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# 10 Things You Don't Know About Sugar



Excessive sugar in the diet is not the best idea when it comes to healthy living. Nonetheless, few of us are consuming sugar in recommended moderate amounts and most of us are eating tons of it. In fact, worldwide we are consuming about 500 extra calories a day from sugar. That's just about what you would need to consume if you wanted to gain a pound a week. Most people know that sugar is not good for them, but for some reason, they think the risk of excess sugar consumption is less than that of having too much saturated and trans fat, sodium or calories. Perhaps it's sugar's lack of sodium or fat that make it the "lesser of several evils," or perhaps people are simply of the mind frame that what they don't know won't hurt them. If you really knew what it was doing to your body, though, you might just put it at the top of your "foods to avoid" list. Here are ten things that may surprise you about sugar.

## 1. Sugar can damage your heart

While it's been widely noted that excess sugar can increase the overall risk for heart disease, a 2013 study in the Journal of the American Heart Association displayed strong evidence that sugar can actually affect the pumping mechanism of your heart and could increase the risk for heart failure. The findings specifically pinpointed a molecule from sugar (as well as from starch) called glucose metabolite glucose 6-phosphate (G6P) that was responsible for the changes in the muscle protein of the heart. These changes could eventually lead to heart failure. Approximately half of the people that are diagnosed with heart failure die within five years.

## 2. Sugar specifically promotes belly fat

Adolescent obesity rates have tripled in the past 30 years and childhood obesity rates have doubled. Many of us are aware of the data that demonstrates just how literally big our future is looking, but beyond the studies and all the initiatives to curb childhood obesity, one needs only to visit an amusement park, school or mall to truly see what is happening. One factor that seems to inflict obese children is fat accumulation in the trunk area of the body. Why? One cause may be the increase in fructose in their beverage. A 2010 study in children found that excess fructose intake (but not glucose intake) actually caused visceral fat accumulation - putting the kids at a big belly and even bigger future risk for heart disease and diabetes.

## 3. Sugar is the true silent killer

Move over salt and hypertension, you've got competition. Sugar, as it turns out, is just as much of a silent killer. A 2008 study found that excess fructose consumption was linked to a condition called leptin resistance. Leptin is a hormone that tells you when you've had enough. The problem is, we often ignore the signal our brain sends to us. For some people though, leptin simply does not work. It's like having the power with no signal whatsoever that the body has enough food to function.

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## 3. Sugar is the true silent killer

Move over salt and hypertension, you've got competition. Sugar, as it turns out, is just as much of a silent killer. A 2008 study found that excess fructose consumption was linked to an increase in a condition called leptin resistance. Leptin is a hormone that tells you when you've had enough food. The problem is, we often ignore the signal our brain sends to us. For some people though, leptin simply does not want to work, leaving the person with no signal whatsoever that the body has enough food to function. This in turn can lead to over consumption of food and consequently, obesity. Why the silent killer? Because it all happens without symptoms or warning bells. If you've gained weight in the past year and can't quite figure out why, perhaps you should look at how much fructose you're feeding your body.

## 4. Sugar may be linked to cancer production and may effect cancer survival

In the world of nutrition, it's hard to talk about sugar without talking about insulin. That's because insulin is sugar's little chaperone to the cells, and when too much of it is consumed, or our insulin does not work (probably because we're eating too much sugar) and the body revolts. One connection that has been well documented in the literature is the link between insulin resistance and cancer. A 2013 study found that sugars in the intestine triggered the formation of a hormone called GIP (controlled by a protein called  $\beta$ -catenin that is completely dependant on sugar levels), that in turn, increases insulin released by the pancreas. Researchers found that  $\beta$ -catenin may in fact affect the cells susceptibility to cancer formation. Further studies have found negative associations between high sugar and starch intake and survival rates in both breast cancer patients and colon cancer patients.

#### **5. Your sugar "addiction" may be genetic**

If you've ever said, "I'm completely addicted to sugar," you may actually be correct. A recent study of 579 individuals showed that those who had genetic changes in a hormone called ghrelin consumed more sugar (and alcohol) than those that had no gene variation. Ghrelin is a hormone that tells the brain you're hungry. Researchers think that the genetic components that effect your ghrelin release may have a lot to do with whether or not you seek to enhance a neurological reward system through your sweet tooth. Findings with this study were similar to study conducted in 2012 as well.

#### **6. Sugar and alcohol have similar toxic liver effects on the body**

A 2012 paper in the journal Nature, brought forth the idea that limitations and warnings should be placed on sugar similar to warnings we see on alcohol. The authors showed evidence that fructose and glucose in excess can have a toxic effect on the liver as the metabolism of ethanol -- the alcohol contained in alcoholic beverages had similarities to the metabolic pathways that fructose took. Further, sugar increased the risk for several of the same chronic conditions that alcohol was responsible for. Finally, if you think that your slim stature keeps you immune from fructose causing liver damage, think again. A 2013 study found that liver damage could occur even without excess calories or weight gain.

#### **7. Sugar may sap your brain power**

When I think back on my childhood, I remember consuming more sugar than I probably should have. I should have enjoyed my youth back then, because unfortunately, all the sugar may have accelerated the aging process. A 2009 study found a positive relationship between glucose consumption and the aging of our cells. Aging of the cells consequently can be the cause of something as simple as wrinkles to something as dire as chronic disease. But there is other alarming evidence that sugar may affect the aging of your brain as well. A 2012 study found that excess sugar consumption was linked to deficiencies in memory and overall cognitive health. A 2009 study in rats showed similar findings.

#### **8. Sugar hides in many everyday "non-sugar" foods**

While many of my patients strive to avoid the "normal" sugary culprits (candy, cookies, cake, etc.), they often are duped when they discover some of their favorite foods also contain lots of sugar. Examples include tomato sauce, fat free dressing, tonic water, marinates, crackers and even bread.

#### **9. An overload of sugar (specifically in beverages) may shorten your life**

A 2013 study estimated that 180,000 deaths worldwide may be attributed to sweetened beverage consumption. The United States alone accounted for 25,000 deaths in 2010. The authors summarize that deaths occurred due to the association with sugar-sweetened beverages and chronic disease risk such as diabetes, heart disease and cancer.

#### **10. Sugar is making us fat**

I figured I'd leave the most obvious fact for last. While you may be aware that too many calories from any source will be stored as fat if not burned, what you may not connect is that the lack of other nutrients in sugar actually makes it much easier to eat gobs of it with no physical effects to warn us of the danger that lurks. Foods rich in fiber, fat and protein all have been associated with increased fullness. Sugar will give you the calories, but not the feeling that you've had enough. That's why you can have an entire king-size bag of licorice (with it's sky high glycemic index at the movies and come out afterwards ready to go for dinner.

On a final note, it's important to point out that simple sugars from milk (in the form of lactose) don't display the same negative health effects that we see in the literature when reviewing sugar's effects on the body. Simple sugars coming from fruit are also less concerning given their high amounts of disease-fighting compounds and fiber.

So now you know, and knowing perhaps can create action. You can do something about decreasing your overall sugar consumption without feeling deprivation or sheer frustration! That will be the focus of my next blog. Stay tuned!

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