

## Chapter 1 : Saccharin - Wikipedia

*Saccharin is an artificial or non-nutritive sweetener. It is made in a laboratory through the oxidation of the chemicals o-toluenesulfonamide or phthalic anhydride.*

Saccharin Saccharin was the first artificial sweetener to be discovered. It is times as sweet as sugar but it has a slightly unpleasant metallic aftertaste. It has a zero glycemic index, contains no calories and is suitable for diabetics. It was once the only non glycemic sweetener available and was of great benefit to sufferers of diabetes. Not very heat stable so not a first choice for cooking. Sometimes mixed with cyclamate which seems to partly mask the aftertaste. It works well in cordial fruit drinks. Does not contribute to tooth decay. It is also inexpensive. In some ways saccharin is probably the safest artificial sweetener - for one major reason: It was first sold in the late 1800s and has been on the market ever since. In that time there have been no obvious side effects reported or proven. So there are unlikely to be any new surprises in this regard. It got a bad name in the 1930s when tests showed it to be harmful to rodents if fed in large quantities. Packets were required to carry a warning on the label. However it was discovered that this mechanism did not apply to primates humans and monkeys as their digestive system is different, and consequently the warning was dropped. Taken in moderation it is probably totally safe. More information on FDA testing of Saccharin here. Although artificial sweeteners contain zero calories, they do not always appear to be effective against obesity and diabetes. Statistical and clinical tests have repeatedly shown this to be so, though, until now the reason has been a mystery. However a new trial, conducted at the Weizmann Institute of Science in Rehovot, Israel and published Sept 17th, sheds more light on the situation. It appears that these sweeteners affect the bacteria in the bowel in adverse ways. Tests showed impaired glucose metabolism in subjects, human and animal following moderate consumption over several weeks. While further testing is needed, perhaps including natural zero calorie sweeteners, the results are indeed worrying. Perhaps these sweeteners have no role at all to play in weight loss and may be a poorer choice than regular sugar! For the average person this would be equivalent to about 56 cans of soda sweetened with it. It is a totally artificial compound produced chemically. Also sold as Sucron, a blend containing ordinary sugar. Being the oldest intense sweetener one might expect it to be cheap - and it is! The patent has long ago expired so it is a commodity product now most of it being produced in China Saccharin Market Share: Sugar was about million tonnes This would give it about 3%. By value it would be significantly less. It is still the largest selling intense sweetener, though its share has been falling in recent years. It is the cheapest sweetener after Neotame. It blends very well with other sweeteners, or even with a small amount of sugar in low calorie rather than zero calorie drinks. Approved for use everywhere. Goes under the E number in the EU. Conclusions for Saccharin After years being sold and consumed all over the world it is probably reasonable to assume that this artificial sweetener is safe. Because it is sometimes used in the form of a sodium salt it may add slightly to the sodium content in foods. People on low salt diets should check the labels, however the amounts are tiny.

**Chapter 2 : Sweet n Low should get the Pink Slip**

*In , they stated that foods with saccharin were "adulterated," then in , said that saccharin wasn't harmful. In , there was much discussion about the dangers of saccharin, but in , an investigation into those claims found little scientific proof to warrant the concerns.*

Etymology[ edit ] Saccharin derives its name from the word "saccharine", meaning "sugary". The word saccharine is used figuratively, often in a derogative sense, to describe something "unpleasantly over-polite" or "overly sweet". Properties[ edit ] Sodium salt of saccharin, a white powder Saccharin is heat stable. In its acid form, saccharin is not water-soluble. The form used as an artificial sweetener is usually its sodium salt. Both salts are highly water-soluble: Fahlberg would soon grow wealthy, while Remsen merely grew irritated, believing he deserved credit for substances produced in his laboratory. On the matter, Remsen commented, "Fahlberg is a scoundrel. It nauseates me to hear my name mentioned in the same breath with him. Its popularity further increased during the s and s among dieters, since saccharin is a calorie -free sweetener. Production was licensed and controlled by the Board of Trade in London. Production continued on the site until Harvey Wiley , then the director of the bureau of chemistry for the FDA, viewed it as an illegal substitution of a valuable ingredient sugar by a less valuable ingredient. In a clash that had career consequences, Wiley told President Theodore Roosevelt , "Everyone who ate that sweet corn was deceived. He thought he was eating sugar, when in point of fact he was eating a coal tar product totally devoid of food value and extremely injurious to health. These investigations, which had originally argued against saccharin use, were shown to prove little about saccharin being harmful to human health. The attempted ban was unsuccessful due to public opposition that was encouraged by industry advertisements, [25] and instead the following label was mandated: This product contains saccharin which has been determined to cause cancer in laboratory animals". That requirement was dropped in following new research that concluded humans reacted differently than rats and were not at risk of cancer at typical intake levels. The sweetener has continued to be widely used in the United States and is now the third-most popular artificial sweetener behind sucralose and aspartame. In the European Union, saccharin is also known by the E number additive code E The current status of saccharin is that it is allowed in most countries, and countries such as Canada have lifted their previous ban of it as a food additive. As a consequence, all food containing saccharin was labeled with a warning meeting the requirement of the Saccharin Study and Labeling Act of Since this does not occur in humans, there is no elevated risk of bladder cancer. Food and Drug Administration and the state of California reversed their positions on saccharin, declaring it safe for consumption. The EPA has officially removed saccharin and its salts from their list of hazardous constituents and commercial chemical products. In a December 14, release, the EPA stated that saccharin is no longer considered a potential hazard to human health. The ortho isomer is separated and converted to the sulfonamide with ammonia. Oxidation of the methyl substituent gives the carboxylic acid, which cyclicizes to give saccharin free acid: In this synthesis, the methyl anthranilate successively reacts with nitrous acid from sodium nitrite and hydrochloric acid , sulfur dioxide , chlorine , and then ammonia to yield saccharin:

**Chapter 3 : Artificial Sweeteners and Gut Health: Are They Linked?**

2) *Saccharin. Otherwise known as 'Sweet'n Low,' saccharin is a non-glycemic and zero-carb artificial sweetener. Saccharin is x sweeter than sugar.*

Request a Review There are no miracle cure-alls, silver bullets, or magic pills that will get you trim, fit and healthy, but after an exhaustive search and rigorous testing , The Sherpa has pinpointed a few natural health therapies that DO help and ferreted out the scams to avoid The Sherpa Posted Tuesday, Mar. Would you happily sip it down or gleefully sprinkle it on your morning cereal? But what if I told you it was sweet? As in times sweeter than sugar. Not only have you likely eaten or drank this mysterious coal-derived sweetener, it graces virtually every table in restaurants across the country. It was first produced in by a chemist working on coal tar derivatives at Johns Hopkins University. Today, saccharin is commonly manufactured by combining anthranilic acid used among other things as a corrosive agent for metal with nitrous acid, sulfur dioxide, chlorine, and ammonia. In fact, that particular group of chemicals sounds more like a recipe for a household cleaner than a sweetener. And yet, millions upon millions of people consume saccharin every year. Harvey Wiley, the director of the bureau of chemistry for the USDA during that time, felt saccharin should not be used in foods. In , there was much discussion about the dangers of saccharin, but in , an investigation into those claims found little scientific proof to warrant the concerns. Yet, there must have been something because three years later, in , the FDA tried to ban saccharin. Cancer causing, necessary warning label, etc. In late , the FDA removed the warning labels after studies showed that the rats have a completely different chemical make up to their urine. And it is this particular combination of high pH, high calcium phosphate, and high protein that interacts with saccharin and damages the bladder walls. And this damage is what leads to increased cancer risk, not the saccharin itself. In fact, by , saccharin was been taken off nearly every carcinogenic list, from the U. But should it have been? As I discussed, there are the rodent studies showing that saccharin caused bladder cancer, not to mention vascular and lung cancer. It also increased the risk of uterine cancer in female mice. There in lies the issue. No one is willing to do a double blind, placebo-controlled study with saccharin, as it would be imprudent to knowingly place someone at risk. But there are several case-controlled studies showing a definitive link between saccharin consumption and increased risk of cancer. First of all, the National Cancer Institute noted a 10 percent increase in the incidence of bladder cancer and An analysis of nearly 1, cases found that heavy use of artificial sweeteners was associated with increased risk of bladder cancer. Give me a break! Or perhaps irony is a better word. They just rinsed their mouth out with it. As we all know, increased insulin levels is a risk factor for both obesity and diabetes. Probably NOT the side effect dieters and diabetics are going for when they choose a sugar-free product. Use Your Brain! So, what do you do? But it clearly has documented health risks and concerns, ranging from allergies to cancer to increased insulin levels. So what do you do? Blindly trust the government and consume away? And the reason is pretty simple. There is nothing natural about saccharin. I say, just say no and step away. If you must have a bit of sweetness, opt instead for stevia. This herb comes in both powdered and liquid forms and is a great choice to sweeten coffee, oatmeal, or even give mineral water a flavor boost. And no coal tar in sight. The most important chemical compounds: Making governmental policy under conditions of scientific uncertainty: A century of controversy about saccharin in congress and the laboratory. Bladder tumors in rats fed cyclohexylamine or high doses of a mixture of cyclamate and saccharin. Saccharin mechanistic data and risk assessment: Development and implementation of the IPCS conceptual framework for evaluating mode of action of chemical carcinogens. Associations between bladder cancer risk factors and tumor stage and grade at diagnosis. Artificial sweeteners in relation to the epidemiology of bladder cancer. Artificial sweeteners and bladder cancer in Manchester, U. Cephalic phase insulin release in healthy humans after taste stimulation?

## Chapter 4 : Low Carb Sweeteners: A Complete Guide to the Best Options

*The first artificial sweetener, saccharin, was discovered in when Constantin Fahlberg, a Johns Hopkins University scientist working on coal-tar derivatives, noticed a substance on his hands and arms that tasted sweet.*

These 6, products contain one or more of only five artificial sweeteners available on the market today. All five may be dangerous to your overall health. Aspartame Likely the most common sweetener on this list and on the market today, aspartame was discovered on accident in by James Schlatter, who worked for G. In , it was approved for use in dry goods, and carbonated beverages in Reactions and symptoms may include headaches, heart palpitations, seizures, depression, vision issues, fatigue, and numbness, among others. Sucralose Sucralose, which is sold on the market as Splenda, is a derivative of natural sucrose and has been available on the market since People have reported migraines, seizures, vision issues, weight gain, and stomach troubles after eating sucralose. However, people have reported reactions like headaches, muscle issues, breathing problems, and diarrhea after ingesting it. Acesulfame K is times sweeter than sugar, and is used regularly in over 90 countries around the world. It contains the carcinogen known as methylene chloride, which has reportedly caused side effects like headaches, mental confusion, vision troubles, and nausea. Neotame can be considered aspartame on steroids. Because of its stability and ability to withstand higher temperatures than aspartame, it has been approved for use in a wider range of foods. People have reported experiencing the same reactions, symptoms, and side effects as those indicated for aspartame. There seems to be pretty good evidence to the contrary, however. The calories never come, resulting in metabolic confusion and zero weight loss. Stevia Stevia, a naturally sweet plant extract has been used for a number of years as a healthy alternative to artificial sweeteners and processed sugar. Produced from sugar cane and sugar beet, it may provide benefits like new cell formation and an immune boost. Xylitol Xylitol packets from NOW Foods is the ideal sweetener for people looking for a low-calories alternative to artificial sweeteners. While artificial sweeteners may seem convenient, cheap, and sweet, the implications they may have on your overall health might be anything but sweet. Have you tried any natural alternatives? What are your favorites? Leave us a comment below and let us know!

**Chapter 5 : Can Artificial Sweeteners Really FIGHT Cancer? | Fox News Insider**

*Most common are sucralose (Splenda), aspartame (NutraSweet, Equal, Sugar Twin) and saccharin (Sweet'N Low). Consumers quickly reach for these artificial sweeteners in order to satisfy their sugar craving while ingesting little to no added calories.*

In fact, it has been used to sweeten foods and drinks for over years. Some say that replacing sugar with saccharin benefits weight loss, diabetes and dental health. Others are skeptical about the safety of all artificial sweeteners, including this one. Saccharin is an artificial or non-nutritive sweetener. It is made in a laboratory through the oxidation of the chemicals o-toluenesulfonamide or phthalic anhydride. It looks like white, crystalline powder. It is around 200 times sweeter than regular sugar, so you only need a small amount to get the sweet taste. However, it can have an unpleasant, bitter aftertaste. This is why saccharin is often mixed with other low or zero-calorie sweeteners. For example, saccharin is sometimes combined with aspartame, another low-calorie sweetener commonly found in carbonated diet drinks. In addition to carbonated diet drinks, saccharin is used to sweeten low-calorie candies, jams, jellies and cookies. It is also used in many medicines. Saccharin can be used like table sugar to sprinkle onto food, such as cereal or fruit, or used as a sugar substitute in coffee or when baking. Saccharin is a zero-calorie artificial sweetener. It is 200 times sweeter than sugar and commonly used as a replacement. Back in the 1970s, several studies linked saccharin to the development of bladder cancer in rats <sup>1</sup>. It was then classified as "possibly cancerous to humans. Observational studies in humans showed no clear link between saccharin consumption and the risk of cancer <sup>2, 3, 4</sup>. Due to the lack of solid evidence linking saccharin to cancer development, its classification was changed to "not classifiable as cancerous to humans" <sup>5</sup>. However, despite the lack of evidence linking saccharin to cancer, many experts feel observational studies are not sufficient to confirm there is definitely no risk. Therefore, many still recommend that people avoid saccharin. Observational studies in humans have found no evidence that saccharin causes cancer or any harm to human health. Saccharin is found in a wide variety of "diet foods" and drinks. Saccharin is available as both granules and as a liquid, with one serving providing sweetness comparable to two teaspoons of sugar. Another common source of saccharin is artificially sweetened drinks, but the FDA restricts this amount to no more than 12 mg per fluid ounce. Due to the ban on saccharin in the 1970s, many diet drink manufacturers switched to aspartame as a sweetener and continue to use it today. Saccharin is often used in baked goods, jams, jelly, chewing gum, canned fruit, candy, dessert toppings and salad dressings. It can also be found in cosmetic products, including toothpaste and mouthwash. In the European Union, saccharin that has been added to food or drinks can be identified as E on the nutrition label. Saccharin is a common table sweetener. It can also be found in diet drinks and low-calorie foods, as well as vitamins and medicines. How Much Can You Eat? This means if you weigh 150 lbs (70 kgs), you can consume 12 mg every day of your life without going over the limit. To further put this into perspective, you could consume 3. No studies have measured the total intake of saccharin in the US population, but studies in European countries have found that it is well within limits <sup>6, 7, 8</sup>. According to the FDA, adults and children can consume up to 2. Saccharin May Have Slight Weight Loss Benefits Replacing sugar with a low-calorie sweetener may benefit weight loss and protect against obesity <sup>9</sup>. Nevertheless, some studies suggest that consuming artificial sweeteners like saccharin can actually increase hunger, food intake and weight gain <sup>11</sup>. One observational study followed 78, women. Those using artificial sweeteners gained about 2 lbs (0.9 kgs). However, a recent high-quality study reviewed all the evidence about artificial sweeteners and how they affect food intake and body weight. It concluded that overall, replacing sugar with zero- or low-calorie sweeteners does not cause weight gain. Instead, it leads to reduced calorie intake (94 fewer calories per meal, on average) and reduced weight (about 3 lbs or 1.4 kgs). Studies show that replacing sugar with low-calorie sweeteners can lead to small reductions in calorie intake and body weight. Therefore, it leaves your body unchanged and does not affect blood sugar levels like refined sugar does. Few studies have analyzed the effects of saccharin alone on blood sugar levels, but several studies have looked at the effects of other artificial sweeteners. One trial included people with type 2 diabetes. It found that consuming the artificial sweetener sucralose (Splenda) did not affect blood sugar levels. The same result was

seen in studies using other artificial sweeteners, such as aspartame 16 , 17 , Some short-term studies also suggest that replacing sugar with artificial sweeteners may help blood sugar control. However, the effect is usually quite small. Nevertheless, the majority of evidence suggests that artificial sweeteners do not significantly affect blood sugar levels in healthy people or diabetics. Saccharin is unlikely to affect long-term blood sugar control in healthy people or those with diabetes. Added sugar is a major cause of dental decay. Therefore, using a low-calorie sweetener instead can reduce the risk of cavities. Unlike sugar, artificial sweeteners like saccharin are not fermented into acid by the bacteria in your mouth. This is why it is often used as a sugar alternative in medicines. These include certain acids in carbonated drinks and naturally occurring sugars in fruit juices. Substituting saccharin for sugar may help reduce the risk of cavities, but other ingredients may still cause tooth decay. Most health authorities consider saccharin to be safe for human consumption. Nevertheless, there is still some skepticism about the potential negative effects on human health. A recent study found that using saccharin, sucralose and aspartame may disrupt the balance of bacteria in the gut. Research in this area is relatively new and limited. Yet there is convincing evidence that changes in gut bacteria are associated with an increased risk of diseases like obesity, type 2 diabetes, inflammatory bowel disease and cancer. In one study, mice were fed a daily dose of aspartame, sucralose or saccharin. After 11 weeks, they showed unusually high blood sugar levels. This indicates glucose intolerance and therefore a higher risk of metabolic disease 24 , However, once the mice were treated with antibiotics that destroyed the gut bacteria, blood glucose levels returned to normal. The same experiment was done in a group of healthy people who consumed the maximum recommended dose of saccharin daily for five days. Four out of seven had abnormally high blood sugar levels, as well as changes in gut bacteria. The others did not experience any gut bacteria changes. This means that more calories from food are available, increasing the risk of obesity. Nevertheless, this research is very new. More studies are needed to explore the link between artificial sweeteners and changes in gut bacteria. Preliminary evidence suggests artificial sweeteners like saccharin may affect gut bacteria and increase the risk of certain diseases. Based on the available evidence, saccharin appears to be generally safe for consumption and an acceptable alternative to sugar. It may even help reduce cavities and aid in weight loss, though only slightly. However, any benefits of using saccharin are not due to the sweetener itself, but due to reducing or avoiding sugar. More about artificial sweeteners:

**Chapter 6 : Artificial Sweeteners: How Bad Are Saccharin, Aspartame? - TIME**

*Saccharin is used in Sweet 'N Low and Sweet However, in , Canadians proved conclusively that it WAS the saccharin itself causing the cancer. As a result, the FDA required that any saccharin products carry a warning label about cancer.*

For food marketers, yes. An average consumer mindful of calories may often opt for artificial sugar that are baked into protein bars , sprinkled in their coffee, or a part of their daily diet soda habit. Artificial sweeteners are regulated by the FDA , and defined by the Mayo Clinic as any sweetener that you use instead of regular table sugar sucrose. Artificial sweeteners are many times sweeter anywhere from 40 to 8,x sweeter than regular sugar. Artificial sugars can be found in just about any grocery store shelf item, from chewing gum and cookies to sports drinks and soda. Your small intestine breaks down food and absorbs nutrients. Inside your small intestine is a combination of good and potentially harmful bacteria. In a healthy gut, the goal is for these these two types of bacteria to be in balance. The lining of your small intestine is a very thin layer that acts as a protective barrier as bacteria pass through it. Too much bad bacteria can compromise this thin lining, allowing bad bacteria to be absorbed and non-nutritive materials to slip into your bloodstream. Consequences of an unhealthy gut include poor absorption of nutrients, a lowered immune system, disrupted digestive health, and weight gain. Poor gut health has also been tied to anxiety. New Observations About Artificial Sweeteners and Gut Health According to Eran Segal, a professor of computer science and applied mathematics at Weizmann and one of the collaborators behind the recent study published in Nature, most artificial sweeteners pass through the gastrointestinal tract without being digested. This means that when they get to our intestine, they directly encounter our gut bacteria. Since what we eat impacts our bacterial make-up, the researchers investigated whether glucose intolerance might be affected by a change in the bacterial composition due to artificial sweeteners. A control group of mice drank plain water or water supplemented with glucose or with table sugar. After a week, the group getting artificial sweeteners developed marked intolerance to glucose. Glucose intolerance increases the risk of metabolic diseases such as Type 2 diabetes. As detailed in the NY Times , when the researchers treated the mice with antibiotics, killing much of the bacteria in the digestive system, the glucose intolerance went away this assumes, in this case, that because antibiotics corrected the glucose intolerance, the artificial sweeteners were the culprit increasing the gut bacteria. They used volunteers who normally did not use artificial sweeteners. Over six days, they were given the maximum amount of saccharin recommended by the United States Food and Drug Administration. The findings demonstrated that consumption altered the gut microbes in at least four of the seven participants in a way that can lead some to become glucose intolerant. They found that free fructose from HFCS requires more energy to be absorbed by the gut. Chemicals What Matters More? Quantity calories or Quality ingredients? For those looking to manage or lose weight, calories typically play a role in strategy and achieving desired outcomes. As well they should calories do play a part in the overall picture. However, with popular weight loss programs that rely on calorie counting and closely monitoring the scale, the body has been reduced to simple math. The body is an intricate system, complex and responsive to even the smallest changes. The quality of our food matters. If a food has been heavily manufactured to be lower in calories but the processing and additives are potentially impacting your health and even your fitness goals how effective was your choice? Is the short-term gain worth the possible long-term effects? Is the initial research enough to reassess or exercise caution?

*Normally added at a ratio of 10 parts cyclamate to 1 part saccharin, that preparation became the basis of the popular brand Sweet'N Low and was soon sold in millions of snack foods and diet sodas.*

I recently saw an ad on the internet to promote a diet, here is the title, "Absolutely the best free weight loss diet program online! Sweet for the taste of sugar and low for the low calories it contains. Several years ago rats were fed massive amount of saccharin developed bladder cancer. So my point is why consumed saccharin in reasonable amounts a few packets a day that may or may not hurt you. Just so you can have a low calorie snack or food? Saccharin - Artificial Sweetener Controversy Saccharin has had a very controversial past. Saccharin is an artificial sweetener that has been around for over years, since It was banned as early as , but the bans were lifted during the sugar rationing of WWI. After some research, scientist found that large amounts of saccharin may cause cancer in rats. The FDA tried to ban it in because some animal studies showed that it caused cancer mainly bladder cancer, but also uterine, ovarian, skin, and others. Some felt it was impurities in the saccharin, and not the saccharin itself, that caused the trouble, so nothing was done. The ban was withdrawn in since no human studies ever found a problem with saccharin. However, in , Canadians proved conclusively that it WAS the saccharin itself causing the cancer. As a result, the FDA required that any saccharin products carry a warning label about cancer. The actual warning reads: This product contains saccharin, which has been determined to cause cancer in laboratory animals. And the warning label that had been required on Saccharin-sweetened products has been removed. In , President Clinton signed a bill. Further research was then done on saccharin, because the FDA wished to ban saccharin outright but the food companies fought this successfully. The National Cancer Institute ran studies in the next 2 years and found that saccharin was indeed connected with bladder cancer. People who drank only 2 cans or more a day of diet soda had an increased risk. Studies show that the average teenager drinks over 2 cans of soda a day. The average American drinks over a gallon of soda each week. With more people turning to diet sodas to control obesity, these levels can cause serious problems. Congress continues to keep prolonging the "ban moratorium," that is, refusing to allow the FDA to ban saccharin because it is so popular in products. Saccharin is cheap and stable, so diet food makers find it perfect for use in sodas, candies, and many other products. This commercial interest has outweighed the proven cancer risks since , and shows no sign of letting up. My recommendation is, if you MUST have sweet foods, use stevia, and stay away from saccharin and any other artificial sweetener. Even better, wean yourself off the sweet tooth and enjoy water, iced tea, wine and natural organic foods for eating. Some people ask why I recommend buying stevia. But new research suggests that the body is NOT so easily fooled, and that sugar substitutes are no key to weight loss " perhaps helping to explain why, despite an overabundance of low-calorie food and drink, Americans are heavier than ever. Soda Consumption and Obesity If diet soft drinks and sugar-free foods are readily available, why are so many people still overweight? A recent study by researchers at Purdue University found that drinking diet soft drinks might actually be part of the problem. The sweeter and denser it is, the higher it is in calories. Our bodies use this as a gauge to tell us when to stop eating. Artificial sweeteners, however, throw a wrench into this process. By eating and drinking foods and beverages that use artificial sweeteners and therefore have lower calories , we may be retraining our bodies to no longer associate sweetness with higher calories. That means that when we eat or drink foods sweetened with real sugar, our bodies miscalculate the true calories associated with that food. As a result, we consume more calories. The basic substance is benzoic sulfinate is a synthetic chemical, a solvent that causes cancer. There are very few products that contain saccharin these days. These wonderful recipes will help your family to get on the right track and away from those dangerous artificial and process sweeteners.

**Chapter 8 : NECTASWEET SUGAR SUB TB GR calendrierdelascience.com: Grocery & Gourmet Food**

*Introduced to satisfy consumers' sweet tooth, these artificial sweeteners with no calories seemed, at the time, like good alternatives to refined sugars and natural sweeteners. However, the side effects simply aren't worth it.*

According to the FDA, saccharin has been linked to bladder cancer in laboratory animals which prompted them to require warning labels on products containing this artificial sweetener in . In , the warning label requirement of the sweetener was removed. It contains no calories because it is not digested by the body. Saccharin has been around for over years and has had its fair share of controversy. From its initial listing as a potential carcinogen and its subsequent exoneration decades later to Internet myths and urban legends, saccharin and other artificial sweeteners continue to raise concerns. The Center for Science in the Public Interest is an organization that advocates food safety, nutrition, health, and environmental issues. By removing the saccharin warning label, the Center for Science in the Public Interest believes that more people, including children, will increase their consumption of products containing the artificial sweetener and increase their risk of contracting cancer. According to the U. This misperception of calories can lead to overindulgence of other sweet foods and sabotage dieting efforts. Aspartame, the main ingredient in NutraSweet and Equal, is the subject of much debate with plenty of rumors circulating via the internet and email chain letters. The FDA remains firm in its position of the safety of these artificial sweeteners. Currently, five artificial sweeteners are approved by the FDA including saccharin, aspartame, neotame, sucralose, and acesulfame-K. Each artificial sweetener has been studied extensively. For example, rats consumed doses of aspartame in doses times higher than humans would consume without coming down with cancer or suffering other adverse effects. In addition, the National Toxicology Program conducted its own studies with mice and did not find a link to cancer. Aspartame, however, has dangers of its own including the risk for people who have the rare genetic disorder called phenylketonuria. Aspartame breaks down into different components when ingested including methanol, aspartic acid, and phenylalanine. Products that use aspartame must also contain a label warning phenylketonurics of the presence of phenylalanine. One of the newer artificial sweeteners to hit the market is sucralose which is sold under the brand name of Splenda. The FDA approved sucralose in after reviewing over animal and human studies. Sucralose has come under fire for its potential safety issues too. For example, sucralose is created by chlorinating sugar which has many consumer advocates concerned. Common allergic reactions include breathing difficulties, headaches, skin irritation, and diarrhea. Anyone who is allergic to sulfa products should avoid Sweet N Low. Not only is saccharin used in food products such as diet soft drinks, it is a common ingredient found in medicines, particularly those aimed at children. They warn consumers that eating too much can cause gas and diarrhea. In addition, these amounts are considered to be times less than the minimum amount that could cause adverse health issues. An ADI for each sweetener for a pound person is as follows: Leading consumer advocacy groups such as the Center for Science in the Public Interest believe that saccharin should still come with a public health warning label. On the other hand, of the current batch of FDA-approved artificial sweeteners on the market, saccharin is considered to be among the safest due to the large number of studies supporting its safety and endorsements by leading health organizations including the American Diabetes Association. Always Consult Your Physician First Although it is helpful to get health information by reading and talking with friends, make sure you consult your doctor first before trying any new treatment or changing your diet. Remember that the U. Food and Drug Administration does not strictly regulate the strength, purity or safety of herbs and supplements. Be sure to always read product labels. If you have a medical condition, or are taking other drugs, herbs, or supplements, speak with your doctor before taking medical action or changing your health routine. This information is not intended to replace the advice of a doctor. LifeScript disclaims any liability for the decisions made by its readers based on the information provided. The label on your frozen TV dinner tells you that your meal contains calories and 10 grams of fat, plain and simple. But what else is hiding in the package? Test your knowledge of sneaky additives, from yellow 6 to rBGH, with this ingredient list quiz. Check out Health Bistro for more healthy food for thought. See what Lifescript editors are talking about and get the skinny on the latest news. Talk to us on Facebook and

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**Chapter 9 : Top 4 Most Dangerous Artificial Sweeteners / Nutrition / Healthy Eating**

*Saccharin is also part of sulfonamides, which can cause allergic reactions in some individuals. Commonly reported reactions to saccharin use in some individuals include headaches, diarrhea, skin issues and headaches.*

Artificial sweeteners are sweet-tasting, non-caloric food additives that have synthetic origins. Examples include aspartame and sucralose. Aspartame is a common ingredient in many processed foods, particularly Diet Coke and Diet Pepsi. Natural Sweeteners Natural sweeteners are non-caloric compounds originally derived from plants. Examples include powdered stevia from stevia leaf and monk fruit extract *luo han guo*. Yes, stevia leaf is natural but heavily refined white powder is not. Sugar Alcohols Sugar alcohols are industrially produced sweeteners derived from sugars in food. Although sugar alcohols do contain carbohydrate, these carbs are neither absorbed nor metabolized by the body. Caloric Sweeteners Some people believe caloric sweeteners such as honey, maple syrup and agave syrup to be healthier choices than regular sugar. Although some of these calorie sweetening options may provide some beneficial elements, sugar is still sugar. The range of available sweeteners on the market is vast, and there are four main options; artificial, caloric, natural, and sugar alcohols. Artificial Low Carb Sweeteners We shall start by analyzing some of the most popular artificial sweeteners; aspartame, saccharin, and sucralose. You may also know it by commercial names including Nutrasweet and Equal. While there are many Internet claims linking aspartame to health problems like cancer, the available research does not support these assertions 3. Benefits Aspartame is a zero-calorie in regular doses sweetener and has a rating of zero on the glycemic index 4. Tastes a little bit like sugar, and people generally enjoy the taste. Concerns Although aspartame tastes similar to sugar, it does have a slight chemical aftertaste that some people dislike. While detrimental effects in humans have never been proven, there are possible mechanisms for how aspartame may contribute to inflammation 5. Aspartame is not safe for people with phenylketonuria; a rare condition that impairs absorption of the amino acid phenylalanine, causing it to build up in the body 6. Aspartame is a non-glycemic and zero carbohydrate sweetener. While there are concerns over its safety profile, there is no conclusive evidence of harm in humans. Saccharin is x sweeter than sugar. Benefits Since saccharin is so sweet, only small amounts are necessary, making it cheap and convenient. Concerns Saccharin has a strong and bitter aftertaste. For this reason, it often comes mixed with other ingredients. Saccharin appears to be a weak carcinogen and causes bladder cancer in rats, but there is no proof of harm in humans. However, there is no conclusive proof that saccharin is not carcinogenic to humans either 7. Saccharin has longstanding safety concerns, but there is no proof of harm. It is a zero-calorie and zero-glycemic index sweetener. Notably, sucralose is much sweeter than other popular artificial sweeteners and is roughly times sweeter than table sugar. Like other artificial sweeteners, sucralose contains no calories, and it has a zero score on the glycemic index. Benefits Some people prefer the taste compared to other artificial sweeteners. Zero calories, no carbs, and zero-glycemic. Concerns Sucralose may have an effect on blood-glucose 8. Some people find sucralose has a strong chemical aftertaste. Using sucralose at high temperatures appears to cause the sweetener to break down into toxic compounds 9. Sucralose may not be safe for use at high-temperatures. This low carb sugar substitute is non-caloric, zero-glycemic and it contains zero carbs. Concerning the taste, it may be x to x sweeter than sugar, depending on the particular extract. The extract is derived from dried fruit. Monk fruit has no impact on blood glucose or insulin levels The taste of monk fruit comes from the sweet taste of a class of antioxidants they contain called mogrosides, and it is not related to sugar Concerns Monk fruit extract is relatively new and there is no extensive research in humans. It appears to be safe, but more research is necessary. More expensive than other sweeteners. See this complete guide to monk fruit for more information. Monk fruit is a natural sweetener with no existing health concerns. However, it is expensive and has little research behind it. However, we do know that allulose is made via the enzymatic conversion of fructose from corn. See this review of allulose sweetener for a full evidence-based guide. Benefits Allulose is zero-glycemic and virtually free of calories. It tastes almost identical to sugar and we can use it in the same way. Allulose acts very similar to sugar, it adds bulk and even browns in the same way as regular table sugar does. This sweetener appears to be very safe. From initial studies, it seems to

improve blood sugar regulation with no adverse effects of any kind. Concerns There are no known side effects in humans at this time. However, the available research is small, and long-term safety testing does not currently exist. Compared to other sweeteners, we have little research on allulose. However, from what we do know, at this moment in time, it appears to be an excellent choice. Stevia is non-caloric, and it is approximately 200x sweeter than table sugar in its extract form. After all, it is originally a leaf – not a white powder. This refined version of stevia may come as a granulated powder or liquid drops. However, we can also use stevia in its whole-leaf, unprocessed form, which has a much milder taste and is not as sweet. Benefits Stevia is generally seen as a safe sweetener, and there are no noteworthy negative studies. Stevia does not adversely affect blood glucose levels. In fact, a trial showed it may even lower them. Concerns Some highly-processed versions of stevia use solvent extraction methods and chemical flavorings. Some people dislike the aftertaste of stevia. Based on currently available research, stevia is one of the best low carb sweeteners. Benefits Initial trials show that tagatose has a range of health benefits, and it has shown promise as a potential treatment for type 2 diabetes – even decreasing blood glucose levels. Concerns Unfortunately, like with many other sweeteners, digestive problems are a side effect following high levels of intake. Tagatose is a relatively unknown sweetener with some interesting potential benefits. Sugar Alcohols We will now review some of the most commonly used sugar alcohols, including erythritol, maltitol, xylitol and Swerve Sweetener. However, maltitol does contain carbohydrate and calories, and it has a score of 36 on the glycemic index. Benefits Tastes just like regular sugar, but it has fewer carbs and calories, and a lower glycemic impact. Good for oral health – maltitol does not promote tooth decay. Concerns Contains carbohydrate and it will raise blood-glucose levels. Maltitol often causes side effects such as bloating, diarrhea and gas. Effects such as these may be more intense for people with irritable bowel syndrome IBS. Since it may spike blood glucose levels and has various side effects, there are better sweetener options. Similar to maltitol, erythritol is a sugar alcohol, but it has a much lower glycemic index score of only 1. Although erythritol contains carbohydrate, it is non-fermentable in the gut, and it does not affect blood glucose levels. As a result, slightly extra amounts of erythritol will be necessary for the same sweetness level as sugar. Benefits Good for dental health – does not harm teeth or contribute to plaque buildup. Has no impact on blood glucose, and based on current evidence, there are no safety concerns. Erythritol works as a straight one-for-one sugar replacement. Can be used at heat, making erythritol one of the best low carb sweeteners for baking. Concerns Consuming high amounts of erythritol can lead to gastrointestinal distress for some people. Erythritol appears to be a perfect choice; it is a straight replacement for sugar, has no major health concerns, and it even has a couple of benefits. Interestingly, the sweetness of xylitol is approximately on a 1:2 ratio compared to sugar. Despite this, xylitol only contains 2. Benefits Xylitol is beneficial for dental health, and it may help to prevent plaque. Based on animal studies, intake of xylitol may improve the variety and quality of gut flora. Although xylitol contains calories and carbohydrate, it does not raise blood glucose or insulin levels. This makes it a diabetes-friendly sweetener. Concerns Similar to other sugar alcohols, xylitol may cause symptoms of gastrointestinal distress in some people. Xylitol is highly toxic and can even be fatal for dogs. For dog owners, therefore, it might not be the best option. Xylitol tastes just as sweet as sugar, protects our dental health, has no impact on blood glucose levels, and has a good safety profile.