

The Sugar Blues: It's Not Just Diabetes

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We are facing a global epidemic of diabetes, in most cases due to obesity. The causes include junk foods and juice, lack of exercise, poor quality and balance of oils, toxins, stress and others. In this article, I will review the critical concepts regarding sugar and diabetes. The good news is that we have the power to slow and even reverse the effects of sugar disease on ourselves, our children and our society.

Most of us associate sugar with happy times: cotton candy in amusement parks; during Halloween we exchanged information about the good houses; Coke commercials--"The real thing". Indeed many children and adults today have Coke for breakfast.

When sugar was first produced in 500 BC, it was used as a medicinal, and then by the elite. Real sugar, called sucrose, from sugar cane and beets, has now been replaced by the sweeter, cheaper, genetically modified, chemically processed high fructose corn syrup. Per-capita consumption of sweeteners goes up every year. When my family goes to a restaurant now, we routinely ask that sugar not be added to the sauces, which are getting sweeter and sweeter.

Breakfast cereals were developed by Kellogg, a physician, as a healthy replacement for the pork and beef breakfasts of the mid 1800's. Sugar was not added until the mid 1900's. Today, most breakfast cereals are no more than candy. The alleged "vitamins" and "fiber" added to this candy to rationalize it's consumption is not enough. Cereal and milk is one of the worst breakfasts to eat for our blood sugar and for our kid's health and performance in school. (Look for a future article entitled "What's for Breakfast".)

Physiology of Sugar

"Sugar" refers to a family of simple carbohydrates, which require minimal processing by the body to utilize. The simplest and most prevalent sugar in the body is glucose (also called dextrose). Other common sugars are sucrose (table sugar, from the sugar cane or beet plant), fructose (a common sugar in fruits and vegetables), and lactose (milk sugar). Sugar molecules can be assembled into groups or chains. Two simple sugars joined together are "di-saccharides", the most familiar being lactose and sucrose. In "lactose intolerance", there is a deficiency of the enzyme lactase in the small intestine, so this sugar is not broken down and absorbed. When it reaches the large intestine, it is fermented by bacteria causing gas and other irritants.

More complex assemblies of sugar units make starch, cellulose, and different "fibers".

Once a sugar or starch is broken down into simple units, it passes through the intestinal wall into the bloodstream. In response to increased glucose in the bloodstream, the special cells of the pancreas, called beta cells, release the hormone insulin. This hormone attaches to receptors on the surface of every cell of the body and facilitates the movement of sugar into cells. If there is more sugar than needed for metabolism, the sugar is converted into triglycerides and moves into fat cells.

After a meal, blood sugar may rise from a resting level of 60-100 to as high as 200 or so; however, within two hours, the body's insulin response should bring the sugar level back down to between 60-100. If there is not enough insulin, or the receptors are not working properly, called "insulin resistance", then the sugar cannot move into the

cells, and it remains in the blood, causing a rise in blood sugar. This is called hyper-glycemia, and is one of the beginning signs of diabetes.

Normally, the body carefully stores all excess sugar as a protection against future scarcity. However, if there is too much sugar in the blood, the kidneys cannot retain all the sugar, and it passes into the urine. This is the basis for urine screening for diabetes, and before blood measurement became readily available, urine testing was the only way to test for high blood sugar. In the ancient days, physicians would diagnose diabetes by tasting a drop of urine to see if it was sweet. (Now who said there weren't some advantages to modern medicine!)

Progression of Sugar Dysfunction

Hypoglycemia. The first sign of difficulty with processing sugar is usually a situation called "hypoglycemia". In this situation, the pancreas releases too much insulin, which then causes the blood sugar to move too rapidly into some cells, causing a decreased availability in others. The symptoms are often light-headedness and problems concentrating. In response to a low blood sugar level, the body quickly releases adrenaline and other stress hormones, which cause a rapid release of specially stored sugar (called glycogen) from the liver and muscles. Because of the speed of this response, it is very hard to "catch" an episode of hypoglycemia by a blood test. The release of adrenaline causes other symptoms, such as shakiness, tremor, anxiousness or irritability, which are the tell-tale signs of hypoglycemia.

Syndrome X or Metabolic Syndrome. The next phase in the progression of sugar dysfunction is hyper-insulinism. If blood sugar levels are frequently high, then the pancreas chronically puts out extra insulin. Eventually insulin receptors "down-regulate", or become less responsive to insulin, called "insulin resistance". Finding high levels of insulin in the blood is a sign of this condition, also called pre-diabetes. It is usually accompanied by high triglycerides (found on a blood lipid test) and high blood pressure. In this phase, fasting blood sugar levels are normal, due to the extra work of the pancreas in putting out extra insulin.

Type II Diabetes (DM2), or Adult Onset Diabetes. Eventually the pancreas cannot produce enough insulin to compensate for the receptor resistance, and there is insufficient movement of glucose from the blood into the cells. Here you will see elevated fasting blood sugar levels and perhaps some sugar in the urine. If a person is overweight, losing just 5-10% of body weight might reverse this situation. Moderate exercise also can improve response to insulin. The oral medications used in DM2 either increase receptor responsiveness or push the pancreas harder to release more insulin.

Type I Diabetes (DM1), or Juvenile Diabetes
In this situation, the pancreas can no longer produce insulin due to destruction of the beta cells. Blood sugar levels can become dangerously high. In addition, when cells cannot import sugar for their internal furnaces, they must use a different fuel, a fat derivative called ketone. Longstanding "ketosis" is dangerous because it makes the body acidic, which compromises multiple metabolic functions.

DM1 can occur suddenly in childhood. One cause is a virus. Recent work suggests an ongoing inflammatory/

immune system dysfunction as a contributor. For example, the incidence of juvenile diabetes is proportional to a country's consumption of milk (see Campbell's book)!

The vast majority of DM1 is in adults who gradually deteriorate from DM2. After producing high levels of insulin for a long period, the pancreas simply "burns out". Again, inflammation is involved.

Once someone has developed DM1, it is believed to be irreversible. However, like other hormonal dysfunctions (see my related articles), if caught early, a holistic approach can reverse or slow down the progression of DM2 to DM1.

Sugar and Degeneration

The crust of a bread is created by a reaction between the sugars and proteins, using heat. In the body, this crusty coating occurs in our blood vessels and other places when there is excess sugar and oxidative stress. These products are called "AGE's", which stands for Advanced Glycation Endproducts. High carbohydrates in our diet also causes increased levels of triglycerides and LDL's (low density lipoproteins), two components of our blood cholesterol profile which are undesirable by contributing to inflammation and atherosclerosis.

Diabetes is Not Just Insulin

There are several hormones and other compounds and processes which affect blood sugar and it's metabolism. These including glucagon, made by the pancreas, cortisol and adrenaline make by the adrenal glands, and the process of inflammation mentioned above. So, sugar disease is not as simple as conventional medicine makes it seem. These complex relationships also give us the opportunity to correct sugar disease without using drugs.

Holistic Evaluation of Sugar Disease

There are several routine and special tests that can help understand why a person is processing sugar poorly, and even craving sugar. Besides a two-hour post-prandial (after eating) glucose and insulin test, we can look for certain vitamins, minerals and other compounds in the blood and urine, and look for associated conditions such as yeast syndrome or food allergy. Specifically designed elimination, rotation and detox diets may be both diagnostic and therapeutic. We also need to explore the emotional and spiritual realm. Some people are sub-consciously seeking a "slow sweet suicide". In Chinese and Ayurvedic medicine, sugar cravings may reflect an energetic imbalance and/or a nutritional deficiency.

The Holistic Treatment of Sugar Dysfunction

The first step is to gradually reduce sugar consumption. While for most of us, a life without chocolate may not be worth living, eliminating the junk is really not that hard. We need to recognize our emotional attachment to sugar from our childhoods. Also, sugar addiction can be a way of handling fatigue, depression, and other stresses of our lives.

There is lots of new information about the relationship between toxicity, inflammation, and "weight loss resistance". As we age, our toxic and inflammatory load increases. This is probably why we gradually gain weight as we age and can't shake it with the standard fare of "diet and exercise". Appropriate supplements and meal plans (not "diets") can help. (see a future article on diets and weight management).

Allergy to carbohydrates or caffeine can be a cause of

sugar dysfunction. When people lose weight on the Atkins or South Beach type diets, the weight loss may be not only from restricting carbohydrates, but by eliminating substances such as wheat and caffeine to which many people are allergic.

There are numerous supplements that can aid in the processing of sugar. For example, blood tests often show that people are deficient in magnesium, which is essential for 300 metabolic processes. While harder to measure, most of us are deficient in omega-3 (fish) oils, healthy omega-6 oils, selenium, zinc, chromium, stomach acid and enzymes. Other compounds such as alpha lipoic acid, green tea compounds, CLA (conjugated linolenic acid), L-carnitine and coenzyme CoQ10 can help in energy processing.

Given the well-known facts about diabetes, obesity and its affect on our society and our children, we all must strive to understand and rebalance our lifestyle patterns regarding sugar; and put economic pressure on food producers and restaurants to provide healthier fare.

IMPORTANT NOTE: This educational material may not be used to make decisions about medical care without the help of an experienced practitioner.

For More Information

- O See Dr. Cheikin's related articles on: Hormone Havoc, Adrenal Fatigue, Thyroid Disease and others
- O See Dr. Cheikin's website, www.cheikin.com, for other helpful articles.
- O Dr. Cheikin offers workshops on various holistic health topics and classes in yoga, meditation and other wellness methods. Please call to be placed on his contact list or if you wish to host a Workshop.
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