

## Sugar is SICKENing Sweet

**To understand how sugar can wreak havoc on your health, take a closer look at how it's metabolized in the body.** Table sugar (sucrose) consists of two bonded molecules: glucose and fructose. Inside the body, the bond is broken and glucose and fructose are released. The bloodstream picks up the glucose molecule and delivers it to any organ or muscle tissue that needs energy. The fructose molecule, however, can be metabolized only by the liver, which evolved to handle small amounts as early humans stumbled across the occasional stash of honey or bounty of seasonal fruit. These days the average daily fructose intake is 54.7 grams (nearly 14 teaspoons) — far more than the liver can metabolize. Here are some ways that distortion manifests in poor health.

## Obesity and Inflammation

Today, more than 36 percent of American adults are obese and 2 out of three are overweight or obese. Excess calories are not blameless, but the role of fructose may be more significant. The liver has no choice but to turn all that excess fructose into fat. Fructose is a survival nutrient present in foods such as ripe berries that enable mammals, like bears, to gain weight quickly in preparation for hibernation. Fructose puts your body into weight-gain mode.

Sugar consumption is tied to an increase in visceral (belly) fat, high blood pressure, high triglycerides, high blood sugar (a precursor of type 2 diabetes), and high cholesterol. All of these conditions fit neatly under the umbrella term “metabolic syndrome,” an inflammatory fat-storage disorder. Meanwhile, the pancreas, which makes insulin to break down sugar, can become worn out and less able to react quickly and efficiently. Over time, this can lead to type 2 diabetes, which affects some 27 million Americans, including children.

## Heart Disease

Consuming too much sugar may increase the chances of dying from a heart attack, according to recent research that further supports the link between excess sugar and (NOT fat) and poor health. The study, published in 2014 in *JAMA Internal Medicine*, found that people whose sugar consumption made up 25 percent or more of their daily caloric intake had twice the risk of dying from heart disease than people whose sugar intake was 7 percent of their daily calories. This is the first time a study has linked sugar intake to heart disease fatality. The new findings are significant given that heart disease leads to about 600,000 deaths in America each year, according to the CDC. More women die from heart disease than ALL cancers combined.

There are no agreed-upon standards for sugar intake: The Institute of Medicine recommends limiting consumption to 25 percent of daily calories (yes, that is the percentage at which the study found risk of death from heart disease doubles), while the World Health Organization recommends a cap of 10 percent of daily calories. The American Heart Association recommends limiting sugar to 100 calories daily for women and 150 calories for men. Common sources of added sugar include sodas, grain-based desserts, and even such “health foods” as smoothies, protein bars, and commercially made salads.

## Cancer

The Metabolic Theory of Cancer was proposed by Otto Warburg in 1924. He hypothesized that cancer cells progress by the fermentation of glucose (sugar). They in effect hijack the glucose produced by healthy cells as their own source of energy. We see this when a cancer patient has a PET scan. After drinking a sugary beverage, the cancer cells digest the sugar and “light up” on imaging. Since humans and other animals can survive on fat metabolism, by avoiding the intake of sugar, the cancer cells cannot survive. This theory was pushed aside with the genetic theory of cancer but is now coming back in into the forefront of research.

## Nonalcoholic Fatty Liver Disease

Sugary diets are also behind nonalcoholic fatty liver disease, or NAFLD. Again, because the liver is unable to process large quantities of fructose, it stocks it away as fat. This causes the organ itself to become fatty. Not unlike alcohol, excess fat damages the liver. In the early stages of liver disease, the organ becomes inflamed. The scarring that ensues slowly chokes the organ's blood flow. This disease didn't even exist 35 years ago but now, up to 31 percent of adults and up to 10 percent of children have NAFLD. If this trend continues, NAFLD will be the No. 1 reason for liver transplant by 2020.

## Premature Aging

If the above adverse health risks are not enough motivation to give up your sugary beverage or treat, sugar has also been linked to the aging process! Spikes of sugar are known to cause damage to collagen, which can lead to wrinkles and gray hair! Furthermore, a number of studies have shown that impaired glucose tolerance or type II diabetes is associated with impaired cognitive function in older subjects. In addition, they recently found that cognitive deficits are also associated with moderately impaired glucose regulation in young healthy volunteers.

# Cutting Back on Sugar

## Slashing the sweet stuff from your diet

1. **Go natural.** Sugar is sugar but it is better to eat natural sources of sugar over added sugars. Fill up on fresh fruit and vegetables because they contain fiber that slows the rate of absorption of carbohydrates along with improving cholesterol levels, digestion, and satiety to help with weight loss.
2. **Know your portions.** Following a low sugar diet requires some diligence to know how much you should be eating. In general, most people should consume 2 fruits (or 2 cups) and at least 3 cups of veggies per day. On average 1 serving of fruit contains 15 grams of sugar. Ideally, try to space out your servings so that you aren't getting a big sugar rush all at once.
3. **Eat whole and fresh.** Eliminate (or at least limit) fruit juices and dried fruit if you are watching the sugar intake. Generally speaking, just 4 fluid ounces of 100% fruit juice and ¼ cup unsweetened dried fruit is equivalent to 1 piece or 1 cup of fresh, whole fruit.
4. **Learn the label lingo.** Food labels don't differentiate between added and natural sugars, instead it lumps them all together. To get natural sugar sources check the ingredient list to know if there are any added sugars in the product. See the list above.
5. **Set boundaries on the sweet tooth.** Do you have a mean sweet tooth? If so, set limits on when and how you're going to enjoy your sweets. Perhaps plan to have ice cream once per week or possibly include a dark chocolate square after dinner nightly. Setting boundaries around what sweet treats are worth the indulgence, when to enjoy them, and how much to enjoy will keep you from reaching in the office candy jar out of habit or boredom.
6. **Eliminate (or at least eat less) packaged food.** Foods in their whole form are going to be your best bet when it comes to lowering your sugar intake. According to the New York Times, 75% of packaged foods in the U.S. contain added sugar, so you can simplify your sugar doses by keeping these to a minimum.
7. **Pump up the protein.** Eating more protein will keep you amped. Protein takes longest to digest so you will be less likely to crash if you're eating good quality proteins every three to four hours.
8. **Beware of sugar bombs.** Even healthy foods can have sneaky sources of added sugar. Foods like energy bars, lattes, smoothies, juices, enhanced waters, salad dressing, cereals, tomato sauce, and medications are common culprits. Read the labels!
9. **Lower it gradually.** Instead of cutting sugar cold turkey, lower your intakes slowly. If you usually eat sweets after lunch and dinner, start by taking it down to one meal a day.
10. **Clean out the pantry.** If you have tempting foods in the kitchen, you might need to do a little pantry detox. Go out for the ice cream sundae instead of bringing a carton it into the house.

We have been told that it is okay to have sugary, processed foods in our diet as long as we do not have too much and we exercise more. In fact, the mission of the Sugar Association ([www.sugar.org](http://www.sugar.org)) is basically keeping us addicted to sugar:

*All-natural sugar is an important part of a healthy diet and lifestyle. The mission of the Sugar Association is to promote the consumption of sugar through sound scientific principles while maintaining an understanding of the benefits that sugar contributes to the quality of wholesome foods and beverages.*

It's good for business. But it is NOT good for us!

## **When trying to eliminate sugar from your lifestyle don't get caught in the following traps:**

### **Eating too much fruit.**

While whole fruits can be a great sweet snack, they still contain sugars like fructose, which can cause problems for those with blood sugar issues. If you are constantly munching on fruit throughout the day, your body still recognizes it as sugar—no matter the source. You should NOT eliminate all fruit from your diet, but think of fruit as a treat. Make sure to limit *high-fructose* fruits such as watermelon, cherries, pears, and grapes, and reach for low-fructose fruits like berries, green apples and melons. These still provide great nutritional benefits when consumed in a couple of small servings per day.

### **Consuming "natural" sweeteners.**

The BEST approach is to “turn down your sweet thermometer” by decreasing both sugary foods and those flavored with artificial or even “natural” sweeteners. You will find that real food tastes better when you eliminate sweetened foods. Our taste buds change when we are consuming sugary foods. Your body is amazing and will quickly restore your taste sensation when you eliminate or even decrease these foods. AND the sweet stuff won't taste as good!

With the growing awareness of sugar's effect on our health, there are more and more options on the market for “natural” sweeteners. However, not every option is created equal. For example, agave nectar is often touted as the perfect health food alternative to sugar since it is considered low-glycemic (a measurement of how certain foods raise blood sugar). While agave nectar may raise your blood sugar slower than other options, it is still high in fructose, which raises your blood sugar over a longer period, taking a toll on your liver and contributing to fatty liver disease and insulin resistance.

Other natural sweeteners like stevia, unless in its whole-food form, are overly processed and can further contribute to factors like inflammation, which will continue to perpetuate insulin resistance. Some of the best options include 100 percent organic stevia and organic monk fruit extract.

### **Not eating enough healthy fats.**

When looking to manage blood sugar, healthy fats are necessary to transition your body from being a sugar-burner to a fat-burner. As an energy source, sugar is like kindling to a fire—offering a quick spark but quickly dying out, leaving you in a state of “hanger” and constantly looking for your next fix. But fat, on the other hand, is like a log to a fire—slow-burning and long-lasting.

Not only do healthy fats keep you fuller for longer, they also help curb any sugar cravings throughout the day by keeping you satisfied. But just like sugar, not all fats are of the same caliber. Polyunsaturated fatty acid (PUFA) oils are found in vegetable, sunflower, corn, canola, and soybean oils and are often marketed as “heart healthy” but are highly processed and oxidize easily. This increases inflammation and exacerbates blood sugar problems. Focus on healthy fats from coconut oil, extra-virgin olive oil, avocados, nuts, seeds, eggs, and clean wild-caught fish like salmon.

### **Eating all the time.**

One of the most common myths around blood sugar is that eating throughout the day can help keep your blood sugar at manageable levels. However, studies have shown that intermittent fasting—going for extended periods of time without food—can do wonders for restoring blood sugar balance. It also helps decrease your hunger hormone ghrelin, which can help you feel full and keep cravings at bay.

### **Eating too many "healthy" grains.**

By now we all know that gluten can do a number on our health. Many people think that gluten-free or whole sprouted grains are the better option. However, they still have similar proteins to gluten and are high in amylose sugars that contribute to inflammation, blood sugar spikes, and insulin resistance.

### **Eating too many starchy vegetables.**

Carbohydrates of all kinds are quickly converted to glucose by your body. Overloading on starchy vegetables such as sweet potatoes and squash can contribute to unstable blood sugar. Instead, reach for non-starchy vegetables like broccoli, mushrooms, and dark leafy greens that are filled with important nutrients your body needs for important functions that lower inflammation and help lower blood sugar.

### **Focusing too much on legumes.**

Even though legumes contain fiber that helps support the good bacteria in your gut, the cons can outweigh the pros in people with blood sugar issues. The starch content in beans can further throw off blood sugar, and the phytate and lectin proteins can continue to drive inflammation. This is a common problem for people with blood sugar issues who eat a plant-based diet since they typically rely on legumes as a main source of protein.

### **Forgetting about spices.**

It's easy to focus on what not to eat rather than what you should be eating. There are many next-level food medicines that contain powerful compounds that aid in regulating blood sugar. Cinnamon contains a bioflavonoid called proanthocyanidin that has been shown to reduce blood sugar levels and triglycerides by altering insulin-signaling activity in fat cells. Recent studies of the spice turmeric has shown its glucose regulating benefits to rival the common diabetic drug metformin! Other studies have found that EGCG found in green tea also works to stabilize blood sugar. Take advantage of their benefits by loading up on these throughout your day.

### **Not feeding your gut.**

We now know that our body contains over 100x the amount of DNA from our microbiome (the bacteria that live in our body) than our own DNA. So our bacteria rule us. In fact, the health of your microbiome is directly related to your blood sugar. Probiotic-rich fermented foods like sauerkraut, kimchi, and kefir can supply your gut with good bacteria to help restore blood sugar balance. AND feed your probiotics with prebiotic-rich fiber such as onions, garlic, radishes, dandelion greens to name a few. More on this at your next visit.