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Sugar and sugars, sweet and dangerous?

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In recent years, much is said about sugars and avoiding them is usually recommended. Food “rich in fats and sugars” are in the red area of stoplight diets (nutritional recommendations).

However, sometimes it is not easy to understand technical language. Confusion and doubts are very likely to be observed: Is not sugars the plural form of sugar? Why is there a difference among these words? Let’s try to clarify these terms.

Simple and complex sugars. Cardbohydrates family.

Common sugars (crystal, white and sweet grain) is in fact SUCROSE, a molecule made of two from GLUCOSE, which is the most simple “sugar”, a MONOSACCHARIDE.

Glucose is Essentials in metabolism since it provides energy so that all body cells can work.

Some food contains DISACCHARIDES, as lactose or fructose. They are made of a glucose molecule and a different one.

Sometimes, glucose and monosaccharides merge, creating branches or chains and then, we refer to POLYSACCHARIDES or COMPLEX CARBOHYDRATES. This is said when, there is also VEGETABLE FIBRE. These are barriers among some molecules and others.

Sugar classification, which can be called carbohydrates	Made of	Examples
Monosaccharides	A single molecule	• Glucose • Galactose
Disaccharides	Two monosaccharides	• Common sugar or SUCROSE = 2 glucose molecules. • LACTOSE (milk sugar) = 1 glucose molecule + galactose one. • FRUCTOSE (fruit sugar) = 1 glucose molecule + maltose one.
Polysaccharides	Branches or chains of many glucose molecules.	• Cereal STARCH (flour, bread, rice, pasta). • Potato STARCH.
Insoluble or non digestible carbohydrates	There are barriers or pectin walls that make digestion difficult.	• VEGETABLE FIBRE: fruit skin and pectin, cereal bran, vegetable fibres.

Where does glucose come from? What is useful for?

When we have food (a ham and tomato sandwich) and it is digested, all its components, by means of different chemical processes, are converted into glucose. Hence, after having a meal BLOOD SUGAR increases, this is the glucose quantity that there is in our blood. As a response to this blood sugar increase, the pancreas, an organ of our chest, creates and releases INSULIN, which is a hormone that “opens the cell door” so that glucose can enter them.

Ham is made of PROTEINS and FATS. The metabolic route until they convert into glucose is quite long. If is eaten alone, blood sugar increases slowly.

White bread is made of STARCH, long chains from glucose molecules. Digestive enzymes can release them easily and blood sugar increases faster.

If bread is wholemeal and tomato is with its skin, the FIBRE that both contain makes digestion a bit slower. Blood sugar increases less and it is done slowlier.

But if, instead, we have had a sugar lump, blood sugar increases very quickly and it is enough with a “click” and the two molecules that make it are released and absorbed.

Do we need to eat sugars?

The answer is NO! We don’t need to have nor even a gram of sugar since we have seen that our body knows how to make glucose from any food. In fact, until 16th c. sugar was not eaten since it was unknown, only honey was used. And not every day!

In the beginning, sugar was a very strange substance, coming from America. It was brown sugar and it was sold in pharmacies! as a dietary supplement for sick people. Then, it began to become popular in high society since it was expensive. Two centuries later, it was produced in great quantities and was refined. In that moment, it became affordable. Nowadays, there is a huge production of sugar foods and, furthermore, they are really cheap.

Sugars in the 21st c. diet

Sweet taste likes us since we are born. Mother milk tastes sweet and the body knows that sweet food is equal to fast energy. Many thousand years ago, that meant a greater likelihood to survive.

We always feel like having sweet food. That is the reason why cakes, sweets, ice creams and chocolates are sold a lot... However, they are not necessary, especially when we don’t lack any food.

One of its disadvantages is that they are made of sucrose. This implies that blood sugar will rise very quickly and the pancreas will have to produce a lot of insulin so that all this glucose enters the cells. In the long term, this organ can become exhausted, this is what happens in diabetes.

The other disadvantage is that, apart from this, they have other components as fats (cream in ice creams, palm oil or coconut in some cakes, cocoa fat ...) and those are more calories. Everybody knows that these are fattening foods. Some of those fats even increase cholesterol.

Because of all these reasons, food with sugars is in the “red” area of nutritional recommendations: they must be scarcely had, since you can gain weight and have cardiovascular problems and diabetes.

What’s wrong with food “with no added sugars”?

An orange or a peach tastes sweet. They have no sucrose but fructose. Moreover, they contain vegetable fibre. That is the reason why an increase in blood sugar is relatively slow. If we have those fruits as juice, there is little fibre and, because of that, blood sugar will increase quicker. If, also, sugar is added (remember, sucrose), increase will be higher.

This means that a sugar-free juice is better than a sugar one but eating whole fruits chewing them is much better.

In foods in which no sugar is added, attention must be paid to other components, fats above all.

Other sugars must also be considered, as sorbitol or manitol, that are used as sweeteners and that make blood sugar increase less. For that reason, diabetic people can have them. Contrastingly, they can provoke intestinal gas, abdominal pain and sometimes diarrhoea. And fructose is also under suspicion: it might be not as innocuous as it was thought.

To sum up:

GLUCOSE is the most simple sugar, the one that our cells need to work well. Our body knows how to create it from any food.

BLOOD SUGAR is the glucose level in our blood at a given moment.

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CARBOHYDRATES are also called sugars.

SUCROSE is the common sugar. It is a molecule that is easily digested and that makes blood sugar rise.

STARCHES are complex sugars, made from glucose chains and branches.

VEGETABLE FIBRE is the food part that is not digested. It makes sugars to be absorbed more slowly. That is the reason why blood sugar increases slowly.

If it can be read WITH NO ADDED SUGARS in a package, it means that to make that product sucrose has not been included but it usually contains those food natural sugars.

SORBITOL from “sugar-free” food or “for diabetic people” can provoke abdominal pain. Many packaged juices contain sorbitol.

It is advisable to eat fruit chewing it: they have fresh vitamins and blood sugar does not increase so much.

We can eat chocolates, ice cream, cakes but … less than once a week!