

## Dental Caries, Sugar and Carbohydrates

Dental Caries is dependent on dietary sucrose or sugar. Mutans streptococci use sugar to produce acids which attack the tooth surface. The acids in plaque dissolve the enamel surface of the tooth and create holes in the tooth or dental cavities. A diet with a high sugar intake will increase caries risk. Caries risk is also dependent on the frequency of eating. Each time that plaque bacteria come into contact with food or drink containing sugar they use them to produce acids. If these acids are not buffered or neutralized by saliva they dissolve the surface of the tooth. People who snack throughout the day are at an increased caries risk.

Many might ask if we just avoid foods with high sugar content then we can avoid caries, right? The answer is that it is not that simple. Avoiding food with high sugar content reduces the risks of dental caries because sugars are the primary energy source and easily metabolized and utilized directly by bacteria and produce acid as a byproduct. However many foods containing carbohydrates may be easily broken down by salivary enzymes such as salivary amylase and bacteria in the mouth which can produce acid which increases the risk of caries.

The simplest sugars are monosaccharides such as fructose, found in fruit; galactose, found in dairy foods; and glucose which is the body's primary food source. Glucose and fructose link to form sucrose which is our common table sugar and when glucose links with galactose it forms lactose or the sugar in milk.

When hundreds of glucose molecules link together they form polysaccharides or starches. Starchy foods consist of foods such as grains, corn and rice. These starches are broken down by salivary and digestive enzymes back to glucose.

When about 1500 molecules link together they form cellulose which is present in whole grains, fruits and vegetables or otherwise known as fiber.

Sugars are the basic building blocks for starches, and cellulose and all of these are called carbohydrates. Carbohydrates are a vital part of our diet and as they are digested they revert back to the building blocks which are sugars. They contribute to the level of sugar in our mouths and are a source of sugar which can be utilized by bacteria to produce acid which caused cavities.

However, the impact of these carbohydrates on caries is dependent on the type of food, frequency of consumption, the form of the carbohydrate, how quickly they are cleared from the mouth, the degree of oral hygiene performed, availability of fluoride, salivary function, and genetic factors.

It is important to eat a balanced diet rich in whole grains, fruits and vegetables and to eat a combination of food which will help to reduce the risk of caries. Include dairy products such as cheese with carbohydrates and eat at regular meals rather than snacking throughout the day.

Dental caries is a preventable disease for most people with regular brushing, at least twice a day, and flossing, at least once a day. Also drinking water with fluoride and using toothpaste with fluoride helps to remineralize and strengthen teeth. Finally, regular checkups and cleanings every 6 months with your dentist can help to keep your teeth healthy.

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