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## **Don't cut off sugar from your diet!!**

~The key is what to choose~

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**P**roteins, fat and carbohydrates are the three major nutrients. This issue will focus on information about carbohydrates. Carbohydrates are classified into 2 forms: saccharides, which are easy to digest, and dietary fiber, which are difficult to digest. Many people may have a good image of dietary fiber, but how about saccharides? “Saccharides restriction diet”, which is a way of slimming diet by reducing or cutting the intake amount of saccharides, have recently become popular in Japan. It seems that dietary fiber and saccharides have brought opposite reactions from the public. Although many people practice the saccharides restriction diet, it makes the body difficult to lose weight if they stop taking saccharides from daily meals. Let's look at functions of saccharides.

### ◆◆ **Functions of saccharides**

Have you experienced some craving about sweets when you are tired? Have you felt the urge of eating rice or bread when you are hungry? These reactions are caused by a lack of saccharides in the body because saccharides are easily transformed into an energy compared with fat and proteins.

The ingested saccharides are broken down into glucose through a course of digestion and absorption. It will be stored in the liver and muscles with a form of glycogen which is multibranched glucose. Once the body falls into a state of saccharide insufficiency, glycogen in the liver releases glucoses to adjust the level of sugar in the blood. Basically, glucose is the only energy source for the brain and muscles. When we continuously use brain at work and study or do some sports, our bodies need to have more glucose. Glucose takes such an important role in our life.

### ◆◆ **The reason why we should not reduce the intake of saccharides**

Glucose transforms to glycogen in the body. However, if we have an excessive level of glucose, it will be stored as fat. On the other hand, when we are in a lack of glucose, the body starts generating energy by degrading proteins and adipose tissues in muscles. It reduces not only the amount of fat in the body, but also the volume of muscles which are essential to burn fats. This reduction may cause a decrease in basal metabolism.

Although many Japanese people often cut off rice while they are on diet, rice includes B-complex vitamins, minerals and dietary fiber other than saccharides. If they stop eating rice because they think rice makes them fat, they will have a lack of nutrients.

As these examples, a shortage of saccharides creates a decrease in basal metabolism, poor physical condition and skin troubles. Therefore, we should have balanced meals containing a good level of saccharides.

Now, you are ready to think of GI as one of the indexes to control balanced meals.

### ◆◆ The relationship between GI and the level of sugar in the blood

The blood glucose level increases after meals. The body secretes insulin, which is a type of hormone that adjusts the level of blood sugar, to decrease the elevated blood glucose. A greater amount of insulin is secreted in order to suppress the higher level of blood glucose after the meal.

A rapid elevation or drop of the blood glucose after the meal is one cause of easily feeling hungry. What you eat and the way of serving food often exerts influence to the rapid elevation or drop of the blood glucose level. The GI indicates how easily a food increases the blood glucose level. It can be helpful to curb the rapid elevation of glucose in the blood after the meal.

GI is the abbreviation of glycemic index. This number is a measurement of the speed that it takes to break down the ingested saccharides into glucose and be absorbed in the blood. The saccharides that are slowly absorbed in the blood show lower GI and moderate elevation of the blood glucose after meals. The GI is mainly used for the improvement of blood sugar control with diabetic patients. However, practicing the idea of GI in our daily diet can be helpful for the prevention and treatment of obesity and diseases associated with adult lifestyle habits. Experts have suggested that after ingesting food with a high GI, the blood glucose level rapidly elevates and drops which results in making people feel hungry and encourages to do snacking. On the other hand, when people eat food with a low GI, a sense of fullness continues which provides lesser opportunities to have snacks.

### ◆◆ Let's come up with a way to lower the GI

The GI is a number associated with a particular type of food that shows the effect of such food on a person's blood glucose level. The GI changes based on an intake amount, an eating order, a combination of ingredients and a way of cooking. Rice for example, brown rice is hard because it is covered by rice bran. This hardness slows down the digestion which result in a moderate elevation of the blood glucose level after meals (Refer to the table in the following page). Cooking white rice with less water provides a similar effect. It can be an alternate to cooking brown rice and support to reduce the GI.

Changing your eating order is also helpful to lower the GI. When you eat salad before having carbohydrates, dietary fiber in the salad eases the absorption of saccharides and moderates elevation of the blood glucose level which in turn lowers the GI.

Many Japanese people have an image about the overconsumption of saccharides making people fat. However, saccharides are absolutely imperative nutrients for our bodies. By selecting the combination of ingredients based on the GI, changing the eating order and devising way of cooking, we should have a balanced diet with as many ingredients as possible including carbohydrates. This will contribute to provide us with healthy and beautiful bodies.

## Foods with high GI

### White rice

White rice includes starches which more likely rise the glucose level in the blood. Cooking it with less water (makes rice hard) helps to suppress the GI.



### White bread

White bread includes refined flour and butter. If you spread butter or jam for an additional flavor, the GI increases more.



### Superfine sugar

(white sugar)

White sugar is made by the most refined sugar cane. It has the highest GI in any sugar.



### Vegetables

(carrot, pumpkin, potato and corn)

Vegetables with a strong sweetness include relatively high saccharides. It is better to eat a variety of vegetables instead of having only a single item.



### Sweet snacks

(candy, chocolate and pancakes)

Sweet snacks include a lot of sugar, so the GI becomes high.



### Beverage

(pops, cocoa and 100% juice)

Even 100% juice facilitates an elevation of the blood glucose because dietary fiber in fruits are removed and it is easily absorbed in the body.



## Foods with low GI

### Brown rice

(sprouted brown rice)

Brown rice is covered by hard rice bran which moderates the speed of absorption. The nutritional value of brown rice is higher than white rice.



### Brown bread

(whole-wheat bread, rye bread)

Brown bread includes wheat bran, and dietary fiber remains in it. The GI is lower than refined flour.



### Honey

The fructose in honey can suppress an elevation of the blood glucose level after meals.



### Vegetables

(spinach, cucumber, onion, tomato)

These vegetables have a relatively low GI. They help to reduce the total GI when you eat them with other vegetables with a high GI.



### Nuts

Nuts include abundant good oils and dietary fiber. They became a popular snack in Japan because of their reputation as a good food for beauty care.



### Black coffee and tea

You need to be aware that the GI increases if you add sugar or milk in it.

