*Compliments of*

**TOPIC: DANGERS OF SUGAR**

As of January 2016, the FDA formalized new guidelines for sugar intake. The official recommendation is that Americans eat no more than 10% of their total calories as added sugars. That means if you are over three, you should not be consuming more than 12.5t of sugar a day, about the amount in a can of soda (or the sugar cubes at left). The new FDA recommendation is twice that of the American Heart Association, which calls for a limit of six level teaspoons of sugar a day. We currently eat about 130 pounds per year or 42 teaspoons every day! (Approximately 1/3 of daily calories.)

look good
feel good
be well

# nutrition NEWS

# Bye-Bye, *Sugar!*

- **Why Is Eating Sugar Dangerous?**
- **How Can We Meet Our Bodies' Needs?**
- **What Are AGEs?**
- **Which Supplements Can Help?**

## End Your Sugar Cravings.

*Look Inside....*

## Bye-bye, Sugar!

It's no secret that Americans consume too much sugar, particularly from soft drinks sweetened with high fructose corn syrup and the HFCS hidden in foods. The American Medical Association first expressed concern about foods rich in sugar but poor in nutrition nearly 70 years ago. Then in the 1960s, the FDA issued a report based on a review of medical journal articles about sugar. They concluded that when sugar consistently accounts for 25-50 percent of caloric intake, the result is one or more serious health problems. Cardiovascular risk, diabetes and other sugar related conditions, behavioral changes, gallstones, excess calcium in the urine (a symptom of pending osteoporosis), and mineral deficiencies are implicated. Unfortunately, this is 400-1000 calories of sugar daily, the average amount persons of all ages are currently eating.

Finally, the FDA has done the right thing and made a recommendation for added sugar intake. The limit is 10% of total calories. Based on a 2000 calorie intake, this is 200 calories of sugar, or 12.5 teaspoons.

Looking at the facts, we learn that, in addition to heart disease, cancer, and diabetes, birth defects are on the rise, children are not as strong as they were 50 years ago, incidences of ADHD, ADD, and autism are way up, allergies are rampant, and scholastic scores are falling. Further, the number of overweight and obese individuals (including children) continues to increase. As pointed out by the FDA report, every one of these developments is associated with eating too much sugar.

**True. Our bodies do need sugar. (We convert it into blood sugar, glucose.) Yes, we would die without it. However, we never need to eat anything sweet, not even a piece of fruit, to provide this.** ***All the sugar we need is in complex carbohydrates like vegetables, whole grains, and legumes.*** **(Plus, if needed, our bodies can make glucose from protein or fat.)**

Complex carbohydrates are loaded with healthy ingredients. These include nutrients that help metabolize sugar and fiber that helps keep cholesterol down and regularity up. Also, the body's leisurely, natural breakdown of complex carbs slows the release of glucose into the bloodstream, bringing us an even flow of energy, without an insulin spike.

**Since we don't need concentrated sweets or refined carbohydrates at all, what happens when we eat such large amounts of them?** According to Nancy Appleton, PhD (*Licking the Sugar Habit*), **eating just two teaspoons of sugar is enough to throw our blood chemistry out of balance for 6-8 hours**. When you eat sugar (or other refined carbohydrates) morning, noon, and night, your body chemistry is in chaos 24/7.

## Which Sugar?

When we speak of "sugar", all concentrated sweets are indicated. These include white sugar, brown sugar, dehydrated cane sugar, "raw" sugar, turbinado sugar, maple sugar and maple syrup, agave syrup, any other syrup, and fructose.[1] Refined carbohydrates include white flour, white rice, instant potatoes, and most packaged breakfast cereals. These carbohydrate products can affect blood sugar levels as quickly as sweets.

## S.O.S: Systems Out of Sync

**Tempting as it is, we cannot blame sugar or other refined carbohydrates for causing ill health. It's on us.** We're the ones doing the eating. Worldwide, people celebrate by eating sweets, but few eat them on a daily basis as Americans do. It appears that ***our extensive health collapse is the result of a continuous internal glucose bath***. We are profoundly undermining our basic biochemistry with our poor food choices. The effects of sugar are demonstrated by the following reactions: **1)** stress response; **2**) acidic pH; **3)** immune suppression; **4)** insulin imbalance; and **5)** sugar-damaged proteins.

### 1. Too Much Stress

A good case can be made for stress as the root of all illness. Irritability, anxiety, feelings of overwhelm, insomnia, headaches, muscle tension, and even ulcers are markers. However, the real danger is from the cascade of chemicals the body produces during the "stress response." There are two types of stress: acute and chronic.

**Acute stress** is from the little stressors that can happen once, twice, or dozens of times every day. (Think of driving in traffic.) **Chronic stress** is a long term condition of constant vigilance. Acute stress stimulates the production of adrenaline while cortisol is the hormone of chronic stress. **Too much of either of these hormones can increase the risk of cardiovascular disease.** This includes high blood pressure, increased clotting factors in the blood, damage to the arteries, and a greater possibility of plaque formation, leading to atherosclerosis.

**Excess adrenaline** can cause arterial spasms and the overcontraction and rupture of the heart muscle fibers. **Excess cortisol** raises cholesterol and causes a loss of potassium (important to heartbeat regularity). The two types of stress frequently occur together, greatly increasing the damage.

In his classic *Sweet and Dangerous*, the late British researcher John Yudkin, MD, reported a study in which **volunteers ate a sugar-rich diet for two weeks**. Results showed that fasting insulin levels were up about 40 percent. That's bad enough, but cortisol levels increased by 300-400 percent! This means that

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1 Although fructose is low on the glycemic index, it causes a general increase in both total cholesterol and LDLs (the "bad" cholesterol) and raises triglycerides (blood fat) significantly. Further, it is anathema to persons with irritable bowel syndrome.

**habitually eating sugar and refined carbohydrates creates a state chronic stress with all its dangers.**

Incidentally, aerobic exercise is a means of lowering cortisol levels. That's one reason people feel so good during and after a stress-releasing run.

## 2. pH Distress

All foods contain minerals. Minerals can be either acid or alkaline. **When we metabolize food, residues from the minerals influence the acidity or alkalinity of our bodily fluids.** The term pH means potential hydrogen and refers to an acid-alkaline measurement. This is a range from most acidic to most alkaline (also called *base*) on a scale of 1 to 14.

**The cells and tissues of the body prefer to be bathed in a slightly alkaline solution of 7.4, about the same as sea water.** The lower (acid) limit at which a person can survive is 6.8, while the upper (base/alkaline) is 8.0. The correct pH balance regulates breathing, circulation, digestion, elimination, hormone production, immune defense, and communication between and within the cells. It follows that an imbalance in either direction is detrimental to these critical biochemical functions.

**Contrary to our bodies' needs, the average Western diet is acid.** Most of our bodies are constantly neutralizing those acids to maintain pH balance and keep systems working efficiently. In fact, a healthy pH is so important that the body will steal calcium (an alkaline mineral) from our bones in order to achieve it, a set up for osteoporosis.

**FYI: An acid pH causes** weight gain, inhibits the metabolism of both glycogen (stored glucose) and adipose tissue (stored fat), has a corrosive effect on veins, arteries, and heart tissue, encourages cholesterol plaque, disrupts blood pressure, inhibits electrolyte activity, keeps oxygen from the tissues, impedes cellular regeneration and DNA/RNA synthesis, promotes free radical damage, and accelerates aging. (Yikes!)

**With time, the body is no longer able to neutralize the acid wastes** and begins to deposit them first in the connective tissues and, later, in the organs. This leads directly to degenerative disease, including diabetes, obesity, heart disease, neurological disorders, such as MS and MD, immune deficiencies, and cancer. (For a complete discussion, see *Nutrition News,* "Acid-Alkaline Balance".)

## 3. Immune Suppression

"Sugar paralyzes the immune system," writes author and nutritionist Ann Louise Gittleman in her helpful and informative book *Get the Sugar Out: 500 Simple Ways to Cut the Sugar Out of Any Diet.* She consolidates the **evidence of immune suppression** with the following five points: **1)** When we eat sugar the ability of white blood cells to kill germs is destroyed for up to 5 hours: **2)** Sugar reduces the production of antibodies


(protein bits that inactivate foreign invaders in the body, such as bacteria); **3)** Sugar uses the same pathway as vitamin C, one of the most important immune nutrients, interfering with its transport; **4)** Sugar causes mineral imbalances which, in turn, undermine enzyme function, inhibiting every system in the body; **5)** Sugar inhibits the action of essential fatty acids, major components of cell membranes, leaving the membrane more permeable, and, thus, more vulnerable to invasion by allergens and microorganisms. **And, the impact of the *total* of these events is greater than the sum of the parts.**

## 4. Adding Insulin To Injury

When we digest carbohydrates, the sugar from them is released into the bloodstream. This stimulates the pancreas gland to secrete insulin, a hormone that tells the cells to take up blood sugar (glucose). Any extra glucose is converted into glycogen, a high energy fuel stored in the liver and muscles. **Once the glycogen stores are full, the remaining glucose is stored as fat.**

When blood sugar levels are low, the pancreas secretes another hormone called *glucagon*. This one converts the glycogen back into glucose. When the glycogen stores are empty, the body uses fat as its energy source. In this way, the body controls our blood sugar levels.

**Blood sugar balance begins with diet.** When sugars or refined carbohydrates such as rice cakes and bagels are eaten, they are quickly broken down into sugar, causing glucose to flood into the bloodstream. We may feel a burst of energy, but the body is thrown into a panic, dumping too much insulin into the mix. This is an effort to balance the high glucose levels. That is why shortly after eating, we feel fatigued, out of sorts, or even hungry. The usual response is to eat more quick energy foods, and the damaging cycle continues.

**Eventually, a condition called insulin resistance develops.** In this condition, insulin levels remain high but the cells won't receive glucose. This leaves too much glucose in the blood. Over time, both cholesterol levels and weight begin to creep up. The excess insulin and glucose are a major source of free radical production.

**Together, insulin resistance and the unhealthy conditions that often accompany it are called Metabolic Syndrome (previously Syndrome X).** The symptoms are glucose intolerance, abnormally high insulin levels, high triglycerides (fat in the blood), too low levels of HDLs ("good cholesterol"), and high blood pressure. Metabolic Syndrome is frequently accompanied by obesity, and is the chief predictor of adult onset diabetes. It also encourages the development of heart disease.

## 5. Damaged Proteins

**Advanced Glycation (or glycosylated) End-products are the ultimate result of sugar poisoning.** Appropriately known as **AGEs**, these products occur when excess glucose binds with certain proteins, including DNA. AGEs cause tissues to stiffen and become hard instead of flexible. Our skin wrinkles and our internal tissues are affected (in the lungs and along vessel

### Junk Food Paradox

**Why is it that eating junk food helps us feel better when we are "stressed out" or "down"?** There is a biochemical reason for this. When we eat too much refined carb, insulin is secreted to balance blood sugar levels. However, binging on these foods causes cortisol levels to increase. Cortisol interferes with insulin. The elevated cortisol levels overcome insulin, releasing stored glucose/sugar and increasing the production of glucose from protein. This helps us maintain our "sugar high", and gives the illusion that we have risen above the stress. Like all illusions, it is a lie. We are actually generating more stress and, ultimately, more damage.

swalls, for example). AGEs are thought to be the first step in cholesterol plaque formation. They injure DNA, causing the cells to become less efficient in reproducing themselves and in repairing damage.

**This age-promoting process of sugar poisoning is taking place at varying rates in all of us, depending on the amount of refined carbohydrates we eat.** In fact, the A1C measures the amount of glycosylated hemoglobin in the red blood cells. It is a routine test for diabetic status. The higher the measure, the greater the risk of heart and circulatory problems.

It is no surprise that free radicals are involved. Excess glucose oxidizes itself (a kind of spontaneous combustion), emitting large quantities of them. In addition, German research has shown that just the formation of AGEs causes a release of free radicals. **By reducing glycation and free radicals, we reduce the risk of degenerative disease, including heart disease, diabetes, arthritis, and cancer.**

# End Sugar Cravings

## Eat Your Way Out Of It

**The answer to sugar recovery is to replace refined carbohydrates with whole foods.** The fresher, the better. Eat lots of veggies. Soothe your sweet tooth with fresh fruit. Purchase whole grain breads and pastas. Take advantage of organic foods when possible. Read *Nutrition News*, "Put Food On The Table".

**Stay away from sugary food and other refined carbohydrates.** All soft drinks, including *diet* soda, radically upset pH. Instead, drink water.[2] If you insist on coffee, match each cup with an equal amount of water. Also, you can make your caffeinated drinks with alkaline water. Like sugar, caffeine causes glucose to be released into the bloodstream, making it part of the problem.

Coming off sugar is difficult enough for us. However, if you have children, it may be even more difficult to get them off the poison and onto the right track. The best way to go about this is to eliminate the sugars in your home.[3] **You cannot expect your children to do what you are unwilling to do for yourself.**


Another helpful hint: Do not proclaim "No More Sugar" as the 11th commandment. Allowing sugary desserts on birthdays and holidays or even a once-a-week treat "helps the medicine go down".

Remember, if the ingredients end with syrup (as in high fructose corn syrup, HFCS) or –ose, it's sugar. Now that our FDA has decided to update food labels with the amount of added sugars (based on 10% of total calories), knowing the real impact of those foods should be easier. However, usually two years are allowed for producers to change formulas and labels. That means, it may be 2018 before new labels are in the stores.

**It will take about three weeks for sugar cravings to pass....**

## Supplements Can Help

Cravings are reduced when the body's nutritional needs are met. Supplements are very helpful in achieving that end. Besides an **MVM (multivitamin-mineral formula)**, be sure to **take 2-3 grams of vitamin C.** Remember, sugar uses the vitamin C pathway. Replacing sugar with vitamin C helps keep your spirits up, and helps to quench the free radicals that are a part of the detoxification process.

Happily**, vitamins C, E** (purchase a complete E)**,** the mineral **selenium** (200 mcg, yeast type), plus **B3, and B6** (in your MVM) have all been shown to inhibit the glycation process, almost completely stopping the formation of AGEs. **Carnosine** (a different amino acid from *carnitine*,) and **alpha lipoic acid** are additional AGEs inhibitors.

In addition, **alpha lipoic acid** has been shown to stimulate insulin activity in diabetic persons, increasing insulin sensitivity and glucose tolerance; plus, it enhances the effects of vitamins C and E in the cell. Vanadium as found in **vanadyl sulfate** also improves insulin sensitivity.

Four other minerals that are important to the efficient metabolism of sugar are **chromium** (especially effective as GTF, glucose tolerance factor), **magnesium, zinc, and manganese.**

Another helper is the amino acid glutamine. As **glutamic acid**, glutamine has long been recognized for its ability to curb sugar cravings. Along with glucose, it works as brain fuel. Start with 500 mg 3x/d.

*Siri Says:* Many years ago, I wrote "Sugar: No. 1 Murderer". About that time I found that both cheese and nuts are strong warriors against sugar cravings – and they are easily carried along in a briefcase or purse. Also, when I think I want sugar, either I need protein or I didn't eat enough food at my last meal. My solution is frequently a slice of cheese and an apple.

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Also, based on my research, I use only raw honey in coffee or tea, and coconut sugar in cooking and desserts. (See *Nutrition News* issues, "Bee Healthy" and "Sweet Nothings".)

2 A tablespoon or two of liquid chlorophyll into a quart of helps maintain your body's alkaline balance. Products to make your water alkaline are also available.

3 I refer you to the classic *Lick The Sugar Habit* by Nancy Appleton, PhD. The author gives you a step-by-step program for eliminating sugar from the diet. The validation of her plan/s is that she cured herself of chronic illnesses, including bronchitis and pneumonia, by changing her lifestyle.

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