

SUGAR, SUGAR, EVERYWHERE

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All people and most animals like and sometimes crave sugar. Our metabolic systems are built around the basic glucose molecule, which is derived from all of the forms of sugar and is essential for our life processes on a daily basis. Sugar is good for us, but it can also be bad for us, depending on what form it is in and how much or how little of it is eaten on a daily basis. We know that the human body runs metabolic cycles utilizing the molecule glucose, which constantly circulates in the bloodstream at varying levels depending on your diet and activity level. Beyond that, we know that food furnishes blood sugar levels and that insulin coordinates with this to create balance of this in the body. The blood glucose level must be regulated in order to maintain enough glucose to run the body's metabolic systems and to keep the brain functioning, but low enough that it does not create an unhealthy level. Not enough sugar is bad for you, and too much sugar is bad for you as well.

How can sugar contribute to your negative health? It can suppress your immune system and impair defenses against infectious disease. It upsets the mineral relationships in your body and in particular with calcium and magnesium. It causes hyperactivity and difficulty concentrating and can cause a rise in triglycerides and total cholesterol level. It can cause loss of tissue elasticity and stiffness of joints and it has been seen in clinical and research data that sugar feeds cancer cells. It can weaken your eyesight and cause premature aging and can increase your body's fluid retention as well as your risk of Alzheimer's disease. If that's not enough, it increases tooth decay which is associated with periodontal disease and which is a great risk factor for heart disease.

We all like the sweet taste, whether it is sugar or sugar substitute, and most people eat these in significant quantities every day. The average person in this country consumes about 160 pounds of sugar a year. There is a high volume of sweeteners available, including aspartame, Splenda, Stevia, saccharine, and other substitutes. In the case of a normal individual who is on a balanced diet without too much sugar intake, the mixture of carbohydrates, protein, and fat help maintain the blood sugar level in the normal operating range. After eating a meal, within about an hour the blood sugar level rises and then stimulates the body insulin to force the glucose in to the cells where it does its work. This drives the blood sugar back down again, and this signals the brain that we are hungry and we must once again eat. This cycle repeats itself several times a day. During the night, the time between meals is longer and some people wake up in the middle of the night and have to go "raid the refrigerator" in order to maintain their blood sugar level.

In abnormal states such as hypoglycemia, the blood sugar level falls to the point that it affects brain function. This may be due to over-stimulating the body with too many carbohydrates (excess sugar) or in some cases an excess production of insulin in the body. In the diabetic or obese person, there may be either minimal insulin or an

excessive amount of insulin depending on the type of diabetes. If no insulin is produced, it has to be supplemented by injections to keep the blood sugar level normal. A high blood sugar level means that the insulin is either not working properly because of resistance of the cells or there is not enough insulin to do the job. In obesity, the cells actually have resistance to the effect of insulin, and even an excessive amount of insulin often will not maintain the blood sugar level properly. Therefore, a low sugar diet and improvement of the obese state is the best way to treat this.

Sugar is present in most of the foods that we eat -- breakfast cereals, ketchup, snacks, bread, cakes, cookies, candies, wine, beer, canned soups, and energy bars, just to name a few. The label which is present on a container of food shows how many of the calories in a portion are contributed by sugars. The additional part of the label explains what kinds of sugars are present. White carbohydrates quickly can be converted into glucose once they are eaten. Bread will raise the blood sugar level faster than table sugar because of the way the body processes it. There are reference tables available on the internet which give you the glucose value of every single food that you would usually eat. This is called the Glycemic Index, and it helps you think about preparing a healthier diet of low glycemic foods which would be more appropriate on a daily basis.

In the Atkins diet, one can eat as much protein and fat as desired, and it doesn't raise the blood glucose level. Therefore, the patient loses weight on this diet. During this time, the body metabolizes fat and creates a product called ketones, which are substituted for glucose in the brain and used as a metabolite. This is abnormal and accounts for some of the "high" feeling that is seen on either a starvation diet or Atkins diet.

Since sugar is present in a lot of foods that we eat, it probably accounts for more "empty calories" than any other part of our food except hydrogenated fat. We do need sugar, but not too much of it. The World Health Organization states that no more than 10% of our calories every day should come from added sugar. There are many forms of sugar including lactose from milk, high fructose corn syrup, and table sugar. Table sugar is a disaccharide (fructose and glucose) which can be split by digestion in the body. Since sugar is an "empty" calorie, it furnishes no nutritional value, but only contributes to the blood sugar level either in a good or bad way. If you eat too many empty calories, you get no nutrition for your body which is needed to keep the cells functioning properly and to help you age better.

To summarize, we all need moderate amounts of sugar in our body, preferably from low glycemic, highly nutritional foods, which have the ability to maintain your blood glucose levels. If you eat too much sugar, you suffer from not having enough nutrients and also from swings of blood sugar, which are either uncomfortable or unhealthy. Too much sugar on a long-term basis encourages the development of disease states such as diabetes, heart trouble, and Alzheimer's disease. Because of this, a well-rounded diet eating the three separate food elements every meal, reasonable exercise, and not splurging too many of your calories on sweets can keep your body in the best shape possible. Exercise, eat right, and keep your weight down.