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## Carb 101

Carbohydrates and I have had a complicated relationship over the years.

We've been on and off again like an old fling, where one partner can't decide how they genuinely feel about the other.

I get swayed by what the in-crowd says, but carbs also go up and down in my diet based on my life at that time.

My carb percentages went way down when I wanted to try on a supermodel six-pack for my honeymoon and way up when I ventured into breadmaking.

They've swung low over the years when I investigated the benefits of the [keto diet influenced by Dom D'Agostino](#) and the [Slow Carb Diet from Tim Ferriss](#) and, admittedly, when I gave Bulletproof Coffee a whirl.

The summer of 2016 was a good moment for me and carbohydrates when Chipotle rolled out the [greatest loyalty program](#) ever.

Not to mention the many fueling strategies I've attempted to improve my athletic performance. I've hung out in both camps and understand the reasons to dial up or down the carb intake, but before we get into those things, an introductory lesson on the basic chemistry of carbohydrates will give us the foundation to dive deeper for future letters in this series.

### Basic Carb Chemistry

In chemistry, carbohydrates are called saccharides. They are formed by a combination of carbon and water, but despite being chemically similar, variations in size and structure make them different.

The simplest saccharides are called **monosaccharides**. The most notable in our diet are glucose and fructose.

However, monosaccharides often come joined together as a structure called a **disaccharide**. Sugar, or sucrose, is a common disaccharide in our diet formed by the combination of glucose and fructose.

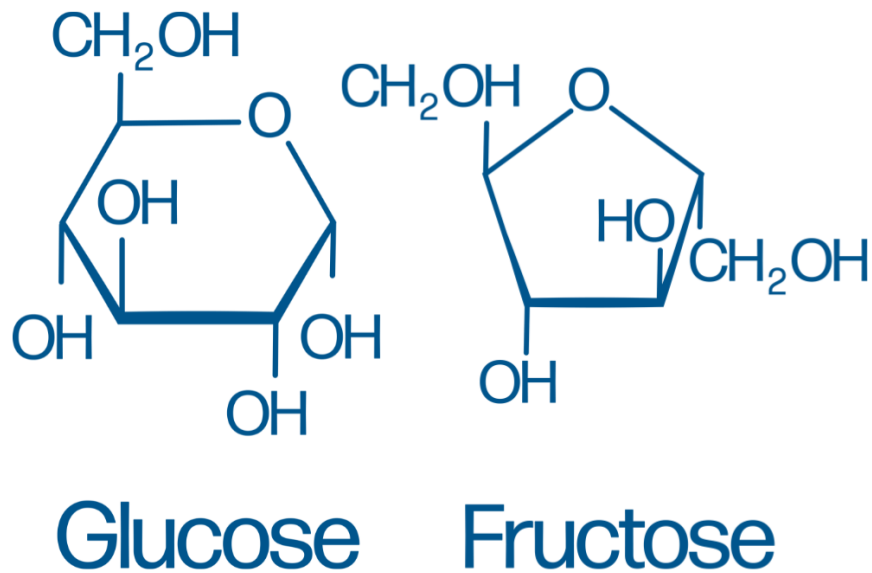
It's also worth mentioning that high-fructose corn syrup is a common sweetener found in processed foods. It takes a good deal of blame for all our health issues, but the difference comes down to a 45/55 glucose-to-fructose blend rather than 50/50.

Then, there are complex carbs called **polysaccharides**, which include:

- Starch (a storage form of energy in plants).
- Glycogen (the storage form of glucose in animals).
- Cellulose (a structural component in plant cell walls).

Keep in mind when a food is labeled as good or bad, once it hits the gut, it loses any sort of identity; they all become chemicals like those listed above.

Yet, there are additional nuances that must be appreciated for how carbs will interact with the body.



## Glucose vs. Fructose

When you consume carbohydrates, the body immediately starts breaking them down with enzymes in the saliva, then further in the stomach, until they're finally simple monosaccharides in the intestine.

For our discussion, glucose and fructose are the primary products.

Glucose goes from the intestines to the bloodstream, providing a primary energy source for the body's cells. Fructose, however, is a bit more complicated.

Most fructose gets sent to the liver, where it's metabolized differently from glucose. Due to this, fructose may be more fattening than glucose or starches and have a more significant effect on triglycerides and cholesterol than other carbohydrates.

However, since fructose isn't converted directly to glucose, it has a reduced insulin response.

## The Glycemic Response

One of the primary defining differences between a handful of candy vs. whole wheat bread vs. a piece of fruit vs. a bowl of butternut squash is how quickly they raise the sugar in your blood. The glycemic index ranks carbohydrates on a scale from 0 to 100 based on how much they raise blood glucose levels compared to the standard of pure glucose.

Foods with a high GI are rapidly digested and absorbed, causing a quick and significant rise in blood glucose levels, and low-GI foods get absorbed slower.

A diet high in high-GI foods strains the body's ability to regulate blood sugar over time and is linked to many diseases.

An emerging health trend is to track blood sugar at all times via blood glucose monitors. I believe this does have merit in helping people make better food choices, but also freaking out over physiology that's as normal as an elevated heart rate during exercise has its own set of problems—but we'll save that for another day.

## Fiber, Nutrients, and Other Stuff

The profile of the entire food entering your mouth is likely more important than the basic carbohydrate makeup.

For starters, the concentration of carbohydrates in the food matters. Over the glycemic index, I find it even more important to consider the amount of carbohydrates that are packed into a serving size, a metric called glycemic load.

For example, one cup of raspberries has about 15g of carbohydrates, almost the same as one tablespoon of raspberry jam.

The cup of raspberries also has a good deal of water and fiber, which have other benefits for the body besides the fuel provided and are much more satiating.

Fats and proteins can also slow down the processing of carbohydrates and blunt the glycemic response.

## Good or Bad?

The intricate world of carbohydrates extends far beyond the simple categorization of 'good' or 'bad.'

We've explored the basic chemistry of carbs, but this is just the beginning of the story.

The true impact of carbohydrates on our health and well-being lies in the context of overall dietary patterns and individual-specific needs.

Next week, we will delve deeper into nutrition and attempt to unravel the complexities of carbohydrate consumption, its association with health outcomes, and practical implications for our daily food choices.

Have a great week.

In good health,

Matt

**P.S.- The BOGO Sale is wrapping up tomorrow. Don't miss out on our biggest sale of the year.**

