

Natural Alternatives to Table Sugar

Coconut – Palm Sugar

This brown sugar is produced from the palm tree. It has a lower glycemic index and has the same number of calories as table sugar. It is over 80% sucrose and just as sweet as regular sugar.

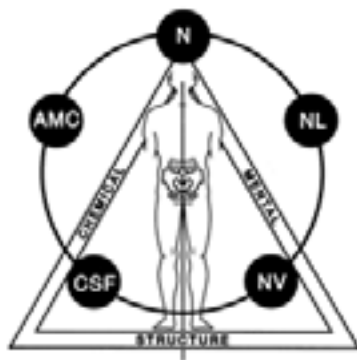
Molasses

This is a sugar cane by product and the unsulphured “black-strap” molasses has the most nutrient contents.

Honey

Bees collect pollen and produce honey. This is a combination of fructose and glucose that also has a low glycemic index. The raw form is the best as most of the positive nutrients found in honey are

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Sugar - the taste that pleases

Sugar, we love to eat and drink it. Guyenet and Landen have concluded from research that the average person consumes over 100 pounds of sugar a year. If you subtract infants, those on restrictive diets, such as diabetics and health conscious people, the amount climbs closer to 130 pounds a year.

It would be ideal if the food labels would just report sugar. However, there are different forms of sugar that are reported separately on the label. Basically, there are two forms of sugar. One is a monosaccharide and includes sugars named glucose, dextrose, fructose and galactose.

Glucose is the sugar found in our blood stream, and **dextrose** is the name given to glucose produced from corn. Biochemically, they are identical to each other.

Fructose is the principal sugar found in fruit.

The other group is disaccharides and includes combinations of sucrose, maltose and lactose.

Sucrose is found in table sugar. It is a double sugar because it contains one part glucose and one part fructose that are chemically bound together. Enzymes in our intestines split sucrose into glucose and fructose. These are absorbed into the body as single sugars.

If you just remember that if the word ends in –ose it probably is a sugar, and you will also find words like corn syrup or high fructose corn syrup. See the example shown here.

Ingredients Declaration:

MILK CHOCOLATE (**SUGAR**, COCOA BUTTER, CHOCOLATE, SKIM MILK, **LACTOSE**, MILKFAT, SOY LECITHIN, ARTIFICIAL FLAVOR), PEANUTS, **CORN SYRUP**, **SUGAR**, MILKFAT, SKIM MILK, PARTIALLY HYDROGENATED SOYBEAN OIL, **LACTOSE**, SALT, EGG WHITES, CHOCOLATE, ARTIFICIAL FLAVOR. MAY CONTAIN ALMONDS

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Injury Healing

One of the most common injuries that occurs is the strain/sprain injury.

This is a straining of muscles, ligaments and or tendons. As a group, these are known as connective tissue. When an injury occurs, **the first stage of healing is called the reaction phase.** This stage can **last for up to 7 days.** The length of time depends on the extent of the injury and what you do to speed the healing process.

In this first stage of healing, you will have an increase in circulation near the site of the injury. Along with this there will be swelling, which is caused by the cells that have been broken during the injury. **The first goal is to try and limit the amount of swelling that occurs.** When there is too much swelling more cells become damaged and more swelling occurs. This sets up a vicious cycle of swelling – damaged cells – more swelling – more damage. To limit the degree of damage, we usually recommend RICE. RICE is not something you eat but stands for Rest, Ice, Compression and Elevation.

You want to **rest the area that is injured.** Continued activity will cause more damage to the injured structures and consequently more swelling and tearing of cells. Ice, in the form of cold packs, will cause local contraction of blood vessels and reduce pain. A good starting point is to **use ice for 20 minutes every hour immediately after an injury for four to five hours.** The effects of the ice will last

for 15 – 30 minutes and will be gone within an hour. **For three days after the injury, continue using the ice 3 – 4 times a day.** If you have Raynauds, hives from contact with ice, diabetes, or any vascular disease do not put ice on your skin. Instead, place a cold cloth over the area of injury and call us for additional help.

The letter C stands for compression. Wrapping the area of injury with an elastic wrap will help to limit the amount of swelling. For example, if you have turned your ankle and it is starting to swell, put an ice pack around the ankle and wrap up the ankle and lower leg with an elastic bandage. This will help to limit the swelling and allow us to do a better job of speeding your recovery when we examine and treat the injury.

Finally, the E stands for elevation. If it is possible, raise the injured part above the level of your body. If you injured your ankle, raise your leg above your pelvis. If you injured your wrist, support your arm above the height of your shoulder. This allows gravity to help remove the swelling.

During the injury, the **breaking of blood vessels initiates several chain reactions.** A clot is formed from proteolytic enzymes released by cells called platelets. Your body creates a clot or mesh where the vessels have become broken. The lymphatics, the sewer of our vascular system, become blocked with these clots. The cells release substances known as bradykinins, which cause pain. These are released due to the injury, causing vasodilation and increased permeability of local

arterioles. Other factors are released locally to break down severely damaged tissue and prevent infection.

During this phase of injury it **is important to limit the inflammation.** Some inflammation is essential and unavoidable. Too much inflammation causes more swelling and injury.

Controlling this inflammation and speeding recovery depends on more than just taking an anti-inflammatory drug. **Your body uses enzymes to help clear up damaged tissue and speed the recovery.** A good example is a multi car accident on a large highway. The traffic will get backed up for miles on the side of the accident and on the other side with people looking at the accident. Due to the damage done, your body attempts to block off damaged vessels so that more blood doesn't escape. Getting the wrecked cars off the road is one of the first things that has to be done to get the roadway open. Enzymes accomplish this. Your body makes some, but taking more of them speeds up the removal of the damaged tissue and reestablishes the normal blood flow to and from the injury site. If they are indicated, studies have shown that healing times can be reduced up to 50% with similar reductions in pain and swelling when enzymes are taken after an injury. The only problem is that they must be started as soon as possible. This is not a time to wait and see if you feel better in a few days, as the window for starting the treatment is very short.

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Artificial Sweeteners

Saccharin

This is the oldest artificial sweetener. It is 400 times sweeter than sugar. It can have a bitter aftertaste. Animal studies have shown that it can cause bladder cancer in rats and other animals, but the FDA has ruled that this is by a mechanism that is not relevant in humans. Consequently, a warning label that used to be required on the packaging has been lifted.



There is much conflict about its use. In the intestinal tract, aspartame is quickly broken down into three basic substances. These are aspartic acid, methanol and phenylalanine. The methanol is rapidly converted into formaldehyde in our body.

However, we also produce this from other natural foods like fruits.

The form of phenylalanine used in aspartame is an inactive form of the amino acid. In nature there is only one active form of an amino acid. It is like looking in a mirror, you see the reverse of yourself. We use one form, but there is an identical but opposite form. That is the form that is found in aspartame.

Phenylalanine is the precursor for tyrosine, a very important amino acid in your body. It is the basis for a number of hormones and neurotransmitters. These include thyroid hormone, dopamine, adrenaline or epinephrine and norepinephrine.

This group of substances gives us energy, the “up” emotions and controls our metabolism. It has also been shown to suppress serotonin levels.

It has been reported for years that the FDA receives more complaints about aspartame than any other substance.

Stevia

This is produced from a plant called stevia rebaudiana. An extract from the leaf of this plant produces a substance that is 300 times sweeter than table sugar. While this seems like the best alternative to sugar, it has been linked with a number of side effects including dizziness, muscle pains, numbness, nausea, gas and bloating. It has been shown to stimulate insulin production and sensitivity so care should be used when using it.

It is theoretically possible that the use of stevia could help some type II diabetics to stabilize their blood glucose levels. However, studies using other alternative artificial sweeteners show the same response. Basically, if you taste something that is sweet, your body will attempt to make more insulin.

Aspartame (NutraSweet)

This is the most commonly found artificial sweetener used today.

High Fructose Corn

There are a number of issues about the consumption of high fructose corn syrup.

Last year, it was reported in Europe that high fructose corn sugars suppressed a feedback mechanism that stopped the stomach from telling the brain that you had eaten enough.

Our appetite is governed by a finely tuned hormonal system that drives us to eat just enough to meet our metabolic needs. Ghrelin, secreted by the stomach, tells us we are hungry. The studies in Europe showed that when high fructose corn is consumed, the stomach does not shut off ghrelin, so we continue to feel hungry and eat more.

A study published in 2009 by the Institute for Agriculture and Trade Policy on products that contained high fructose corn showed that 38% of them had minute amounts of mercury due to the processing method used in creating the sugar from

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High Fructose Corn

the corn. The industry has stated that it is or has moved away from using a process that requires mercury to produce the sugar. However, there is no testing from the FDA to test for the possible contamination at this time.

Where does this mercury come from? A product called caustic soda is used to get the starch from the kernel of corn. The caustic soda can be produced in manufacturing plants that use mercury cell technology. This is an outdated process and the mercury can contaminate the products produced with it. Unfortunately, there is no requirement for companies to list how their products are produced or if foods contain the mercury contaminant. Mercury is a neurotoxin that has been linked with changes in brain function, muscle weakness, memory problems, loss of hair, decreased immune function and changes in personality.

The FDA has set an upper limit of 5.5 micrograms of mercury to be consumed daily. The average intake of high fructose corn syrup is roughly 12 teaspoons a day. If your choices include products with the mercury contamination, you easily exceed the FDA levels.

Another chemical used to transform the corn is glutaraldehyde. This is a toxic chemical that is also used in embalming fluids. It has been shown to possibly cause irritation to the throat, eyes and stomach as well as cause headaches, dizziness and wheezing. If you are sensitive to this chemical, you will experience stomach symptoms running from mild nausea to severe burning sensations.

There is one other problem with this form of sugar substitute. The high fructose corn increases belly fat. This is the type of fat that is correlated with cardiovascular disease.

Sugar

Sugar contains empty calories. This statement has been made many times because there are no other positive nutrients found in sugar. For example, an apple contains fructose, a sugar, but also contains vitamin C, fiber and other nutrients.

We stabilize our blood sugar levels through a coordinated dance of hormones and organ functions that include the brain, the adrenals, the liver, the kidneys and the pancreas. When this symphony of organ function is out of balance, conditions like hypoglycemia, hyperglycemia, metabolic syndrome and diabetes can result. These imbalances lead to cardiovascular disease, obesity, mental changes and possibly even premature aging through out the body.

Emmanuel Cheraskin, M.D., D.M.D. reported an experiment that he did with dental students that showed consuming a liquid sugar solution dramatically inhibited the ability of our white blood cells to attack bacteria for hours. He concluded that this and other conditions like being depressed or subjected to smoke caused depression of our immune system giving bacteria and viruses a better chance of attacking us.

Let's get back to reading labels.

A teaspoon of sugar equals 16 calories. Depending on your weight, it takes about 85 calories for you to walk a mile. Rounding off the numbers, you use 6 teaspoons of sugar per mile.

Now let's put this into foods and miles. To burn off a bagel, you would have to walk almost 4 miles. You have to walk almost one mile to burn off one slice of bread. It takes almost 2 miles to burn off a bottle of beer and one mile for a glass of wine.

Seasonal Affective Disorder (SAD)

No matter where you live in the Northern Hemisphere, the winter months bring out more depression than any other season of the year. The holidays have come and gone and spring lies ahead, but many people feel irritable, depressed, moody, sleepy, restless and impatient. Take heart, all is not lost. You can take charge of this and reverse this annual trend. The following are some simple pointers to help get you more vibrant.

The first is to sit down and make a list of activities that make you feel good. You need to find something to do that gives you a feeling of accomplishment. Don't choose an activity that is too large or has a lot of obstacles. If you are already emotionally down and choose a large project, you are doomed to failure before you start. It is like trying to lose 100 pounds. Instead, set your goal of five or ten pounds and then renew your goal when you have reached it.

The next thing you can do is to increase your level of exercise. A Norwegian study has shown that increasing oxygen absorption, through exercise, decreases depression. Exercise has many positive effects. It helps your cardiovascular system, aids in osteoporosis management, aids in weight management and increases your mental outlook. Start slow and make sure that you exercise within your physical means. Try to include at least a short activity time every day. If you have any questions or want some advice just ask us.

The second thing you can do is to set aside a time every day to do something you enjoy. This isn't a time to do something you have to

do, but instead a time for enjoyment. Basically, set aside a playtime for yourself. This can be as short as fifteen minutes, but it is your time.

Do something that involves the right side of your brain. The left brain is logical, rational and systematic. The right side of the brain is creative, musical and emotional. To activate this side of the brain you need to create or do something with music.

Next, examine your eating habits. Have you fallen into a trap of eating more junk food, not preparing good nutritious meals, increasing bad fats in your diet or skipping breakfast? Cut down on your sugars, bad fats, junk foods and empty calories. Increase your fruits, vegetables and good protein sources. Don't fall into the easy trap of increasing alcohol intake in the winter. This is a two-sided sword with both sides being bad for you. It is not only a depressant, but it also leaches the nutrients from your body that it needs to keep going in a positive manner.

Examine your life for the negative things that pull you down. For example, don't watch the news before you go to bed. There isn't a lot of uplifting news. It is like watching a depressing movie and then going to bed. Instead, watch something that will make you laugh. This will cause a release of chemicals in your brain that will help you sleep well and wake up the next morning in a better mood.

If you are one of the 25% of the population that is severely affected by the winter months, consider using full spectrum lights around you. This simple change can cause dramatic changes in your brain chemistry. The lack of full spectrum, like sunlight,

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reduced when it is pasteurized.

Maple Syrup

This is another low glycemic alternative.

Turbinado Sugar

This is a sugar alternative that is less refined than regular table sugar. It is produced by pressing the sugar cane and then letting the liquid evaporate so that the vitamins and the minerals in the sugar cane are retained.

Brown Sugar

This is a sugar that can be produced in a number of ways. One is like the turbinado above or it can be made from adding molasses to regular table sugar.

Agave

This sugar is produced from the agave plant as is mostly composed of fructose. It has a very low glycemic index.

Aging and Glucose (sugar)

Our body is made of millions upon millions of little cells. Each of these cells requires energy to function. Our brains have only one food source for energy and that is glucose or sugar. Here lies the problem, our brain requires sugar but too much sugar causes severe abnormal functions and reactions.

Simply, when you eat a carbohydrate it is converted into glucose. Excess glucose in your blood stream can be converted by your liver into a substance called glycogen, a storage form of sugar. This glycogen can be stored in your liver or in your muscles, but just like your car, the amount that can be stored is limited like the gas tank has a limit. Imagine that you had a deal with the gas station to buy 10 gallons of gas every day. You had to buy the gas, but you drove the car and only burned 5 gallons per day. Each day the attendant would top off your tank with 5 gallons and then give you a 5-gallon container to strap on your car and you would have to drive around with this extra 5-gallon can on your roof. The problem is that the next day you would add another 5 gallon can or you would have to increase your driving to burn off more gas each day – or make a new deal with the attendant to give you less. The excess glycogen is stored on your body as fat.

There is one other factor that differentiates us from the car analogy. Insulin is the factor that causes the glucose to be able to enter the cell and be burned off. A decrease in the ability of insulin to be able to direct glucose into the cell begins in our mid thirties. As a result, we start to see increases in the “love handles” about this age in almost everyone. This condition is called insulin resistance and as a result the pancreas is told by our brains to produce more insulin to control the movement of the glucose.

Unfortunately, this excess insulin has the effect of being pro-aging. The conditions that have been associated with this include obesity, cardiovascular disease, diabetes, glaucoma, high blood pressure, increased blood fat levels and many more similar degenerative conditions.

We are seeing an epidemic of diabetes. It is increasing rapidly in our culture. Where type II diabetes was once called adult onset, you now have teenagers coming down with it. This is because we have made a dramatic shift in the types of carbohydrates

that we eat. There are two types of carbohydrates: high and low glycemic. This is based on how fast they are assimilated into our bodies. Low or slow glycemic foods usually have a lot of fiber like beans and most fruits. High glycemic foods are digested quickly and enter the blood stream in a rush. These are foods like white bread. Another way of easily defining these foods is processed and non-processed. Basically, eat anything that is natural and man or woman has not played around with it. If you follow that simple rule your diet will have almost all low glycemic foods and cause less stress to your pancreas. Historically, it wasn't until the 16th century that refined sugars started to be added to the human diet, and it was in the 20th century that white pasta and breads became a staple.

Fat increases the rate of aging. Being overweight causes our joints to break down ahead of time. Obesity leads to an increase in free radicals, those devils that start almost all of the degenerative diseases, and if you have too much fat on your body, you have too much fat in your vascular system. This causes changes in lung and heart function and inevitably heart disease, heart attacks or strokes.

One of the real problems is that many want to lose weight and can't. They eat less and when they start to starve the body to lose weight, the brain responds by slowing down the metabolism. Remember, we evolved over centuries when food wasn't always plentiful. When faced with food shortages, our bodies had to slow our metabolism to make it through the winters when food was scarce. When food was plentiful, we had to pack it on to be able to make it through the tough times. The real problem is that our bodies have not adapted to having food available all year round. Consequently, harsh restrictive diets do not work for long. What is really needed are moderate diet changes coupled with an increase in activity to stimulate the body to keep up the metabolic rate and not think that you are starving and preparing for a long winter.

Finally, 1/4 of us have a condition known as Syndrome X. This condition is also known as

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light can adversely affect the production of hormones in the brain. This causes a condition known as SAD, Seasonal Affective Disorder.

A government study showed that 90% of SAD cases had manic depressive symptoms and the light therapy was 80% effective in reversing these symptoms. SAD makes you a sad person. Full spectrum lights replace the portions of the light that are not produced by normal light bulbs or fluorescent lights. If you have this condition, you will slowly become more depressed from October to January and then slowly improve until you are your old self again around mid-April. Other symptoms relate to the clock type mechanism that goes on in your brain. You have a daily clock, a monthly clock, a yearly clock and a lifetime clock. Sometimes these clocks get out of sync. There are some simple tests we do in the office that help to determine whether you are in need of care to reset these clocks. The care involves structural, chemical and environmental changes.

Healing injuries

To summarize, the primary goal after an injury is to limit the amount of injured tissue. To do this, remember the acronym RICE.

Rest - stop moving the injured area

Ice – apply cold packs of ice

Compression – wrap the area if possible

Elevation – elevate the injured area if you can

After the Reaction stage, there are two other stages that traumatic injuries go through. These are called **regeneration and remodeling**.

In the regeneration stage, your body builds new capillaries to replace the damaged ones. This process is known as angiogenesis. At the same time, your body starts to **rebuild the damaged connective tissue**. It does this by making collagen strands. Collagen is made up of amino acids. Amino acids are small subunits of protein. Consequently, **your diet must contain enough protein** to help you make these collagen strands.

If you look at a forest, all of the trees are parallel with each other. Once in a while you will see a tree that has fallen down and is caught in another tree. Collagen fibers are similar to this. Collagen is supposed to be in parallel lines. After an injury, your body makes a mesh with collagen fibers going in all directions. Another example is the kids' game "Pick up Sticks". All of the collagen fibers should be parallel, but after an injury they look like the sticks when they are dropped. The fibers are running in all directions. In order to make a strong bond at the site of the injury, this crossing of fibers – or cross-link – is necessary. One problem is that these cross-links limit the range of motion of the structures that have been injured. You may not be able to move your arm or ankle as freely as you once did. In the last stage of healing, remodeling, the cross-links are slowly reduced and range of motion is increased.

In the regeneration stage, we want to continue to minimize any swelling and inflammation and stimulate protein production of the collagen bonds. **Controlled motion helps to ensure that most of the collagen will be laid down in the lines of the normal joint action**. Dietary modification to ensure adequate protein intake is very important as is limiting foods and substances that encourage the inflammatory process. This would include an excess of animal fats, alcohol and partially hydrogenated fats. **Increasing omega 3 oils like EPA or eating deep-water fish will help to limit any inflammation. To ensure**

insulin resistance and people with it usually have an apple shaped body. In males, you will see the abdomen falling over their belt. This is a severe problem and needs a special diet to reduce the needs of insulin and at the same time give the patient a constant energy level. Nutritional supplementation is very critical to help this condition.

Controlling weight and insulin needs will help to slow the aging process. The tools that are used to do this fall into two categories. The first is a good basic exercise program that is tailored to the needs of the patient. This program will depend on your current state of health, cardiac reserve and lung capacity. The second involves a dietary plan to give you the foods that will not stimulate insulin while supplementing your diet with nutrients that will assist your liver, pancreas and endocrine system to stabilize your insulin and glucose needs.

This is a balancing act but working together you can have success with more energy and at the same time slow down the aging process.

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adequate protein intake, small servings of protein should be consumed throughout the day. In the office, our goal is to make sure that the muscles that have been damaged are treated and made functional. Ligaments that have been damaged may need support both structurally and nutritionally. Keeping the joints aligned properly will allow the damaged structures to heal back at their normal lengths. **This stage of the healing goes from 48 hours after the injury in a mild case to over 8 weeks in a more severe injury.**

In the remodeling stage, the cross links that were formed in the regeneration stage are slowly reduced and **range of motion is increased.** In this phase, care is taken to reestablish the motion of the joint. This may require **massage type work or stretching.** Much of this is done in normal daily living, but the problem is that we tend to protect the injured part by not using it and thereby limit the return to full function. The other major goal in this phase of healing is to reestablish normal proprioception. This involves muscle coordination. Muscles react to each other. The contraction of one muscle causes an opposing muscle to relax. When a muscle contracts it should not cause another muscle to weaken while it is helping the contracting muscle. When this ballet of muscle coordination is not functioning properly, ache and pain will be caused when you use the injured part or you will have a decreased range of motion. In the office, we need to test the muscles doing various tasks to determine that the coordination is working properly. In simple injuries, **this remodeling stage will begin as early as the fourteenth day after the injury. In severe injuries, the stage may last well over 1 year.**

Only when full range of motion and coordinated muscle function has been attained have you recovered from an injury. If these goals are not attained, permanent decreased function and compensations by your body will lead to other problems.

An example is someone who has injured his or her ankle and it doesn't fully recover. **They will walk with a slight limp that will cause knee and hip problems. Years later, arthritis in the ankle, knee and hip joints may result due to the changes that have occurred.**

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