FACTS ABOUT SUGARS AND ARTIFICIAL SWEETENERS

ARTIFICIAL SWEETENERS

SORBITOL – **sugar alcohol naturally found in fruits. Used as a low calorie sweetener in medical solutions. Its hyperosmotic properties allow it to work as a laxative being triggered in doses of 20-50 grams, drawing water into the colon from surrounding body tissues to help soften the stool and relieve constipation. This also allows relief of dry mouth during prostatectomy as a urinary bladder wash. It was approved by the FDA in February, 1978.**
Webmd (on internet) advises not to use it longer than week and not to take it with additional laxatives or stool softeners. Not for use if you have irritable bowel, colitis etc.
Side effects include nausea, gas, diarrhea, stomach, cramps or anal irritation. May affect irritable bowel or similar disorders. Watch for rectal bleeding, vomiting, weakness, dizziness, persistent urge to empty the bowel, black and tarry stools. Allergic reactions may include rash, itching/swelling of face/tongue/throat; trouble breathing.

SUCRALOSE aka SPLENDA – **Sucralose is an artificial sweetener made from sucrose and protected by patents of the British company Tate & Lyle and Johnson & Johnson. It was discovered in London in 1976. Sucralose itself has no calories. Splenda contains a relatively small amount of sucralose. Most of Splenda's calories comes from dextrose and maltodextrin which has 3.75 calories per gram(a lower calorie content than sugar). Unlike other artificial sweeteners, sucralose is heat stable to 450ºF. Splenda usually contains 95% dextrose and maltodextrin which is easily metabolized by the body. Research says consuming 15mg or less a day should be safe. Mercola lists examples of side effects that have been reported: gastrointestinal problems such as irritable bowel syndrome attack, seizures, dizziness, migraines, blurred vision, allergic reactions, blood sugar increase and weight gain. He said there have only been 2 published trials representing a total of 36 human subjects and of that only 23 were actually given sucralose for testing and the longest trial has only been 4 days with a view of sucralose relation to tooth decay. No studies have been done on children or pregnant women.**

EQUAL **is a brand name. Now we have the original Equal, as well as Equal Sucralose, and Equal Saccharin., and Equal Next. The original was made of dextrose with maltodextrin and the sweetening ingredients aspartame and acesulfame potassium. Acesulfame potassium is a zero calorie sweetener that the body can't metabolize therefore it is excreted; it is 200 times sweeter than sugar. Equal Sucralose uses the same sweetening ingredient as Splenda and Equal Saccharin uses the same ingredient as Sweet N Low. Equal Next are dextrose with maltodextrin and uses aspartame and**

saccharin.

NEOTAME is an artificial sweetener made by NutraSweet. Mercola tells us it is more toxic than the aspartame NutraSweet product because of the chemicals used in its manufacturing.

SACCHARIN as an artificial sweetener is 300-400 times sweeter than table sugar (sucrose) but people complained of the bitter or metallic taste when using it. It is sold in little packets called Sweet 'N Low as a low calorie sugar substitute. In the 1970's the government banned it from the Canadian market after concerns were brought up concerning cancer in lab rats when using the product. Lately it is thought that because it occurs in rats, does not mean it occurs in humans. In 2006 it was allowed back on the market as a food additive.

ASPARTAME aka NUTRASWEET – Aspartame comes from aspartic acid and the amino acid phenylalanine. The phenylalanine methyl bond, called a methyl ester, is very weak, allowing the methyl group on the phenylalanine to easily break off and form methanol. It is claimed that methanol is found in fruits and vegetables therefore it is safe to eat, however the methanol in fruits and veggies has the methanol firmly bonded to pectin which allows it to be safely passed through your digestive tract which does not happen with the ethanol created by aspartame. and although amino acids are considered good for us, they are not expected to be taken in the qualities that people are taking them. Research has shown an association between aspartame consumption and non-Hodgkin's Lymphoma and leukemia and a large study taken over a period of 10 years found drinking just 2 diet drinks a day can dramatically increase your risk of an early death from heart disease. Methanol poisoning side effects include vision problems including misty vision, progressive contraction of visual fields, blurring vision, obscured vision, retinal damage, blindness. Formaldehyde is a known carcinogen that causes retinal damage, interfering with DNA replication and may cause birth defects. It is generally thought that too much NutraSweet in the diet may cause brain deterioration and neurological damage. Jennifer Cohen an 11 year old student conducted an experiment proving aspartame in diet soda breaks down into two deadly neurotoxins when stored at room temperature and under refrigeration. In 2015 Pepsi, and Coke have been forced to change their diet drinks using aspartame due to the decline in sales. The decline is due to the education of the public of the dangers of aspartame.

JUST LIKE SUGAR blends crystalized Maltodextrin with Chicory root.

SUGAR ALCOHOLS

NOTE: there is actually <u>no ethanol(alcohol) in sugar alcohols</u>. The sugar alcohols are used for weight loss because of the reduced calorie content and for diabetics due to their low glycemic index. Some sugar alcohols can cause digestive distress. They are largely indigestible and can cause diarrhea by pulling the excess water into the large intestine. Fermentation of sugar alcohols from gut bacteria can cause gas and bloating

and may decrease fat absorption from other foods. Although sugar alcohols are considered safe, some may cause digestive upset, especially flatulence when eaten in large amounts. Many find the adverse GI effects fade after the first month or two. It is often used as a weight loss product. These are very appealing to diabetics and weight loss enthusiasts. An added bonus: the bacteria in your mouth don't ferment sugar alcohols, so they don't damage your teeth the way that regular sugar does. These products are not considered intense sweeteners because they aren't sweeter than sugar, some are even less sweet than sugar. They are not considered noncaloric or non-nutritive sweeteners because they contain calories, but are lower in calories than sugar. Even though they are called sugar alcohols, they aren't alcoholic and do not contain ethanol. Because they have fewer calories and don't affect the blood sugar levels very much, they can be safely used by diabetics.
Sugar alcohols are not usually used when you prepare food at home, rather they are found in many processed foods such as chocolate, candy, frozen desserts, chewing gum, toothpaste, mouthwash, baked goods. When added to foods they add sweetness, bulk and texture and help food stay moist, preventing browning when heated. They are often combined with artificial sweeteners to enhance sweetness.

ERYTHRITOL **is a sugar alcohol, made from corn, and which is almost completely absorbed, but not digested so it provides almost no calories (.2 calories per gram). This is probably the best tolerated sugar alcohol and if the dosage is spread out throughout the day, it can be increased so a person can tolerate large amounts without Gastrointestinal distress. It is made from plant sugars. Sugar is mixed with water and then fermented with a natural culture into erythritol. We are seeing more and more these days, often grouped with other sugars. You have to eat over 455 mg per pound of body weight to cause stomach upset so it is pretty safe.**

XYLITOL **is made from the birch tree. It contains 2.4 calories per gram. It is a sugar alcohol which is often used in toothpaste. Trials found it helped prevent tooth decay. Xylitol is not fermentable by common plaque forming oral bacteria like sugar is, so it doesn't provide a food source. It also inhibits the growth of these bacterial and forms complexes with the calcium to help in remineralization. Most people can tolerate about 30g per day. Xylitol is highly toxic to dogs, put it out of reach if it is in your house.**

MONK FRUIT **is a sugar alcohol, used as a sugar substitute. It is about 300 times sweeter than sugar. Made from green melon (Siraitia grosvenorii plant) grown in China. No known side effects. It is named after the monks who cultivated it. Safe for diabetics as it does not increase blood sugar. If you are allergic to melons, pumpkin, squash, or cucumber, you may also be allergic to monk fruit. No calories or carbs!**

MALTITOL **is a sugar alcohol used as a sugar substitute. It is about 75-90% as sweet as sucrose(table sugar) with similar properties (except for browning). The good news about maltitol is that it doesn't promote tooth decay and is less problematic for the blood sugar. It is obtained by hydrogenating corn syrup. Often you will find it listed as the ingredient in sugar free candy, chocolate, chewing gum, and ice cream.**
It can cause gas for many which is said to normalize after a few weeks of use. Large

quantities can cause diarrhea.

MANNITOL aka mannite or manna sugar. It is white, crystalline solid, looking and tasting like regular sucrose/sugar. Originally it was obtained from the secretions of the flowering ash when it was called manna after its resemblance to the Biblical food. It is mainly used to produce tablets of medicine. It is classified as a sugar alcohol.

ISOMALT is a sugar alcohol. It doesn't promote tooth decay but may create gastric distress with gas and diarrhea if consumed in large quantities (more than 50g a day) for adult; half that for child). You may see it listed as an ingredient in sugar free candy, especially hard boiled candy. It resists crystallization better than the usual combination of sucrose and corn syrup.

SORBITOL is a sugar alcohol, 60% as sweet as sugar and has only 60% of the calories. It is not recommended in a healthy diet due to a negative influence it can have on the digestive tract.

HYDROGENATED STARCH HYDROLYSATES are mixtures of several sugar alcohols, a type of sugar substitute. It comes from corn starch, potato starch or wheat starch. The hydrogenated starch hydrolysaes are similar to sorbitol.

NATURAL SWEETENERS:

Honey, Fruit juice concentrate, Date sugar, Monk fruit, Agave nectar, Pure Maple Syrup, Black Strap Molasses, Brown Rice Syrup, Stevia, Raw Coconut sugar, Raw cane sugar, Raw Beet sugar, Concentrated Grape Juice.

OTHER SUGARS YOU MAY HEAR ABOUT

ALLULOSE, aka D-allulose), is a sugar (monosaccharide) that exists in certain natural fruits. It is 70% as sweet as table sugar, but provides only .2 calories per gram. A bonus is that is tastes very similar as regular sugar. Studies suggest it may help reduce blood sugar and insulin levels. Large doses may lead to bloating, diarrhea, abdominal pain, so stick to a maximum single dose of .19 grams per pound of body weight and a maximum daily dose of .4 grams per pound.

BEET SUGAR – sugar beets are grown in southern Alberta and processed for consumption. Treat the same as white or brown sugar.

BROWN SUGAR – this is regular white sugar with molasses added to make its nice colour and flavour. It is also sold under other names such as Demerara style, Yellow Sugar, Muscovado Sugar, Plantation Raw Sugar.

BROWN RICE SYRUP, aka Brown rice malt syrup, or rice malt, or rice syrup. Made by

cooking rice starch with saccharifying enzymes to break down the starch, then straining off the liquid and let it evaporate with heat. Sprouted barley grains are added to the rice starch which helps digestion of carbs, proteins, and fats. They may also use bacterial or fungal enzyme isolates. It is a little less sweet than sugar, so if the recipe calls for 1 cup sugar, use 1 ¼ cup brown rice syrup. On the glycemic index it is 98 which is higher than table sugar (65) and about the same as glucose (100). There is some concern about the rice having arsenic which is common in China.

COCONUT SUGAR / COCONUT PALM SUGAR – this is boiled and dehydrated sap of the coconut palm and is more expensive than granulated sugar. Available on the market is organic coconut palm sugar where no chemicals, bone char or animal by-products are used to make or de-colourize the product. When cooking, they are a 1:1 swap with regular sugar.

COCONUT NECTAR – this is a sweet, unrefined syrup made from pure coconut sap. It is gently heated so not to disturb its strength and purity. It has a sweet caramel flavour and is used similar to honey and other sweet syrups. Benefits of this is that it is low in fructose (lower than Agave). On the Glycemix Index it holds the position of 35, where other processed syrups have a GI of 65 or more. It is 100% Vegan.

DEMERARA has a heavy molasses coating (golden brown crystal sugar). Its large golden crystals are slightly sticky. It is often used as a specialty item for baked goods and used in tea, coffee or on top of hot cereals.

DEXTROSE is a simple sugar chemically identical to glucose (blood sugar) that is made from corn. Glucose is made from grape sugar.

EVAPORATED CANE SUGAR is showing up in many foods at health stores. It is produced from milled sugar cane through a single crystallization process where the filtered, clarified sugar cane juice is evaporated into a syrup, crystallized and dried. It is also called Turbinado sugar, and Evaporated cane juice (misleading as this is a sweetening syrup and not a juice).

FRUCTOSE, aka Fruit Sugar, is found in many plants (tree and vine fruits, honey, flowers, berries and most root vegetables), often bonded to glucose to form the disaccharide sucrose. It is sweeter than glucose or sucrose and is often used in soft drinks and linked with obesity along with High Fructose Corn Syrup. It is one of the 3 dietary monosaccharides (along with glucose and galactose) that are absorbed directly into the bloodstream during digestion. It is 1.73 times sweeter than sucrose. Commercially it is often derived from sugar cane, sugar beets and corn. Fructose is absorbed from the gastro tract by a different mechanism than glucose. Glucose stimulates insulin release from the isolated pancreas, but fructose does not. Most cells have only low amounts of the glut-5 transporter which transports fructose into cells. Fructose can't enter most cells because they lack glut-5 (whereas glucose is transported into cells by glut-4, an insulin-dependent transport system). Once inside

the liver cell where it is metabolized, fructose can enter the pathways that provide glycerol (the backbone for triacyglycerol).

GRANULATED SUGAR is pure sucrose, the most common form of refined sugar made from sugar cane or sugar beets.

GALACTOSE is a monosaccharide sugar that is less sweet than glucose and fructose. Galactose is more commonly found in the disaccharide, lactose or milk sugar. It is found as the monosaccharide in peas.

GLUCOSE is used as energy by living organisms. It is defined as a carbohydrate and the most important simple sugar in human metabolism. It is called a simple sugar or monosaccharide because it is one of the smallest units which has the characteristics of this class of carbohydrates. Glucose is also sometimes called DEXTROSE. Corn syrup is primarily glucose. Glucose is one of the primary molecules which serve as energy sources for plants and animals. It is found in the sap of plants, and is found in the human bloodstream where it is called 'blood sugar'. The normal concentration of glucose in the blood is about .1%, but it is much higher in those suffering from diabetes.

GOLDEN SYRUP is a table syrup of sucrose and invert sugar. It is also called Refiner's syrup and Refined Sugar Syrup.

HIGH FRUCTOSE CORN SYRUP is a mixture of glucose and fructose. It is made from corn starch that has been processed by glucose isomerase to convert some of its glucose into fructose. A lot of press has been given to how detrimental this product can be to our health.

ICING SUGAR is a milled sugar known as powdered sugar or confectioner's sugar, ground to a fine powder.

LACTOSE is a natural occurring sugar found in milk. A molecule of lactose is formed by combining a molecule of galactose with a molecule of glucose and is broken down when consumed into its constituent parts by the enzyme lactase during digestion.

LIQUID INVERT SUGAR is a mixture of glucose and fructose when sucrose is broken down in solution.

LIQUID SUGAR is regular granulated white sugar dissolved in water.

MALTOSE is formed during the germination of certain grains such as barley which is converted into malt. The molecule of maltose is formed by combining two molecules of glucose. It is less sweet than glucose, fructose or sucrose. It is formed in the body during the digestion of starch by the enzyme amylase and is itself broken down during digestion by the enzyme maltase.

MOLASSES is a by-product of sugar cane and sugar beet refining process. It is also sold as Blackstrap or Cooking Molasses, Table or Fancy Molasses.

MUSCOVADO SUGAR is dry crystal sugar made by crystallization of dark syrups similar to Demerara style. It is also known as Barbados Sugar and often used on cereal, in puddings and fruit cakes, marinades an sauces. It ranges from light to dark brown and has a strong molasses taste. Muscovado sugar is not run through a centrifuge and only minimally spun in a centrifuge so more of the molasses is left.

ORGANIC SUGAR is made from cane syrups that are filtered and cleaned using only natural herbal extracts and vegetable purifiers. It is grown without sprays or chemicals.

PLANTATION RAW is often seen in sugar bowls in restaurants in light brown paper packets. It is supposedly natural sugar cane ground up and not processed.

RAW SUGAR is a sucrose which is synthesized from sugar cane or sugar beet and can't immediately be consumed before going through the refining process to produce refined sugar or white sugar. This is not the same as SUGAR IN THE RAW which is a specialty refined sugar. Raw sugar is not sold to consumers because it does not meet Canadian Standards for health and hygiene.

STEVIA comes from the plant "stevia" which you can grow in your back yard in the summer time as an annual. It is 100 times sweeter than sugar and has been approved in its highly refined state but not as a whole leaf or crude extract.

SUGAR IN THE RAW is the brand name of a sugar product. This is known as a fake raw sweetener.

SUCANAT is said to be a healthier choice to white or brown sugar. It is dehydrated cane sugar juice and used for thousands of years in India.

SUCROSE / TABLE SUGAR – This is a cane or beet sugar. SACCHAROSE is a name often used in the past. Sugars are found in the tissues of most plants, but are in higher concentrations in the sugarcane or sugarbeet plants. Whole books have been written about the history of sugar and it's detrimental effects. White sugar has been refined to remove the molasses.

TAGATOSE is a low carb sweetener similar to fructose that occurs naturally but is also manufactured from lactose in dairy products. These foods can't be labeled as 'sugar-free'.

TREHALOSE is found naturally in mushrooms.

TURBINADO SUGAR **comes from the sugar cane. It is spin dried once in a centrifuge to remove most of the molasses whereas refined sugar is boiled several times to remove all the molasses. This gives a residual taste of molasses to the product.**

UNPROCESSED CANE SUGAR **is less refined than the white, unrefined and brown sugars.**

YACON SYRUP **a sweetening agent extracted from the tuber roots of the yacon plant (smallanthus sonchifolius), found in the Andes mountains. It contains about 1/3 of the calories of regular sugar (1.3 calories per gram). It is less sweet than table sugar, so you may need to use more. The fructooligosaccharides (FOS) in yacon act as prebiotics, helping the friendly gut bacteria. Eating FOS doesn't increase the blood glucose, but the root has free fructose at about 35% The Glycemic Index value of about 40, so it is categorized as Low GI food. It is made similar to maple syrup and tastes similar to molasses or caramelized sugar.**

OTHER SUGAR SUBSTITUTES

Many like to use ground up dates to sweeten their foods. Applesauce is another natural fruit that can be used in recipes. Bananas are similar. These are all great in recipes for cakes, muffins, pancakes etc. Just puree them or mash them up. They are loaded with vitamins and minerals also.