



## Carbohydrates: Sugars, Starches and Fibre, OH MY!

### What is diabetes?

Diabetes is a chronic condition in which the body cannot produce insulin or cannot properly use the insulin it produces. Insulin is a hormone that lowers the level of glucose (a type of sugar) in the blood. Insulin helps glucose enter the body's cells, where it can be used for energy or stored for future use. Uncontrolled diabetes leads to persistent high blood sugar levels, which can damage organs, blood vessels and nerves. Our major source of blood sugar in the body is from eating carbohydrates and so by managing that intake and making healthy carbohydrate choices, we can greatly reduce the risk of negative health consequences.

Now, what are carbohydrates and how do they affect blood sugar? Carbohydrates make a large part of our daily meals. Foods such as breads, pasta, rice, beans, potatoes, cookies, crackers, soft drinks, pies, pastries and so on all contain carbohydrates. Carbohydrates come in a variety of forms the most common being:

- Sugars
- Fibers
- Starches

Let's explore how each one of these affect blood sugars

### Sugars

Sugar is a simple or a fast-acting carbohydrate. In simple words, it means that sugars raise your blood sugars very quickly. You may want to view this video on

["Blood sugar responses to various food groups"](#)

There are two main types of sugar:

- Naturally occurring sugars such as those in milk or fruit
- Added sugars such as those added during cooking and processing. Example in canned fruit in syrup, or in desserts, ice-cream, cookies, cakes etc

On a nutrition facts label, the number that you see for sugars includes both added and natural sugars. When reading nutrition labels look for names ending in "-ose". That will tell you the particular ingredient is a sugar. For example, glucose (also called dextrose), fructose (also called levulose), lactose and maltose. The chemical name for sugar is sucrose. Fruit sugar is fructose and the sugar in milk is lactose. Sugar also has several different names. For example, include table sugar, brown sugar, molasses, honey, beet sugar, cane sugar, confectioner's sugar, powdered sugar, raw sugar, turbinado, maple syrup, high-fructose corn syrup, agave nectar and sugar cane syrup.

### Fiber

Fiber is the indigestible part of plant foods and comes from plant foods, including fruits, vegetables, whole grains, nuts and legumes. When you eat dietary fiber, most of it passes through the intestines and is not digested. The increase in blood sugar for fibre containing foods is way slower than for foods that do not contain fibre. The fibre in the food slows down



the increase in blood sugar, and that is what you need to manage your blood sugar and diabetes.

Adults need to try to eat 25 to 30 grams of fiber each day. Most adults do not consume nearly enough fiber in their diet. Fiber also contributes to digestive health, helps to keep you regular, and helps to make you feel full and satisfied after eating. Fiber has been known to have benefit in reduction of cholesterol levels. Good sources of dietary fiber include:

- Beans and legumes like black beans, kidney beans, pintos, chick peas, white beans, and lentils
- Fruits and vegetables, especially those with edible skin (ie. Apples and beans) and those with edible seeds like berries
- Whole grains like whole wheat pasta, whole grain breads and cereals (look for 3g or more per serving)
- Many grain products now have “double fiber” with extra fiber added!
- Nuts like peanuts, walnuts and almonds are a good source of fiber and healthy fat, but watch portion sizes as they are high in calories. A small handful will do it!

In general, an excellent source of fiber contains 5 grams or more per serving, while a good source of fiber contains 2.5 – 4.9 grams per serving. It is best to get your fiber from food rather than taking a supplement. In addition to the fiber, these foods contain many important vitamins and minerals. It is also important that you increase your fiber intake gradually, to prevent stomach irritation, and that you increase your intake of water and other liquids, to prevent constipation.

### Starches

The 3rd type of carbohydrate is starch. Foods that contain starches include:

- Starchy vegetables like peas, corn, lima beans and potatoes
- Dried beans, lentils and peas such as pinto beans, kidney beans, black eyed peas and split peas
- Grains like oats, barley and rice

### Some More about Grains

There are two types of grains, whole and refined. A grain contains three parts: bran, germ and endosperm You can read about the [parts of a grain in this post here](#).



The important thing to remember is that the whole grain contains the bran, germ, and endosperm and will provide you with all of the nutrients that whole grains have to offer. As a result, the increase in blood sugar when eating whole grains is very slow due to the fibre and protein. On the other hand, refined grains have undergone a fair bit of processing and contain only the endosperm or the starchy part. Most of the vitamins and minerals have been removed.

Common myth: whole wheat and whole grain are the same. Whole wheat flour is still refined, has undergone a fair bit of processing in which a significant portion of the germ and the bran is removed. These results in a loss of vitamins, minerals and fibre (though whole wheat does contain more fibre than white flour.) In contrast, whole grains include the whole kernel, including the bran and the germ. As a result, whole grains are nutrient packed. Like fibre containing foods the increase in blood sugar for whole grains is slower than refined grains helping manage your diabetes.