MERCOLA
Take Control of Your Health

Hidden Sugars in Everyday Foods — Which Should Concern You?

Analysis by Dr. Joseph Mercola | March 19, 2024

STORY AT-A-GLANCE

- Refined sugars, which are also sometimes referred to as free sugars, are linked to health problems; one example is high-fructose corn syrup
- Intrinsic sugars, also known as naturally occurring sugars, are those found within the cellular structure of foods, including whole fruits and vegetables
- One of the primary differences between these two types of sugars is that refined sugars, as well as many starches, are a common cause of endotoxin production in your gut, which destroys mitochondrial function and results in cancer metabolism
- The fructose present in whole foods does not typically result in the production of endotoxin
- Avoid high-fructose corn syrup and stick with sugars from ripe fruit, unadulterated raw honey and/or pure organic cane sugar

While I've long recommended high-fat and low-carb consumption, I've recently learned that most people would benefit from far higher amounts of carbohydrates in their diet. But there's a significant difference between refined sugars added to processed foods and natural fructose found in ripe fruit, for example.

All of these sugars could be considered "hidden" in everyday foods, but some can be embraced while others are best avoided.

All Sugars Are Not Created Equal

Refined sugars, which are also sometimes referred to as free sugars, include those that are added to processed foods and drinks. High-fructose corn syrup is an example of a refined sugar. These sugars are linked to health problems such as dental decay and heart disease, as well as cancer.[1] Many health organizations and governments, including in the U.K., recommend limiting intake of free sugars, but not intrinsic sugars.[2]

Intrinsic sugars, also known as naturally occurring sugars, are those found within the cellular structure of foods, including whole fruits and vegetables. These sugars are part of the food's natural composition, not added during processing, and come with the beneficial nutrients and fiber found in whole foods, which can slow down sugar absorption and mitigate its impact on blood sugar levels.

One of the primary differences between these two types of sugars is that refined sugars, as well as many starches, are a common cause of endotoxin production in your gut, which destroys mitochondrial function and results in cancer metabolism. The fructose present in whole foods does not typically result in the production of endotoxin, provided you don't have serious gut problems.

This is one of the primary differences between refined sugar and fructose from ripe fruit and helps explain **why refined sugars fuel cancer**.

What Happened When I Increased My Carbs

For about a year, I followed a ketogenic diet that was below 50 grams of carbs a day. Then, for the next five years, I increased carbs to about 100 grams per day. For the past few months, I've increased that to 425 grams of carbs per day, mostly in the form of ripe fruit. The reason I switched to the higher carb, lower fat diet was due to learning the late Ray Peat's work through his student Georgi Dinkov. Peat was a biologist and thyroid expert; Dinkov is a bioenergetic researcher.

I've noticed dramatic beneficial changes in my blood work as a result. Increasing my carbs by 400% resulted in a highly counterintuitive 10% decrease in my fasting blood sugar. I also lost 10 pounds despite increasing the number of calories I was consuming — the opposite outcome of what most "experts" would predict.

This doesn't mean you should stop what you're currently doing and do the same, but if you've been struggling with keto and are unable to lose weight, it's likely that a high-fat diet is slowing down your metabolic rate, increasing your cortisol levels and contributing to an inability to achieve your ideal body weight.

Problems With High-Fructose Corn Syrup

When choosing which sugars to embrace and which to avoid, high-fructose corn syrup is best avoided, particularly when it's used to sweeten beverages. Research indicates beverages sweetened with high-fructose corn syrup often contain significant levels of starch, not reflected in the calorie counts on their labels. When this starch content is considered, the caloric value of many sodas could increase fourfold, leading you to consume far more calories than anticipated.

Further, due to the minuscule size of starch particles, they may bypass the digestive process and directly enter your bloodstream, posing a risk of allergic reactions. These particles can also incite a mild inflammatory response, prompting the release of histamine, nitric oxide and serotonin. Dinkov points out that symptoms like sneezing and itchy eyes, outside of allergy season, might be a reaction to something you ate or drank, with high-fructose corn syrup as a possible cause.[3]

Starch particles also nourish pathogenic bacteria in your gut, and the endotoxins produced by these bacteria can exacerbate inflammation. Conditions such as small intestine bacterial overgrowth (SIBO) may arise, particularly if you're using proton pump inhibitors, which reduce stomach acid production, exacerbating these effects.

Cane Sugar Is Not Dangerous — As Long as It's Pure

This may come as a surprise, but even cane sugar — preferably organic — can be part of a healthy diet, provided it's pure.

While sugar from ripe fruit appears to be ideal, and that from raw honey may be a close second, Peat's and Dinkov's position is that negative effects are primarily caused by high-fructose corns syrup, while pure cane sugar can actually be a useful strategy to counteract some of the challenges that people can get into when following a strict low-carb diet. Dinkov explains:[4]

> *"Cane sugar, if it's pure, has a very different overall systemic health effect than high-fructose corn syrup … I think most of the sugar sold in the crystal form, especially organic ones, is pretty safe. Heavy metal contamination used to be a problem in sugar distillation but it looks like most of the western countries have sorted this out …*
>
> *Now, some people that have an issue with sugar are saying, 'Well, it's just empty calories and whatnot.' Multiple studies demonstrated that honey, which is very similar in composition to plain white sugar, does not trigger the normal hyperglycemic response that most of the other simple carbohydrates do. In fact, it improves the hyperglycemia in Type 2 diabetic patients despite being pure sugar.*
>
> *I think that's the greatest confirmation that we have that sugar is not evil. It depends how you're getting it and in what form. One animal study demonstrated that rats, when given free access to [Mexican] Coke sweetened with cane sugar, they were eating the equivalent of 8,000 calories daily … without gaining an ounce of fat.*
>
> *So sugar is not dangerous. It's perhaps the only nutrient that we evolved to metabolize for fuel. But the other two micronutrients, even though we can metabolize them as fuel, come with a lot of strings attached …*
>
> *If you're oxidizing PUFA [polyunsaturated fats], then all hell breaks loose. If you're oxidizing saturated fats, it's far less dangerous. But in the long run it still*

*puts you, due to **the Randle cycle**, into the semi-diabetic state because it decreases your insulin sensitivity.*

So pure sugar is what we are meant to oxidize for fuel. If you get it from ripe fruit, great. If you can get it from [raw unadulterated] honey, probably just as good if not even better. But if not, then the pure white variety, preferably organic, that you get from the store, I think is a very good source of most of the carb calories that you intend to eat throughout the day."

Why Some May Need to Focus on Simple Carbs Before Complex Carbs

Some people experience problems, such as bowel symptoms, after eating healthy foods such as complex carbs. It's a paradoxical scenario where complex carbs can make your health worse, leading some to believe that simple carbs are a better choice.

This, however, is a result of most people eating large amounts of metabolic poisons like **linoleic acid** (LA) their entire life, in addition to regular estrogen exposure in the form of plastics, which are xenoestrogens. As a result of these exposures, the composition of their microbiomes becomes dramatically altered.

This occurs because these metabolic poisons result in a decrease in cellular energy production in the mitochondria, which then decreases carbon dioxide production in the intestine. The relatively lower concentration of carbon dioxide in the large intestine promotes the growth of pathogenic disease-causing bacteria known as facultative anaerobes.

These specific bacteria have high amounts of lipopolysaccharide (LPS) embedded in their cell membranes. When they're provided with food in the form of complex carbohydrates, they serve as fertilizer to accelerate their growth, so they multiply and eventually die.

When they die, this LPS, otherwise known as endotoxin, is released. LPS is another potent metabolic poison that will radically decrease your mitochondria's ability to create cellular energy, thus contributing to a vicious downhill cycle.

This sets up the seemingly paradoxical scenario where complex carbohydrates can make your health worse, because they're increasing the concentration of endotoxin in your body. In high concentrations, endotoxin may even result in deadly septic shock.

The solution is to improve your mitochondrial function and their ability to create sufficient cellular energy, which will subsequently restore the balance of healthy bacteria in your gut. When this is achieved, then complex carbohydrates transition to becoming very healthy.

But until your mitochondria produce adequate energy, complex carbs frequently contribute to worsening your health through the production of endotoxin. So, it's wise to carefully navigate the introduction of complex carbs if you've been exposed to metabolic poisons for most of your life.

I believe the most prudent strategy is to listen to and trust your body. If you experience bowel symptoms when eating complex carbs, consider restricting your carbs to very simple carbohydrates such as fruit juice, which is the easiest carbohydrate to digest.

Once you can tolerate fruit juice, then you can move on to healthy whole fruits. Once that's tolerated, you can progress to including other forms of more complex carbohydrates until you can tolerate those.

Why You May Need to Eat More Carbs

A ketogenic diet can be very useful initially when transitioning people who are metabolically inflexible. which is about 95% of the U.S. population. So, in the short term, the vast majority of people can benefit from going keto. However, if you continue in ketosis long term, you're going to run into problems.

Again, a low-carb diet is best implemented as a temporary strategy to restore metabolic flexibility. Once metabolic flexibility is regained, adding more carbs back in will help to lower cortisol, which is highly inflammatory. Your body needs glucose, so if you deprive it for too long, it will produce cortisol to stimulate your liver to make it.

As explained by Dinkov, if your cortisol is chronically elevated, you end up with central obesity and chronic inflammation, which clearly isn't good. So, you've got to have a certain amount of glucose, and it's best to get it from your diet rather than forcing your liver to make it, as cortisol is then also being churned out.

Ultimately, glucose is the ideal fuel for your mitochondria and the one that will create the most energy with the least amount of "exhaust" in the form of free radicals causing oxidative stress that damages your mitochondria, cell membranes and proteins. It will also create the most carbon dioxide in your body which is highly beneficial for your health. As far as top dietary suggestions, Dinkov recommends:[5]

- Keep PUFA intake below 10 grams; below 5 grams would be even better
- Avoid high-fructose corn syrup when adding carbs to your diet
- Stick with the sugars from ripe fruit, raw honey (make sure it's not adulterated with high-fructose corn syrup, as many are) and/or pure organic cane sugar

Sources and References

- [1] PLOS ONE 2014; 9(6): e99816
- [2] AOL February 4, 2024
- [3, 4, 5] Bitchute May 17, 2023