

Weight Loss and Carbohydrates. . . Some Basics

When it comes to weight loss diets, carbohydrates are becoming misunderstood nutrients. Carbohydrates are the main source of energy in your body. They are also one of the three macro nutrients required for nutrition. The other two are proteins and lipids.

Carbohydrates are organic molecules, made up of sugars called saccharids. A carbohydrate with one unit of sugar is called monosaccharides. Carbohydrates with two units of sugar are called disaccharides. Those with more than two sugars are generally referred to as polysaccharides.

Carbohydrates Classification:

Carbohydrates are grouped into two types depending on structures of their molecules.

1) Simple carbohydrates:- These are the mono and disaccharides e.g. glucose and fructose.

2) Complex carbohydrates:- These are polymers or polysaccharides. Examples include starch, fibre, and glycogen. Carbohydrates can only be also be grouped into three main forms as foods.

(i) Sugars: - These consist of simple carbohydrates both mono and disaccharides for example glucose (the blood sugar) galactose, the sugar found in milk and fructose the sugar found in fruits and honey are all mono-saccharides. Common disaccharides include sucrose the common table sugar which is glucose bonded to a fructose, lactose the main sugar in milk (glucose + galactose) and maltose a product of starch digestion (glucose + glucose)

(ii) Starch: - This is a complex carbohydrates and a polysaccharide. It is the principle form used by plants to store glucose. It is a polymer or a chain of bonded glucose molecules.

(iii) Fiber: - This is also a complex carbohydrate also called cellulose found in plants. This is one of the carbohydrates that cannot be broken down into sugar molecules in your digestive system. It passes through mostly undigested. In your body it cleans the digestive system keeping it healthy. Cellulose is probably the most abundant molecule in the biosphere e.g. wood is mostly cellulose, while cotton and paper is almost entirely cellulose.

Carbohydrates are essential energy sources though some kind when eaten often and in large quantities actually increase risk for diabetes and coronary heart disease. It also may result into increase in your body weight.

The digestive system handles all carbs in much the same way. Basically it breaks them down to glucose or any other simple sugar that can be absorbed into the body.

When we eat carbohydrates, its digestion starts in the mouth using saliva. Saliva has enzymes called amylase which breaks down polymers of starch. By the time starch is getting to the stomach it has been broken down to glucose. This glucose is then absorbed into the blood stream then the blood transports it to your body cells. Body cells absorb the glucose for the use of creating energy.

When excess carbohydrates are eaten, the body converts the extra glucose into glycogen. Glycogen is stored in skeletal muscles and liver. This acts as the glucose reservoir in your body. In case of energy shortage, glycogen is broken down to glucose in a process called glycogenolysis.

Glycogen is the immediate store of energy in your body. It gets depleted in about 24 hours if not replenished. Your diet should always consist of some energy for nutrition. Most of this energy is provided by the carbohydrates. In some circumstances, energy is provided by proteins and fats.

Good and bad Carbs:

Science on nutrition is proving that there are now healthy and unhealthy carbohydrates. They are using the glycemic index to be able to determine the healthier carbohydrates.

The Glycemic index measures how fast and how far blood sugar (glucose) rises after you eat a certain carbohydrate source of food. For example, white bread is considered to be a high glycemic index food. This is because it is quickly digested and absorbed into the blood stream. This consequently increases the blood sugar level very high and very fast. On the other hand whole wheat bread is digested much more slowly. This causes a lower and more gentle change in blood sugar level so it is said to have a low glycemic index.

Carbohydrate foods with high glycemic index have been linked to increase in both diabetes, unhealthy weight and heart disease while low glycemic index has been shown to control type two diabetes. You will find, even though the food pyramid recommends a mainly plant based nutritional diet, it insists on whole foods. This is because a major determinant of a food's glycemic index is how processed the carbohydrate is.

Some determinants of GI (Glycemic Index) are listed below;

- i) Processing:- The more finely ground grain is rapidly digested due to increased surface area hence a higher GI. Processing tends to remove the fibre rich outer bran. It also removes the vitamins and mineral rich inner germ, basically stripping the food all its nutrients except carbs.
- ii) Fiber-content: - The bran for example shields the food from immediate rapid action by enzymes. This slows the enzymes effectiveness in releasing the sugar molecules into the blood stream.
- iii) Ripeness: - The more ripe a fruit or vegetable the more the sugar it has hence a higher G.I.
- iv) Structure of the starch: - Occurring in many structural forms, the more a starch isomer is branched the less easily is broken down. For example a potato is more easily broken down because its starch is only a long chain. This makes it a high G.I. food.
- v)Fats and acid content :- The more fat and acid a food contains the slower its carbohydrates are turned into sugar.

Determining G.I. may end up being a little complicated. A combination of the above factors may have counter-intuitive results. But the rule is simple; always prefer whole grain products and their more natural forms of carbohydrates. Use them more often than highly processed grains, just as recommended in any good weight loss diet.

Weight loss diets are one of the Top 4 Reasons you fail in losing weight permanently. However there are three other factors that you need to effectively tackle to avoid failure in losing weight.

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? Mark Kimathi writes on Top 4 Reasons for Weight Loss Failure at Health-eMark (<http://www.health-emark.com>) and related topics like weight loss diets (<http://www.health-emark.com/weight-loss-diets-cat.html>)