

# Carbohydrates and Sports Nutrition

## Sugar Is a Carbohydrate

Sugar is a simple carbohydrate. All carbohydrates are made up of one or more molecules of sugars. No matter how complex a carbohydrate is to start with, once in the body, all carbohydrates are broken down to these three simple sugars: glucose, fructose and galactose.

### Carbohydrates = Fuel for the body

In fact, carbohydrates are the preferred energy source for the body because the majority provide glucose. Glucose is the fuel the brain, organs and muscles need to function and engage in everyday activities.

As a disaccharide made up of one molecule of glucose and one molecule of fructose, sugar is quickly broken down, so the glucose can be readily absorbed by cells and serve as a quick source of energy.

Other, more complex carbohydrates, such as starches, provide a more sustained source of energy like that required by endurance athletes.

The body stores carbohydrates in the form of glycogen in the liver and muscles. During exercise, the body breaks down glycogen into glucose, which is then used as fuel for the muscles.

## Timing Is Everything

Knowing how sugar is broken down and used in the body allows athletes to be strategic in their timing of carbohydrate intake. When consumed before exercise, simple carbohydrates offer fast-access fuel for working muscles. During exercise, simple carbohydrates help maintain blood glucose. After exercise, foods that contain sugar can help replenish glycogen stores, aiding in recovery.

## Sugar Is a Partner in Fueling Nutrient Delivery



### GRANOLA BARS

A little sugar increases the shelf-life of many pre-packaged healthy snack options, important for athletes needing quick and convenient calories that also offer important nutrients like fiber, calcium and iron.



### CHOCOLATE MILK

The sugar in low-fat chocolate milk increases the thickness of the milk and enhances the sweetness of the cocoa, making this post-workout drink with the perfect combination of carbohydrates and protein (and an excellent source of nine essential nutrients) enjoyable to drink.



### PROTEIN SHAKE

In addition to providing carbohydrates that can help with muscle recovery, the sugar in protein shakes cuts the bitterness of the added vitamins and minerals making it more enjoyable to drink.



### PEANUT BUTTER

A little sugar enhances the flavor and extends the shelf-life of protein-packed peanut butter.



### STRAWBERRY YOGURT

A little sugar cuts the acidity and enhances the sweetness of the strawberries in the yogurt, an excellent source of calcium.



### TRAIL MIX

A little sugar completes this snack providing not only sweetness alongside the protein and fiber of peanuts and raisins but also simple carbohydrates that offer a quick burst of energy when you need it.