

SUGAR

IT'S NOT AS SWEET AS YOU THINK

by Tracy Martinez, RN, BSN, CBN

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.

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 or 100 pounds of sugar each year! That amounts to 300 calories a day from sugar alone. And to make matters worse (you will read why later in this article), 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 in ingested fruits or other natural sugars. The largest amounts

TODAY, THE AVERAGE AMERICAN CONSUMES 20 TEASPOONS OR 100 POUNDS OF SUGAR EACH YEAR!

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 maltose, sucrose, and lactose. These compounds are found in the foods we eat and are collectively called "sugar."

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 (see quiz on page 37).

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 his new and fascinating book, *Salt Sugar Fat: How the Food Giants Hooked Us*, Pulitzer Prize-winning journalist Michael Moss (I highly recommend this book) goes inside

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.

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

fat 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.

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 HFCS is cheaper than sugar. One of the reasons is because of the government farm bill corn subsidies. Products with HFCS are much sweeter and much cheaper than products made with cane sugar.

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.

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.

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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.

However, 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 (I call these factory foods, not real foods.)
- Don't eat foods in packages (or dramatically decrease consumption)
- Eat foods that rot
- Eat foods that walked the earth, flew in the sky, swam in the ocean or grew in the soil

BUYER BEWARE!

Typically, the first ingredient on a label is the most prevalent in the food product; however, beware because there may be small amounts of many types of sugars, so none of them end up being in the first few ingredients of the label. Sugar is disguised as a "healthy" ingredient, such as honey, rice syrup, or even "organic dehydrated cane juice."

Here is a list of some of the possible "sugar" code words:

Corn sweetener
Corn syrup, or corn syrup solids
Dehydrated Cane Juice
Dextrin
Dextrose
Fructose
Fruit juice concentrate
Glucose
High-fructose corn syrup
Honey
Invert sugar
Lactose
Maltodextrin
Malt syrup
Maltose
Maple syrup
Molasses
Raw sugar
Rice syrup
Saccharose
Sorghum or sorghum syrup
Sucrose
Syrup
Treacle
Turbinado sugar
Xylose

HFCS QUITZ

WHICH OF THE BELOW LISTED FOODS
CONTAIN HIGH FRUCTOSE CORN SYRUP?

- A. Kraft Macaroni and Cheese
- B. Stove Top Stuffing – Home style Herb
- C. Capri Sun Iced Tea
- D. Ocean Spray Cranberry Juice
- E. Wild Cherry Lifesavers
- F. Robitussin Cough and Congestion
- G. Wonderbread – White Bread
- H. Smuckers Grape Jelly
- I. Campbell's Vegetable Soup
- J. Mr & Mrs T Bloody Mary Mix
- K. Nabisco Fig Newtons – Whole Grain
- L. Nabisco Fig Newtons – Fat Free
- M. Wishbone Classic Caesars' Dressing
- N. Chicken of the Sea White Tuna, Spring Water

Answer: All but "N" contain high fructose corn syrup.

About the Author:

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ABOUT THE OBESITY ACTION COALITION (OAC)

The Obesity Action Coalition (OAC) is a National non-profit organization dedicated to giving a voice to individuals affected by obesity and helping them along their journey toward better health. Our core focuses are to elevate the conversation of weight and its impact on health, improve access to obesity care, provide science-based education on obesity and its treatments, and fight to eliminate weight bias and discrimination.



VIBRANT COMMUNITY



NATIONAL AWARENESS CAMPAIGNS



ANNUAL CONVENTION



ADVOCACY



PUBLIC EDUCATION

LEARN, CONNECT, ENGAGE

The OAC knows that the journey with weight can be challenging but we also know that great things happen when we learn, connect and engage. That is why the OAC Community exists. Our Community is designed to provide quality education, ongoing support programs, an opportunity to connect, and a place to take action on important issues.

Through the OAC Community, you can get access to:

- Weight & Health Education • Community Blogs
 - Community Discussion Forum
 - Ongoing Support • Meaningful Connections
- AND MUCH MORE**



JOIN TODAY: GO TO OBESITYACTION.ORG/JOIN

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