Sugar, it's SICKENing sweet!

We live in a society where sugar is commonly accepted and eaten in very large quantities. Now more than ever, sugar consumption is higher than in any other time in history. When we eat foods containing **sugar**, this keeps our **insulin elevated** making it very difficult to **CONTROL OUR HUNGER**. It is this **chronically elevated insulin** that keeps us from making good food choices, NOT a lack of willpower.

According to the United States Department of Agriculture (USDA), dietary trends from 1970-2005, sugar consumption **increased by 19 percent since 1970**. Today, the average American consumes 20 teaspoons per day or 100 pounds of sugar each year! That amounts to 300 calories a day from sugar alone. And to make matters worse, corn syrup consumption is on the rise, increasing by 387 percent in the same period of time.

The largest amount of sugar is not being consumed as ingested fruits or other natural sugars. The largest amounts of consumed sugars are in the form of high fructose corn syrup (HFCS) and brown sugar. Neither occurs naturally, and both are highly processed and in nearly every processed package food you will find in your local grocery store. Many of these foods you most likely would not suspect having sugar as an additive.

What is sugar? Sugar is a simple carbohydrate, which can either be a monosaccharide or disaccharide. Monosaccharides include glucose, fructose, and galactose. These three monosaccharides can join together to make the disaccharides sucrose, lactose and maltose. These compounds are found in the foods we eat and are collectively called "sugar." The following are types of sugar and their natural source:

Glucose: sugar in the blood
Fructose: fruit sugar
Galactose: sugar beets
Sucrose: table sugar
Lactose: milk sugar
Maltose: malted barley (beer)

Most people associate the term "sugar" with the white sugar we put in coffee or iced tea. The human body uses glucose, the simplest unit of carbohydrate, as its primary fuel. Without adequate carbohydrate intake, our bodies will obtain glucose, or fuel, from another source. The possibilities include a breakdown of proteins we eat or proteins stored in our body, which may ultimately lead to muscle loss and affecting one's metabolic rate or even malnutrition. However, our need is far below the current daily consumption.

Is sugar addictive? You be the judge. When high doses of sugar are consumed, it stimulates the release of dopamine in our brains. This response makes us feel pleasure (now you know why when you feel down or depressed you may want to overindulge in sweets). The drug morphine, cocaine and sugar all stimulate the same brain receptors. This study has been proven many times in lab rat studies.

In the book, *Salt Sugar Fat: How the Food Giants Hooked Us,* Pulitzer Prize-winning journalist Michael Moss goes inside the world of processed and packaged foods. Moss writes in detail about how the food industry (which is 17 percent of our economy) contributes to American's obesity epidemic by infusing processed foods with sugar, salt, and at to make it more addictive and pleasurable. You see now why so many continue to buy their products?

According to the Yale Rudd Center for Food Policy and Obesity, the average child sees 5,500 food commercials a year that advertise high sugar breakfast cereals, fast food, soft drinks, candy and snacks. According to the Federal Trade Commission, the food industry spends $1.6 billion annually to reach children through the media, including the Internet.

What is high fructose corn syrup? High fructose corn syrup (HFCS) is an industrial food product and not "natural" or a naturally occurring substance. It is extracted from corn stalks through a secret process. The sugars are extracted through a chemical enzymatic process resulting in HFCS. Regular cane sugar (sucrose) is made of two-sugar molecules bound tightly together – glucose and fructose in equal amounts. The enzymes in your digestive tract must break down the sucrose into glucose and fructose, which are then absorbed into the body.

Sugar and HFCS' Effect on the Body. Eating sugar has a systemic effect on your entire body including increased risk for diabetes, increased appetite, weight gain, heart and liver problems, decreased immune system, certain cancers and even your brain function to name a few. HFCS also consists of glucose and fructose, not in a 50-50 ratio, but a 55-45 fructose to glucose ratio in an unbound form. Fructose is sweeter than glucose. And HCFS is cheaper than sugar. One of the reasons is because of the government farm bill corn subsidies. Products with HFCS are much sweeter and cheaper than products made with cane sugar.

Type 2 Diabetes. Type 1 Diabetes is when one's pancreas does not make insulin. Type 2 Diabetes is when one's body does not utilize insulin effectively. Type 1 Diabetes is usually diagnosed at a young age. Type 2 Diabetes used to occur in adulthood and was called "Adult Onset Diabetes," however; it has since been renamed to Type 2 Diabetes because the onset is commonly seen at a much earlier age as the obesity epidemic increases.

It has been estimated that just fewer than 2,000,000 individuals were diagnosed with Type 2 diabetes in 2010.

The pancreas acts on ingested sugar by secreting insulin. Insulin is a hormone that regulates the amount of sugar in the blood. If blood sugar gets too high or too low, it could be life-threatening. An increased amount of sugar in one's diet causes the pancreas to secrete insulin. In some individuals, this leads to an overload on the pancreas and the development of Type 2 diabetes.

Sugar, Appetite & Weight Gain. Eating less sugar is linked with weight-loss, and eating more is linked with weight gain, according to a new review of published studies. The review lends support to the idea that advising people to limit the sugar in their diets may help lessen excess weight and obesity, the researchers conclude. "The really interesting finding is that increasing and decreasing sugar had virtually identical results (on weight), in the opposite direction of course," says researcher Jim Mann, DM, PhD, professor of human nutrition and medicine at the University of Otago in New Zealand.

According to leading nutritional expert, Walter Willett, MD, PhD, MPH, chair of nutrition at Harvard School of Public Health and author of *Eat, Drink and Be Healthy,* "Sugar increases body weight mainly by encouraging overeating."

Heart and Liver Damage. A study published in the journal Hepatology in late 2012 found that consumption of fructose appears to affect the availability of the energy-transferring chemical ATP in the liver, thereby increasing the risk of liver cell malfunction and death. In another review of HFCS, The American Journal of Clinical Nutrition, Barry Popkin, PhD, Department of Nutrition, University of North Carolina Chapel Hill explains that HFCS is absorbed more rapidly than regular sugar, and that it doesn't stimulate insulin or leptin production. This prevents you from triggering the body's signals for being full and may lead to overconsumption of total calories.

A 2012 paper in the journal Nature, brought forward 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 of fructose.

Another published study in the Journal of Nutrition in 2012, found that children who consumed high levels of fructose had lower blood levels of cardiovascular protective compounds, such as HDL cholesterol and adiponectin. Higher consumption of fructose led to higher levels of fat around the midsection, a significant risk factor for diabetes and cardiovascular disease.

Immune System. Eliminating all sugar from a cancer patient's diet would harm healthy cells that need energy to function. For example, many fruits contain high levels of antioxidants, which are known to be effective in fighting cancer; however, sugars that come from whole fruits are low in sugar. Plant-based nutrition is a benefit to our overall health including fighting or preventing cancers. These important antioxidants, phytochemicals, fiber, vitamins and minerals are found in these plant-based whole foods.
Diets high in sugar and refined carbohydrates can lead to overweight and obesity, which indirectly increases cancer risk throughout time. Certain cancers including breast, prostate, colorectal and pancreatic are associated with obesity.

How can you avoid these unhealthy consequences of (often hidden) sugar? The best way to avoid sugar is to not consume obvious foods that are loaded with sugar. However, as discussed in this article, there are many packaged foods that surprisingly have added sugar and the more health-damaging high fructose corn syrup.

Therefore... Eat nature's foods...Avoid processed food...Don't eat foods in packages...Eat foods that rot...Eat foods that walked the earth, flew in the sky, swam in the ocean or grew in the soil.

The American Heart Association (AHA) recommends no more than 9 teaspoons (38 grams) of added sugar per day for men, and **6 teaspoons (25 grams) per day for women**. The AHA limits for children vary depending on their age and caloric needs, but range between 3-6 teaspoons (12 - 25 grams) per day. The typical American diet is very heavy in added sugars, about 22 teaspoons per day heavy! That means it is very possible that you are meeting, or exceeding, your daily sugar intake target in one meal!

In a typical day added sugars can add up quickly.

At breakfast - 35 g sugar
1 packet of instant oatmeal (13g) with 8oz glass of OJ (21g) = 9 tsp

At lunch - 30 g sugar
PB&J sandwich (18g) with 6oz fruited yogurt (12g) = 8 tsp

At dinner - 22 g sugar
Grilled chicken made with 2 tbs BBQ sauce (16g) and salad with 2 tbs salad dressing (6g) = 6 tsp

Some snacks - 7 g sugar
Granola bar = 2 tsp

One stop shop - 39 g sugar
1 can of soda ***OR*** 1 bottle of iced tea = 10 tsp

61 names for (hidden) sugars

Agave nectar
Barbados sugar
Barley malt
Barley malt syrup
Beet sugar
Brown sugar
Buttered syrup
Cane juice
Cane juice crystals
Cane sugar
Caramel
Carob syrup
Castor sugar
Coconut palm sugar
Coconut sugar
Confectioner's sugar
Corn sweetener
Corn syrup
Corn syrup solids
Date sugar
Dehydrated cane juice
Demerara sugar
Dextrin
Dextrose
Evaporated cane juice
Free-flowing brown sugars
Fructose
Fruit juice
Fruit juice concentrate
Glucose
Glucose solids
Golden sugar
Golden syrup
Grape sugar
High-Fructose Corn Syrup
Honey
Icing sugar
Invert sugar
Malt syrup
Maltodextrin
Maltol
Maltose
Mannose
Maple syrup
Molasses
Muscovado
Palm sugar
Panocha
Powdered sugar
Raw sugar
Refiner's syrup
Rice syrup
Saccharose
Sorghum Syrup
Sucrose
Sugar (granulated)
Sweet Sorghum Syrup
Treacle
Turbinado sugar
Yellow sugar

Added sugar: *any sugar or caloric sweetener that is added to a food/beverage during processing or preparation. This includes those sugars that are easy to identify like white sugar and honey; and others that are chemically manufactured and not so easy to identify – think high fructose corn syrup.*

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) 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!

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

1. **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.

2. **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.

3. **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.

4. **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.

5. **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.

6. **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.

7. **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 as 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.

8. **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 that has been 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.

9. **Not feeding your gut**

We now know that are 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.