

Anthony Alayon Presents

# TRUTH

ABOUT

# ARTIFICIAL SWEETENERS



# TRUTH ABOUT ARTIFICIAL SWEETENERS

**Anthony Alayon Presents**

# TRUTH ABOUT ARTIFICIAL SWEETENERS

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## READ THIS SECTION THOROUGHLY BEFORE GOING ANY FURTHER!

### PRECAUTIONS

- You should always consult a physician before starting any fat reduction and training program.
- If you are unfamiliar with any of the exercises, consult an experienced trainer to instruct you on the proper form and execution of the unfamiliar exercise.
- The instructions and advice presented herein are not intended as a substitute for medical or other personal professional counseling.
- The editors and authors disclaim any liability or loss in connection with the use of this system, its programs and advice herein.
- These precautions should be taken under consideration with all Fat Extinction products and recommendations, whether implicitly or explicitly stated.

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# TRUTH ABOUT ARTIFICIAL SWEETENERS

## ASPARTAME

### A) Origins/History/What is its purpose?

Aspartame was accidentally developed when pharmaceutical research company G.D. Searle and Company was working on developing a new ulcer medication in 1964. The researcher tasted a powder he found on the outside of a lab flask and realized how sweet the aspartame tasted. Aspartame is 100 to 200 times sweeter than natural sugar. It is used to sweeten the diet versions of sodas and some foods.

### B) Where do you find it? (Foods, beverages, etc.)

Diet sodas, cereal, chewing gum, children's vitamins, puddings, gelatins, cheesecake and juices. Aspartame has been added to up to 9,000 food products.

Soft drink manufacturers use aspartame to replace cane sugar, high-fructose corn syrup and other high-calorie sugars. It is also an ingredient in powdered soft drinks, flavored coffee syrups, flavored water products, sweet iced tea, vegetable drinks and juices and nutritional protein drinks.

Yogurt manufacturers include aspartame in their drinkable yogurt products, fat-free and sugar-free yogurts. If a yogurt product has been made with low-fat or nonfat milk, it is likely to have aspartame as well.



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Aspartame is an ingredient in barbecue sauces, fruit spreads, jellies, maple syrup, sugar-free chocolate syrup and ketchup.

Sugar-free candies and gums also contain aspartame. These include breath mints, hard candies, chewy candies and chewing gum. Include desserts on the list of foods containing aspartame. This list includes frozen ices, ice cream novelties, ice cream, sugar-free cookies, no-sugar pies, sugar-free flavored gelatins, mousses and pudding mixes.

## **C) Problems/Health Risk**

For being a “healthy” food ingredient, aspartame has been found to be the cause of a laundry list of adverse reactions, worsening chronic illnesses, neurological damage and, in addition, it poses a strong health risk for those with phenylketonuria.

Some who have eaten or drunk foods with aspartame have suffered dizziness, headaches and migraines, nausea, numbness, muscle spasms, seizures, rashes, fatigue, weight gain, depression, irritability, hearing loss, vision problems, insomnia, tachycardia, breathing problems, loss of taste, heart palpitations, anxiety attacks, slurred speech, vertigo, tinnitus, joint pain, or memory loss.

Aspartame has been identified as worsening or triggering certain chronic illnesses: Parkinson’s disease, epilepsy, brain tumors, multiple sclerosis, chronic fatigue syndrome, fibromyalgia, Alzheimer’s, lymphoma, birth defects, diabetes, and mental retardation.

Two ingredients in aspartame (aspartate and glutamate) destroy neurons. Before someone is diagnosed with a chronic illness such as multiple sclerosis, about 75 percent of neural brain cells in any one area of the brain have been killed before any clinical symptoms become evident. Several illnesses have been linked to long-term usage of aspartame:

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Parkinson's disease, multiple sclerosis, ALS (Lou Gehrig disease), memory loss, hypoglycemia, AIDS, epilepsy, dementia, hormonal problems, brain lesions, Alzheimer's disease, and neuroendocrine illnesses.

Exposure to glutamate and aspartate may also cause acute reactions, which may include:

Asthma and chest tightness, fatigue, anxiety attacks, depression, headaches and migraines, nausea, sleep issues, abdominal pain, and vision problems.

Perhaps most significant is that aspartame can increase the level of phenylalanine in the brain for anyone who ingests it. For those who have inherited phenylketonuria or PKU, this poses a dangerous situation. They can suffer from depression, headaches, memory loss, violent rages and mood swings. Too much phenylalanine in the brain can increase susceptibility to seizures or it can cause schizophrenia.

A complex chemical reaction in the intestines causes aspartame to break down. One by-product is methanol, which further breaks down into formaldehyde – a neurotoxin. Those who consume high amounts of aspartame might develop ear buzzing, headaches, nausea, dizziness, weakness, gastrointestinal upset, chills, vertigo, numbness, memory lapses, behavioral disturbances, shooting pains in the arms and legs, and neuritis. They may also suffer from misty vision, blurred vision, progressive contraction of the visual field, retinal damage, obscured vision, and blindness. Formaldehyde is a well-known carcinogen.

Diketopiperazine or DKP is a byproduct of metabolized aspartame. DKP is suspected in the development of brain tumors in patients who use this sweetener. (This byproduct is formed in liquids containing aspartame – diet sodas – during lengthy storage.) DKP is also blamed for blood cholesterol changes and the development of uterine polyps.

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## D) Healthy Alternatives

- While natural sugar does have some calories, it is much safer than aspartame. When used in small to moderate amounts, it sweetens foods and beverages.
- People who want no calories from their sweeteners can use stevia. It is plant-based.



Stevia doesn't cause blood sugar spikes, has no detectable side effects and it is about 40 times sweeter than natural sugar. However, the earlier version had a bitter aftertaste. To date, it has not yet been given FDA approval.

- Luo Han Guo is a Chinese sweet fruit used as a sugar substitute. Its sweetening agents are called mogrosides and about 250 percent sweeter than natural sugar. It has been used to help those with respiratory and gastric ailments, stabilizes blood sugar and, as a staple of Chinese medicine, has no known side effects.
- Xylitol occurs naturally in some vegetables and fruits. It has some antibacterial properties and may help slow aging and strengthen the immune system. Xylitol comes in non-GMO and GMO versions. It can be used for baking and cooking. It helps protect against cavities because bacteria in the mouth doesn't interact with this sweetener to form tooth-attacking acids. It also helps fight candida so yeast infections won't start. Too much xylitol can cause bloating, gas and diarrhea.

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## HIGH FRUCTOSE CORN SYRUP (HFCS)

### A) Origins/History/What is its purpose?

High fructose corn syrup originates from cornstarch. The atoms in the cornstarch are moved around, changing some of the glucose in cornstarch into fructose. Three versions exist: HFCS-42, which is 42 percent fructose, HFCS-55, which is 55 percent fructose, and HFCS-90. This is 90 percent fructose. HFCS-55 is the one that is most used in soft drinks manufactured here in the U.S. Manufacturers began using HFCSA as a cost-saving measure in 1980, and this practice still continues today.

### B) Where do you find it? (Foods, beverages, etc.)

HFCS is found in carbonated beverages – non-diet sodas and in fruit drinks. There's a reason HFCS is called "liquid candy" – every man, woman and child in the U.S. could drink over 52 gallons every year. Soda companies make enough of this empty-calorie beverage to supply more than 555 12-ounce cans per person annually. This doesn't take into account non-carbonated soft drinks, to included sweetened iced teas, fruit drinks and energy drinks.

Look at the labels of any processed food product. This includes bread products, yogurt with fruit, ketchup, crackers, and cereals. HFCS retards spoilage, allowing these products to stay on store shelves longer.

HFCS is included in fast foods to help preserve it and to make it taste better.



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American teens eat fast food, on average, twice a week. This equates to about 20 percent of their weekly caloric intakes. Some fast food outlets, such as Starbucks, have eliminated HFCS from their menus, relying more on fresh foods and natural foods. In 2007, Ocean Spray Cranberries removed HFCS from its products, converting to sugar, then to beets by 2008.

Quaker, PepsiCo and Tropicana co-funded several studies that found “no” difference between the effects of HFCS and sugar on the human body.

## **C) Problem/Health Risk**

HFCS now accounts for 42 percent of added calories and sweeteners in foods and beverages as compared to less than 1 percent 30 years ago, when it was first introduced. Along with this sharp rise in the inclusion of HFCS in the foods Americans eat, obesity, including childhood obesity and Type 2 diabetes have risen sharply. Medical professionals estimate that as many as 60 million American adults suffer from obesity while childhood obesity has tripled. Teens take in 13 percent of their caloric intake from non-carbonated and carbonated soft drinks.

Because twice as many molecules of sweetener are in a 10 percent solution of HFCS as compared to a 10 percent sugar solution, someone drinking a soda sweetened with HFCS will want that drink more than one sweetened with simple sugar.

Obesity contributes to the development of Type 2 diabetes. When someone takes in high amounts of HFCS, whether it is in beverages or fast foods, they are likely to be taking in excessive amounts of calories – increasing their risk of obesity, which can lead to diabetes.

The prevalence of Type 2 diabetes is going up every year. Of the Americans born in the year 2,000, one in three will eventually develop diabetes, making them vulnerable to renal failure, blindness, nerve disease, strokes, and heart disease.

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## D) Healthy Alternatives

- Ordinary table sugar, when used in moderation, is less risky than HFCS. Consumers also need to cut back on their intake of soft drinks, fast foods and processed foods.
- Honey, which has proteins, enzymes, vitamins and minerals, is also healthier. When someone takes in 50 to 80 grams of honey per intake, which is a minimum of 3.5 tablespoons, they benefit from its nutrition.
- Maple syrup is a good substitute for corn syrup. It's all-natural and consumers can choose from several strengths to suit their personal tastes. Maple syrup contains minerals, including potassium and calcium.
- Agave nectar has a lower glycemic index than that of corn syrup. It has been more processed than honey or maple syrup.
- Simple syrup, made with 1/4 cup of water and 1 cup of granulated sugar. Simmer the mixture until the sugar is melted. Allow it to cool. This makes about 1 cup of simple syrup – the equivalent of 1 cup of corn syrup.



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## NEOTAME

### A) Origins/History/What is its purpose?

Neotame, manufactured by NutraSweet, which is a former division of Monsanto, is a cousin of aspartame. Even though 80 percent of all complaints made to FDA about adverse reactions to aspartame, it was still approved for inclusion in beverages and processed foods. The addition of 3,3-dimethylbutyl reduces the human body's production of phenylalanine. This supposedly makes it safer for those suffering from phenylketonuria or PKU.

### B) Where do you find it? (Foods, beverages, etc.)

Neotame is used as a tabletop sweetener in addition to being allowed to be used in processed foods such as gelatin and pudding mixes. It's also found in jams, jellies, canned fruits, syrup and fruit juices. Baked goods manufacturers also include it in their baked products. It is added to soft drinks, chewing gum and frozen desserts. These products are marketed as sugar-free or sugarless, something for which those diagnosed with diabetes look for during shopping trips.



### C) Problem/Health Risk

As dangerous as aspartame is, Neotame may potentially be even more so because of the addition of the 3,3-dimethylbutyl, which is a flammable toxic compound that is included on the "most hazardous" chemicals list maintained by the Environmental Protection Agency. This toxin alone can irritate the eyes, respiratory airways and skin. Neotame's safety has not been determined via double-blind safety studies for animals or humans.

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Because of its close relationship to aspartame, medical researchers believe it could lead to many of the same health problems caused by aspartame, to include:

- Headaches and migraine headaches
- Cancer
- Memory loss
- Fatigue
- Emotional disorders
- Insomnia
- Diabetes
- Premature birth, when pregnant women use this sweetener

Rather than losing weight when consuming foods or beverages with artificial sweeteners, including Neotame, people gain weight. In a Purdue study conducted in 2004, lab rats given liquids containing artificial sweeteners ate more high-calorie foods compared to rats who were provided liquids sweetened with high calorie sweeteners. The Journal of Biology and Medicine, in 2010, stated that, because of the sweetness of artificial sweeteners, consumers are more likely to experience sugar cravings and dependence. A San Antonio Heart study, conducted over 25 years, found that, rather than losing weight when study subjects drank diet sodas, they were more likely to gain significant amounts of weight.

## D) Healthy Alternative

- Cane sugar, when used in small-to-moderate amounts, is safer and healthier than Neotame.
- Honey, which contains vitamins, minerals and other nutrients, is also safer for everyday use.
- Maple syrup, which is manufactured in differing strengths, also has minerals and vitamins beneficial to the human body.



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## SUCRALOSE

### A) Origins/History/What is its purpose?

McNeil Nutritionals makes sucralose, more widely known as Splenda.

Consumers should readily recognize the yellow box in which the yellow packets of sucralose are packed. Splenda was first released on April 1, 1998 (April Fool's Day). Sucralose is a mixture of dextrose – a simple sugar – and maltodextrine and is 600 times sweeter than table sugar.

Sucralose contains a chlorine atom, which, when combined with carbon, forms a covalent bond. The result is an “organochlorine,” which should not be used for human consumption. Chlorine atoms that have been covalently bound are found in herbicides, insecticides and pesticides.

### B) Where do you find it? (Foods/beverages, etc.)

- Sucralose is found in these bottling company beverages:
- Diet sodas from large and small bottlers all across the U.S.;
- Musselman's “No Sugar Added” Applesauce;
- Still beverages from large and small bottlers all across the U.S.;
- Sugar-free versions of sweet sauces, syrups and toppings;
- Arm & Hammer dental gum for kids (sugar free) and Warner-Lambert's Trident for Kids; Sugarless Gum Berry Bubble gum;
- Hunt-Wesson Inc's Swiss Miss “No Sugar Added” Hot Cocoa Mix;
- Nutritional products from large and small manufacturers across the U.S.;
- Baked Goods:
- Heavenly Cheesecakes, Inc. Heavenly Cheesecakes;
- Sorbee Cookies, Animal Crackers,



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- Chocolate Chip, Chocolate Fudge, Oatmeal Peanut Butter;
- Wilson's Foods Fantastic Mini Wafers;
- Smokey Mountain Snuff (non-tobacco) Cherry
- Breyers CarbSmart ice cream: Vanilla, Chocolate, Strawberry;
- Good Humor Breyers ice cream;
- HP Hood, Inc., Hood Carb Countdown (TM) Homogenized Dairy Beverage: Chocolate 2% Reduced Fat, 2% Reduced Fat, Fat Free and Homogenized;
- Klondike CarbSmart (TM):
- Fudge Bar, Ice Cream Bar, Vanilla Ice Cream Sandwich
- Whitey's Ice Cream

## **Confectionery:**

Goelite Jelly Belly Gummy Bears

## **Microwave Kettlecorn:**

Orville Redenbacher

## **C) Problem/Health Risk**

Because of the link between sucralose and organochlorines, consumers are at risk of developing diabetes, Hodgkin's and non-Hodgkin's lymphoma and other forms of cancer.

Sucralose is fat soluble, entering every area of the body. Consumers may develop an irregular heart beat, weakened immune function, gastrointestinal issues. blood sugar increases, blurred vision, seizures, allergic reactions, weight gain, skin rashes, headaches, shortness of breath, kidney and liver damage, and, in unborn generations, birth defects.

Common symptoms may include wheezing, cough and chest tightness; skin swelling, blistering and weeping, rashes, crusting, redness, eruptions, and hives.

- A swelling of the eyelids, lips, tongue, throat and face.
- Red, swollen, watery or itchy eyes

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- Stuffy or runny nose, and sneezing.
- Stomach bloating, pain, gas, nausea, diarrhea, vomiting or bloody diarrhea.
- Heart palpitations.
- Achy joints.
- Dizziness, anxiety, depression, or a spaced-out sensation.

In animal testing, increased male infertility and brain lesions at higher doses. Decreased red blood cells when sucralose has been given at more than 1,500 mg/kg per day.

Spontaneous abortions in 1/2 the rabbit population being tested; no aborted pregnancies in the control group.

Calcified and enlarged kidneys – put off to poorly absorbed substances.

Rabbits on sucralose died at a rate of 23 percent compared to a 6 percent death rate in the control rabbits.

Splenda has been found to reduce the amount of good bacteria by 50 percent in the guts of animals upon whom it was tested. It also increased the pH level in their intestines and led to increased body weight.

Sucralose also affected the P-glycoprotein levels in the animals' bodies so that certain medications could be rejected. These medications included medications for heart conditions, chemotherapy and medications for AIDS. These drugs were rerouted back into the intestines instead of being absorbed into the body.

## D) Healthy Alternatives

- If consumers must eat sweets, they should start sweetening their foods and beverages with stevia.
- Natural sugar in low to moderate amounts in sweets or beverages.

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## ACESULFAME-K

### A) Origins/History/What is its Purpose?

Acesulfame-K or acesulfame potassium, is actually a potassium salt that, because of its easy solubility, is used in many diet beverages. Its chemical structure is similar to that of saccharine. This sweetener was discovered in 1967, approved by FDA in 1988, but not used as an artificial sweetener in dietary sodas until a decade later.

This sweetener was approved by FDA in 2003 for use as a general-purpose sweetener in the U.S. In contrast to other food ingredients and additives, Acesulfame-K has a longer history of approval and use in Europe, where it was used beginning in 1983. It's used in food products and beverages in 90 other countries worldwide.

Acesulfame-K can be found under these brand names: Sweet One, Sunette and, particularly in other countries, Swiss Sweet.

### B) Where is it found? (Foods, beverages, etc.)

This artificial sweetener is added to diet sodas, Hershey's Lite Syrup, Fat Free Dutch Chocolate Hot Cocoa, alcoholic beverages, candies, sauces, syrups, sugar-free jell-O, yogurt and Trident gum. It is 150 to 200 times sweeter than table sugar.

In non-food items, Acesulfame-K is added



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to some medications and toothpastes.

Acesulfame-K is heat-stable, which means it is safe for use in baked goods. It is a zero-calorie sweetener because the body won't metabolize it. Because of this, it is completely excreted in urine without undergoing changes of any kind.

## **C) Problems/Health Risk**

Some have experienced symptoms of sensitivity to acesulfame-K as well as to other artificial sweeteners. Because it has often been combined with other sweeteners, medical professionals are not always able to figure out which sweetener has caused any sensitivity reactions. Individuals who experience any physical ailments, such as sensitivity to light, digestive upsets or headaches, should visit their doctors to discuss the issue.

One ingredient of acesulfame-K – methylene chloride – is a known carcinogen. Exposure to methylene chloride over the long term can cause mood issues, nausea, headaches, kidney and liver impairment, vision problems and the risk of cancer. It may also contribute to symptoms of hypoglycemia.

By itself, this artificial sweetener does not appear to pose significant health risks to laboratory animals or humans. It has been researched at least eight times by the World Health Organization, FDA and other health organizations around the world – all have concluded that it is safe for consumption by adults, pregnant and breastfeeding women, and children. Regarding any cancer risks, the National Institutes of Health have not reported any increased cancer risks when Acesulfame-K was tested on mice.

When this artificial sweetener is combined with other artificial sweeteners (aspartame, for instance), its safety could change.

Use this sweetener in moderation. Its recommended acceptable daily intake is about 15 mg per kg. During manufacturing, about 40 mg of acesulfame-K is added to each diet soda, meaning that someone weighing a little over 120

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pounds can conceivably drink up to 20 diet sodas daily without exceeding the recommended daily intake.

This sweetener has been the least-studied of all artificial sweeteners. Because of the presence of methylene chloride, earlier studies have pointed up a possible link between acesulfame-K and multiple types of cancer in lab animals.

## D) Healthy Alternatives

- Table sugar in low to moderate amounts
- Honey, which has several nutrients, minerals and vitamins
- Maple syrup, which comes with similar benefits to honey



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## SACCHARIN

### A) Origin/History/What is its purpose?

Saccharin, or benzoic sulfinide, was invented by accident in 1878 by Ira Remsen in his laboratory at Johns Hopkins University. (Benzoic sulfinide is coal tar and it is about 700 times sweeter than ordinary table sugar.) Remsen's lab partner, Constantin Fahlberg, accidentally over-boiled a beaker containing o-sulfobenzoic acid, which reacted with ammonia and phosphorus chloride – forming benzoic sulfinide.

Today's saccharin is made using anthranilic acid, which is a corrosive acid on metal, sulfur dioxide, nitrous oxide, and ammonia. This preparation creates a very sweet taste.

### B) Where is it found? (Foods, beverages, etc.)

Saccharin is still found in diet soft drinks. Think back to the 1970s, when Coca-Cola manufactured Tab. Tab, a zero-calorie diet soft drink, was made with saccharin. Under FDA rules, saccharin must be listed on the ingredient labels.

It is also found in commercially prepared bakery items, such as pies, cakes, cookies and muffins. Consumers can buy saccharin for use in baking, as well as individual packets of saccharin (Sugar Twin and SweetN'Low), which they can sprinkle on cereal, hot cereal and beverages.

Saccharin is added to sugar-free



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ice cream, as well as regular ice cream. Ice cream manufacturers have been adding saccharin to ice cream so they can reduce the amount of sugar, using instead, a zero-calorie sweetener.

## **C) Problem/Health Risk**

Scientists testing saccharin in 1970 have found that this sweetener caused bladder cancer in lab rats. The FDA, in 1958, added an addendum to the Food, Drugs, and Cosmetic Act that says that it will prohibit any compounds that induce cancer when consumed by animals or humans. Instead, however, FDA only added a warning to foods containing saccharin saying that it has caused bladder cancer in rats.

In 1997, rodent studies showed that, aside from bladder cancer, saccharin also caused lung and vascular cancer in rats. In female mice, the risk of uterine cancer increased. Rats who were exposed in utero were more likely to develop some form of cancer than those rats exposed right after being born. Because researchers are not willing to carry out placebo-controlled, double-blind studies on humans, nobody knows what the effects of saccharin would be. Case-controlled studies do exist that prove there is a definite link between the use of saccharin and an increased risk of developing cancer.

Between 1973 and 1994, the National Cancer Institute was aware of a 10 percent increase in the incidence of bladder cancer; 1,900 cases of bladder cancer were linked to heavy use of artificial sweeteners. In addition, over 600 cases of an increased cancer risk were found in Canadian men who either consumed artificial sweeteners for a long period of time or consumed them more heavily. A study in Britain pointed up a higher risk of cancer in English women who had consumed more than 10 tablets of an artificial sweetener – these were mostly saccharin.

In addition to the cancer findings and concerns, it is linked to allergic reactions such as breathing issues, skin rashes, headaches, and diarrhea.

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Diabetics who use saccharin may experience a “significant” increase in their plasma insulin concentration after rinsing their mouths out with a mouthwash containing – saccharin.

## D) Healthy Alternatives

- Stevia. This is an herbal sweetener that comes in liquid and powdered formulations
- Low and moderate amounts of ordinary table sugar
- Honey
- Maple syrup



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## SUGAR ALCOHOLS

### A) Origins/History/What is its purpose?

Sugar alcohols are a kind of hybrid of sugar and alcohol. The chemical structure of sugar alcohols resembles both sugar and alcohol – but they don't contain any ethanol. Sugar alcohols (sorbitol, xylitol, mannitol, maltitol syrup, lactitol, maltitol, isomalt, erythritol and hydrogenated starch hydrolysates) are naturally found in vegetables and fruits.

Since their discovery in these foods, they have been commercially produced from other carbohydrate sources such as glucose, starch and sucrose. Also called polyols, sugar alcohols add both bulk and texture, a sweet taste, and few calories to foods and beverages. During baking, they also inhibit the browning in cooked foods.

### B) Where is it found? (Foods, beverages, etc.)

Sugar alcohols are found in sugar-free foods marketed for diabetics. Xylitol has been found to inhibit the growth of oral bacteria, leading to fewer dental cavities. This sweetener is now used in several brands of sugarless chewing gum and in sugarless breath mints.



Sorbitol is added to chewing gums, frozen desserts, sugar-free candies and baked goods.

**Xylitol:** gum drops, hard candies, sugarless chewing gums, oral health products, pharmaceutical preparations (throat lozenges, children's chewable multivitamins, toothpastes, cough syrups, and mouthwashes. Used in special dietary foods.

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**Maltitol:** Chewing gums, hard candies, baked goods, chocolates, and ice cream.

**Isomalt:** Toffee, candies, fudge, lollipops, wafers, throat lozenges, and cough drops.

**Lactitol:** Some cookies and cakes, chocolates, soft/hard candies, and frozen dairy desserts.

**Mannitol:** An ingredient in chocolate-flavored coatings for ice creams, confections, and as a dusting powder on chewing gums.

**Erythritol:** Used as a bulk sweetener in low-calorie foods.

**Hydrogenated Starch Hydrolysates:** Bulk sweetener for low calorie foods for sweetness, used to add texture and bulk to some sugarless items.

## **C) Problems/Health Risk**

FDA requires sugar alcohols to be regulated either as food additives or GRAS (generally accepted as safe). Isomalt, maltitol, HSH, lactitol and erythritol have had GRAS affirmation petitions filed by FDA. On the GRAS list: sorbitol. Listed as food additives are xylitol and mannitol.

Sugar alcohols don't fully absorb into the body, meaning they do not add too many calories to the daily caloric intake.

Because the body doesn't fully absorb them, some consumers may experience both abdominal gas and diarrhea, especially if they eat too much of the foods containing a sugar alcohol. For this reason, foods with mannitol or sorbitol are required to have a label that warns that, if someone eats the food to excess, they may experience a "laxative effect."

If someone eats more than 50 grams a day of sorbitol or, if they consume more

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than 20 grams a day of mannitol, they are likely to experience diarrhea.

Sugar alcohols are not completely calorie-free. If a consumer believes that, because of the low-calorie designation, they can eat unlimited quantities, they will gain too much weight, in addition to developing a laxative effect.

To date, not all the facts about the safety or risks of sugar alcohols are not fully known or understood. While they can help diabetics maintain almost-normal blood sugar levels, each diabetic should consult with his doctor or a registered dietitian for the best guidance.

Individuals required to maintain low-carbohydrate or reduced calorie diets should also follow their doctors' recommendations regarding the use of sugar alcohols.

## **D) Healthy Alternative**

- Because the research into any risks from sugar alcohols is not complete, consumers should proceed with caution when they buy and consume anything with sugar alcohols in them
- Sugar in low to moderate amounts for those who can eat sugar
- Stevia

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## HYDROGENATED STARCH HYDROLYSATES

### A) Origin/History/What is its purpose?

Hydrogenated starch hydrolysates (HSH) originally come from natural foods, but they have been extracted and combined to make a bulk sweetener. There are different HSH compounds. Sorbitol comes from the hydrogenation of dextrose with the high dextrose equivalent (DE) making pure dextrose.

When a low DE hydrolysate is hydrogenated, the result is maltitol, sorbitol and a maltitol a.o called a longer chain hydrogenated saccharide. While they come from natural sources, their manipulation makes them artificial sweeteners. These are about 20 to 50 percent as sweet as sugar, depending on which composition they fall into.

### B) Where is it found? (Foods, beverages, etc.)

HSH products are used as bulk sweeteners, agents to add body and moisture to foods. They are added to baked goods, confections, dental hygiene products, mouthwashes and foods marketed for diabetics. HSH, as an artificial sweetener, is particularly well suited to sugar-free candies because it will not crystallize.



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## **C) Problem/Health Risk**

While this artificial sweetener has been added to foods for diabetics because the body absorbs it incompletely and slowly, it can also cause carb cravings, which can lead to sugar binges. Not all diabetics will respond well to sugar alcohols because of this “trigger effect.”

Because of the incomplete absorption of HSH, it can lead to a laxative effect in those who eat too much food with HSH. Factors such as illness, individual sensitivity and what other foods have been eaten can have an impact on the laxative effect as well.

## **D) Healthy Alternative**

- Foods with natural sugars such as fruits and vegetables
- Sugar in low amounts for those who can safely eat sugar
- Stevia

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## MANNITOL

### A) Origins/History/What is its purpose?

Mannitol comes from fruits and vegetables such as onions, strawberries, celery, mushroom, and pumpkins. It is also present in the leaves and other parts of these plants.

When commercially prepared, mannitol is made from fructose – which comes from cornstarch. It used to be made from the fructose part of invert sugar. While it is being hydrogenated, the fructose molecule undergoes arrangement to the sugar called mannose, which is why this ingredient is called mannitol.

### B) Where is it found? (Foods, beverages, etc.)

This sweetener is used in flavored jelly spreads, jams, soft and hard candies, frostings, confections, cough drops, and chewing gums. FDA regulates how much is allowed to be added to each of these products. It is roughly 60 percent as sweet as sucrose and contains about 1.6 calories/gram.



Mannitol is added to chocolate-flavored coatings for ice creams and sweets because it won't discolor at high temperatures. This also makes it an excellent choice to be used in nutritional tablets and pharmaceutical preparations. Chewing gum manufacturers use mannitol as a dusting powder to prevent the gum from sticking to wrappers and the equipment used to make the gums.

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When added to foods for diabetics, this gives them a larger choice of foods from which to select.

## C) Problems/Health Risk

If mannitol is eaten in large quantities, it has an unfortunate and uncomfortable laxative effect, with abdominal gas and diarrhea. At this time, no other negative side effects or health risks from mannitol are known.

## D) Healthy Alternatives

When eaten in low quantities, mannitol is a safe sweetener. If the side effects are bothersome, consumers can switch to:

- Low amounts of sugar, if they are safely able to use this
- Stevia
- Fresh fruits and vegetables



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## POLYDEXTROSE

### **A) Origins/History/What is its purpose?**

Polydextrose originates in the laboratory. It's a large molecule that has been made to contain roughly 89 percent glucose, 0.1 percent phosphoric acid and 10 percent sorbitol. It is manufactured as either a white powder that easily dissolves in water. It has no sweetness of its own.

It is used, instead, to mimic sugar's structural function in the recipes in which it's used. When sweetness is needed, polydextrose is used in combination with a high-intensity sweetener.

### **B) Where is it found? (Foods, beverages, etc.)**

It is found in "high fiber" cereals, such as Cocoa Pebbles. It will also be added to brownies, cookies, diet drinks and ice creams. Because it has been created from sorbitol and glucose, it is categorized as a low-calorie carbohydrate, in addition to being considered as a fiber additive. FDA has approved its addition in many more food products, giving them a "high-fiber" content. When added to fat-free ice cream, polydextrose acts as a bulking agent to improve its taste.

### **C) Problems/Health Risk**

As with other polyols, polydextrose will "speed up" the intestines of those who eat too much of a food that contains this sweetener/fiber. Consumers will need a smaller amount of polydextrose to feel its laxative effect as compared to wheat bran. For consumers who are more sensitive to the laxative effects, they will need to monitor their intake of foods containing polydextrose. If this consumer frequently eats foods with polydextrose, he may be able to develop a tolerance and increase their consumption.

# TRUTH ABOUT ARTIFICIAL SWEETENERS

## D) Healthy Alternatives

- Foods with natural fiber, such as wheat bran, fruits and vegetables. These are much healthier and give consumers many more health benefits.



# TRUTH ABOUT ARTIFICIAL SWEETENERS

## SORBITOL

### A) Origins/History/What is its purpose?

Sorbitol comes as a carbohydrate alcohol from fruits, cherries, grapes and prunes and is produced as a glucose.

### B) Where is it found? (Foods, beverages, etc.)

Diabetics can find a whole range of foods containing sorbitol. “Lite” and “sugar-free” foods marketed toward diabetics have been sweetened with sorbitol. The sweetener appears in brownies, cakes, condiments, cookies, chocolate sweets and snacks, beverages, and meal replacement bars.



It's also found in sugar-free cake and sugar free syrup, boxed cookie and brownie mixes, boxed sugar free gelatins and puddings, fruit toppings, sugar-free whipped toppings, sugar-free jellies and jams, and dessert toppings. Snack foods for diabetics – meal replacement beverages and bars, as well as chocolate candies may also contain sorbitol.

Candies and gums also contain sorbitol. These include sugar-free mints, gums and candies. It is added to Dentyne, Extra, Orbit and Eclipse. Sugar-free Altoids and Lifesavers list sorbitol in their ingredients lists. Sugar-free chocolates and candies in the bulk sections of grocery stores may also contain sorbitol.

Sorbitol appears naturally in apples, prunes, pears and peaches, as well as in these juices.

# TRUTH ABOUT ARTIFICIAL SWEETENERS

## C) Problems/Health Risk

Because sorbitol is only partially absorbed by the body, what remains is fermented in the large intestine, converting to gas. If individuals vulnerable to sorbitol overeat a food containing this sweetener, they may develop bloating, abdominal pain and flatulence (passing gas). Those intolerant to sorbitol may develop diarrhea after eating or drinking as little as 5 grams of sorbitol.

Infants under 1 year of age should not be given sorbitol because of the risk of severe diarrhea.

Sugar-free chewing gum sweetened with sorbitol can induce gum-chewers to develop chronic diarrhea. If left untreated, the diarrhea can lead to unwanted weight loss.

## D) Healthy Alternatives

- Stevia for individuals who should not be using sugar
- Sugar in low to moderate amounts for those individuals who do not need to limit their intake for health reasons
- Fruits in moderation



# TRUTH ABOUT ARTIFICIAL SWEETENERS

## RESEARCH

### **Aspartame:**

<http://renewableenergyworld.com/general50/killer.htm>

<http://www.livestrong.com/article/389334-a-list-of-foods-containing-aspartame/>

<http://articles.mercola.com/sites/articles/archive/2011/11/06/aspartame-most-dangerous-substance-added-to-food.aspx>

[http://www.naturalnews.com/037102\\_sugar\\_substitutes\\_aspartame\\_sweeteners.html](http://www.naturalnews.com/037102_sugar_substitutes_aspartame_sweeteners.html)

### **High Fructose Corn Syrup:**

<http://earthsky.org/human-world/a-brief-history-of-high-fructose-corn-syrup>

<http://www.livestrong.com/article/35128-list-foods-containing-fructose-corn/>

<http://healthyliving.msn.com/diseases/diabetes/sickeningly-sweet-the-effects-of-high-fructose-corn-syrup-1>

<http://www.livestrong.com/article/467945-healthy-corn-syrup-substitute/>

### **Neotame:**

<http://articles.mercola.com/sites/articles/archive/2012/03/28/neotame-more-toxic-than-aspartame.aspx>

<http://www.wisegeek.com/what-is-neotame.htm>

<http://www.drmercola.info/artificial-sweeteners/is-neotame-more-dangerous-than-aspartame/>

### **Acesulfame-K:**

<http://www.livestrong.com/article/414517-what-is-acesulfame-potassium/>

<http://www.elmhurst.edu/~chm/vchembook/549acesulfame.html>

<http://www.fitday.com/fitness-articles/nutrition/healthy-eating/top-number-most-dangerous-artificial-sweeteners.html#b>

# TRUTH ABOUT ARTIFICIAL SWEETENERS

## **Saccharin:**

<http://www.chemheritage.org/discover/media/magazine/articles/28-1-the-pursuit-of-sweet.aspx?page=1>

<http://www.livestrong.com/article/321511-foods-containing-saccharin/>

<http://www.naturalhealthsherpa.com/saccharin-danger-side-effects/52849>

## **Sugar Alcohols:**

[http://www.foodinsight.org/Resources/Detail.aspx?topic=Sugar\\_Alcohols\\_Fact\\_Sheet](http://www.foodinsight.org/Resources/Detail.aspx?topic=Sugar_Alcohols_Fact_Sheet)

[http://www.ynhh.org/about-us/sugar\\_alcohol.aspx](http://www.ynhh.org/about-us/sugar_alcohol.aspx)

[http://www.onhealth.com/artificial\\_sweeteners/page4.htm](http://www.onhealth.com/artificial_sweeteners/page4.htm)

## **Hydrogenated Starch Hydrolysates:**

<http://www.starch.dk/isi/glucose/sorbitol.asp>

<http://www.caloriecontrol.org/sweeteners-and-lite/polyols/hsh>

[http://www.janethull.com/newsletter/0108/sweet\\_sugar\\_alcohols.php](http://www.janethull.com/newsletter/0108/sweet_sugar_alcohols.php)

<http://www.sugar-and-sweetener-guide.com/hydrogenated-starch-hydrolysate.html>

## **Mannitol:**

<http://sugar.org/other-sweeteners/sugar-alcohols/>

<http://sugar.org/other-sweeteners/sugar-alcohols/>

<http://sugar.org/other-sweeteners/sugar-alcohols/>

## **Polydextrose:**

<http://www.inrfood.com/ingredients/2345>

[http://www.slate.com/articles/life/food/2009/03/dietary\\_fibber.single.html](http://www.slate.com/articles/life/food/2009/03/dietary_fibber.single.html)

[http://www.hc-sc.gc.ca/fn-an/securit/addit/sweeten-edulcor/polyols\\_polydextose\\_factsheet-polyols\\_polydextose\\_fiche-eng.php](http://www.hc-sc.gc.ca/fn-an/securit/addit/sweeten-edulcor/polyols_polydextose_factsheet-polyols_polydextose_fiche-eng.php)

# TRUTH ABOUT ARTIFICIAL SWEETENERS

## **Sorbitol:**

<http://www.food-info.net/uk/e/e420.htm>

<http://www.livestrong.com/article/333345-foods-containing-sorbitol/>

<http://livinginatoxicworld.blogspot.com/2008/01/health-effects-of-sorbitol.html>