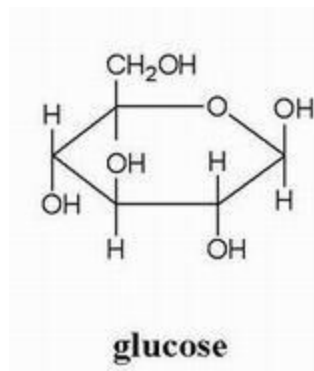


Webinar 2 Handout: **CARBOHYDRATES**

Carbohydrates can be confusing. There is a big umbrella of carbohydrate rich foods and not all of them are created equally. You find 'em in the usual suspects: breads, cereals, crackers and pasta. You also find them in whole grains, fruits, vegetables, legumes, beans and dairy. Your body needs carbohydrates to function optimally. The carbohydrates you eat are broken down into glucose, which is the main fuel your body uses for energy and to carry out normal cellular processes. Your body is able to use carbohydrates for immediate use, but it can also store them in your muscles and liver to draw upon when needed. Man cannot live on fats and proteins alone (yes, I'll touch on how people survive on bacon and butter on Atkins later...). Too much time without some carbs on your plate will leave you sluggish, tired and inefficient at getting through the day.

What is a carbohydrate?



Carbohydrates are a macronutrient that provide 4 calories per gram. They're made up of carbon (C), oxygen (O) and hydrogen (H). The most basic carbohydrates are the simple sugars. Monosaccharides (glucose, fructose and galactose) are single sugar molecules. Putting two simple sugars together gives you a disaccharide (sucrose, lactose and maltose). Both mono- and disaccharides are considered simple sugars. Simple sugars are found in the obvious foods—juice, soda, candy and refined grains like white bread and pasta—and also in dairy (lactose) and fruits (fructose). Simple sugars require little digestion and hit the bloodstream quickly after they meet your lips.

Chains of several simple sugars are called polysaccharides. The more sugars in the chain, the more complex the carbohydrate. Starches are a common type of polysaccharide. Starches, often referred to as complex carbs, include whole grains, beans and vegetables. They must be broken down by digestion before your body can use them for energy.

It's often thought that simple sugars are bad while complex carbs are more nutrient dense, but that's not always the case. Some complex carbs such as white rice, bread or pasta (even some whole grain versions) are often overly processed and have lost many of their nutrients during manufacturing. On the flip side, several simple sugars, including yogurt and fruit, come with plenty of natural nutrition. Choose the most natural, whole complex carbohydrates—farro, quinoa, beans, lentils—and the most natural, whole simple sugars—whole fruit, dairy.

A third type of carbohydrate is dietary fiber. It cannot be broken down by the human digestive system but is essential for good health. Artichokes are a great example of a fiber rich food. They have very few calories but tons of fiber which helps with both gastric motility and fighting heart disease. Fiber is found only in plant foods, is indigestible, and therefore adds no calories to your diet. Fiber can help slow down the absorption of simple sugars. That's one reason choosing whole fruit is better than opting for fruit juice. With juice, you get a rush of fructose into your system. With whole fruit, dietary fiber can slow the process down.

What kinds of carbohydrates are best?

You've heard of both 'good carbs' and 'bad carbs,' and you can certainly make better choices when it comes to this confusing macronutrient. Most of the carbohydrates in a healthful meal plan should come in the form of **veggies, fruits, yogurt, beans, legumes** and **whole grains**. These carbohydrate rich foods tend to be the most nutrient dense choices. If you are holding back on breads, cereals and the like, I'm all for it, as your body doesn't *need* these foods to be at peak performance. Since roughly a little more than a third of your calories should come in the form of carbs, make sure your meal plan is rich in produce with room for a little dairy and some whole grains to meet your body's carbohydrate needs.

When we are specifically talking about carbs that come from grains, whole grains are made up of *all* parts of the grain: the **bran** (the fiber rich outer layer), the **endosperm** (the middle part) and the **germ** (the nutrient rich inner part). When grains are milled, or refined, the bran and germ portions are removed, leaving only the endosperm (what you get when you eat white bread). The endosperm is essentially empty carbohydrate calories. Yes, you need carbs for energy, but you're losing the benefits of the whole grain when you go for refined. Whole grain foods, like millet, quinoa

(technically a seed, not a whole grain), spelt or cracked wheat contain all three layers, so you get the nutritional benefits of the entire grain. Whole wheat bread, brown rice, and whole wheat pasta are also good sources of carbohydrates, but their whole grains are processed and therefore some nutrients are lost. Phytochemicals, vitamins, minerals and dietary fiber found in whole grains may contribute to protection against cancer, heart disease and diabetes. Choose carbohydrates that are high in fiber whenever possible.

Which products are best?

Advertising in the media and on food packaging can leave even the savviest shopper scratching her head. How do you know if the cereal, pasta, cracker or snack is a healthful one? What is the difference between “whole grain”, “made with whole grains” and “uses whole grain”? There are confusing terms allowed on packaging, but you can trust the ingredient label. If the food begins with a whole grain, such as “100% whole wheat”, the container probably holds a better choice. If it says “whole wheat flour” as the first ingredient, it is probably not the best. When possible, ignore the claims, fancy packaging and photos – flip the box over. If there are few ingredients, you know what those ingredients are, and you can actually see that a whole grain leads the list, you are most likely making a good choice. Following are examples of good carbohydrate sources:

Dairy (and dairy substitutes)

Almond milk
Cow's milk
Hemp milk
Rice milk
Soy milk
Yogurt

Fruits

Apple
Banana
Berries
Cantaloupe
Cherries
Clementine
Dates
Figs
Grapefruit

Grapes
Honeydew
Kiwi
Lemon
Mango
Orange
Pear
Plum
Pomegranate
Prunes
Watermelon

Starchy Vegetables*

Acorn squash
Butternut squash
Corn
Peas
Potato
Spaghetti squash
Sweet potato

*all veggies will give you a small amount of carbs. This group is just more carbohydrate dense than watery vegetables.

Legumes

Black beans
Black eyed peas
Cannellini beans
Chickpeas/Garbanzo beans
Hummus
Kidney beans
Lentils
Peas
Pinto beans

Whole grains (look for 100% whole grain)

Amaranth
Barley
Brown rice
Buckwheat
Bulgur
Cornmeal
Cracked wheat
Farro
Graham flour
Kamut
Millet
Oats
Popcorn
Quinoa
Rolled oats
Rye
Spelt
Wheat
Wild rice

Common sense will tell you and your clients that there are a lot of carbohydrates out there that are less than nutritious. You can tell your carbohydrate source is a good one if you can identify that it was grown in nature. The more processed the whole wheat is, for example, the more the nutrition is lost. Eating a serving of a bulgur salad is super healthful. Eating a cupcake made with whole wheat flour isn't as good from a nutrition standpoint—even if the calories are the same

When focusing on health, wellness and weight management, most people should limit starches to one to three servings per day depending on needs and practice restraint with the less than healthful carbs out there. Overdoing it with starches can derail even the cleanest eating.

Nutritious Life Tip: We don't typically speak about a "serving of carbohydrate" because there is a little carbohydrate in most foods and they are all different in composition. You can measure starches such as pasta, breads, crackers and cereals, and those should be limited. Clients should get most of their carbohydrate needs through fruits, vegetables, dairy and whole grains, as they are the most nutrient dense sources.