclarkrd.com, along with her food guides for cyclists, runners, and soccer players. For online education, see www.sportsnutritionworkshop.com.

Selected References

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