



Healthy Carb Living Glossary

Calories: A calorie is defined as the amount of heat (energy) required to raise one kilogram of water, one degree centigrade. Calories reported by nutritionists and expressed on food labeling, define a food's energy producing potential which can be released when the body oxidizes the food. According to US food labeling laws, the amount of calories reported for carbohydrates on a food's Nutritional Facts Panel is based on 4 calories per gram of carbohydrate. Dietary fibers are defined as being non-digestible, thus their calories are not reported in the Nutritional Facts Panel. Exceptions for using the caloric factor of 4 calories per gram of carbohydrate factor are made for those carbohydrates that have been scientifically documented to have lower caloric values. Sugar alcohols are an example of carbohydrates with lower caloric values. The number of calories reported in the Nutritional Facts Panel for a food is calculated by summing the number of calories obtained by multiplying the amount of each ingredient by its caloric factor per gram. The calculated caloric value does not always represent what takes place in the body. This is the case in Dreamfields' pasta. Protected carbohydrates have limited digestion and absorption in the small intestine causing them to be transported to the colon where they are fermented (broken down). The fermented carbohydrates typically provide the body less than 2 calories per gram compared to 4 calories per gram for those digested and absorbed in the small intestine.

Carbohydrates: Carbohydrates are one of the primary macronutrients along with proteins and fats. They are composed primarily of carbon, hydrogen and oxygen. This classification of nutrients includes primarily sugars, starches, and dietary fibers. When digested and processed by the body, they represent a primary source of energy for activity and body functions.

Dietary fiber: By definition, dietary fibers cannot be broken down by digestive enzymes. These non-digestible carbohydrates include complex carbohydrates that make up plant cell walls such as cellulose, hemicelluloses, pectins, and a variety of gums and storage carbohydrates. Dietary fibers provide a source of food to be fermented or broken down by microorganisms in the large intestine (colon). The by-products of fermentation support health by promoting good levels of blood glucose and plasma lipids, promoting healthy immune function, increasing calcium absorption, and promoting the proper digestion of food. They also help encourage good stool habits and reduce the risk of certain bowel diseases, like colon cancer and inflammatory bowel disorders.

Digestion: This is the process by which foods are broken down into smaller sub-units or components, which can be absorbed into the body through the gastrointestinal tract.

Digestible carbohydrates: Digestible carbohydrates are carbohydrates that are capable of being broken down in the gastrointestinal tract prior to the colon by acids and digestive enzymes resulting in small nutritional components capable of being absorbed into the blood stream where they can be further processed and utilized by the body.

Glucose: This is the scientific name for the simple sugar that is a primary component of complex or long chain carbohydrates such as starch. The digestion of complex carbohydrates produces glucose, which is absorbed into the blood stream where it is commonly referred to as blood sugar. It is also known as dextrose or grape sugar. Glucose acts as the body's primary, short-term energy source.

Glycemic index: Glycemic index (GI) is a measure of the effect of the consumption of food on blood glucose levels. It ranks the blood glucose response of a food on a scale of 0-100. Typically high glycemic foods are those that are 70+, while low glycemic foods have a GI of less than 55.

Glycemic load: Glycemic load (GL) is a measure of the quantity of digestible carbohydrate in a product serving or in a specified amount of product that is measured by multiplying the Glycemic Index (GI) times the carbohydrate content of the food in grams and then dividing by 100. Each unit of GL represents the glucose raising effect of 1 gram of glucose or white bread, depending on which control is used in the determination of the GI.

Glycosylation: Glycosylation is the process of adding sugar units to proteins. This occurs more rapidly in the body when blood glucose levels are not tightly controlled. High blood glucose levels for long periods of time can cause glycosylation, which can damage organ function and ultimately shorten life span and impair body functions of the diabetic. The HbA1c test can monitor the potential for this process to occur.

Insulin: This is a hormone (protein) made by the pancreas, which promotes the utilization of sugar by the body. It is required to help move blood glucose from the blood to the cells to be used for energy.

Inulin: Inulin, unlike insulin, is a naturally-occurring, plant storage non-digestible carbohydrate found in over 36,000 plants worldwide. It helps control insulin levels in the body. Inulin naturally occurs in cereal grains, onions, asparagus, tomatoes, bananas, raisins, garlic and many other commonly consumed plants. Unlike normal starch, it is not digested by the body, but is used as preferred food (dietary fiber) by a select group of health-promoting bacteria called lactic-acid producing bacteria (bifidobacteria and lactobacilli); the same bacteria as those found as active cultures in many yogurts and fermented dairy products. These bacteria grow and produce fermentation products to help support a healthy immune system, modulate glucose and lipid metabolism in the liver, help improve calcium absorption, and help keep the colon functioning properly for recycling of water and electrolytes.

Net carbs: This is a rough estimate of a food's glycemic load or digestible carbohydrate content. They are not the result of testing an individual, but rather are arrived at by summing the estimated digestible carbohydrate content of a food's individual components. Non-digestible carbohydrates: These are carbohydrates that are not capable of being digested in the gastrointestinal tract; however, they often can be fermented in the colon. They are not broken down to any extent by stomach acid or digestive enzymes. They proceed on through the digestive system and reach the large intestine where they are acted upon by resident microorganisms. Dietary fiber fits into this category.

Pasta: Pasta is a general term for a shaped and dried dough made from flour and water. Most American dry pasta is made with durum wheat semolina. Dreamfields pasta is made from only the highest quality durum wheat semolina. For more helpful information on pasta, such as history, manufacturing, shapes, recipes, etc., follow the link to the National Pasta Association website at www.ilovepasta.org.

Pectin: Pectin is a food gum and dietary fiber that is present in many fruits and is used as a gelling agent or thickening agent for pourable salad dressings, sauces, gravies, pastry fillings, puddings, several dairy products, and fruit juices.

Protected carbohydrates or "resistant starch": These are carbohydrates that resist being digested particularly in the small intestine. When they cannot be digested in the small intestine, they pass to the colon where they perform as dietary fiber. They may occur naturally, be created by chemically modifying carbohydrates prior to ingestion or achieve resistance through properly formulated foods being processed by the body. Resistant starches occur naturally at various levels in many foods, like cooked and cooled potatoes, unmilled grains, seeds, legumes, bananas, and high amylase starches. Most resistant starches are produced by concentrating naturally resistant starches and/or by chemically modifying carbohydrates in order to produce a starch with low digestibility. Dreamfields creates protected carbohydrates without chemical modification by utilizing combinations of standard food ingredients to "protect" digestible carbohydrates from being broken down by digestive enzymes. Carbohydrates resistant to digestion have been shown in scientific study to help control blood glucose, blood cholesterol and blood triglyceride levels, normalize insulin levels, and help improve the health of the colon lining, thus reducing the potential for ulcers and inflammatory diseases of the large intestine.

Sorbitol: Sorbitol is a bulk sweetener that is classified as a sugar alcohol or polyol. It is naturally present in many fruits, especially cherries and pears and some fermented beverages like cider. It is made commercially from glucose syrup derived from corn starch. However, while being derived from a digestible sugar (glucose), it is not processed by the body like a sugar. Sorbitol does not promote tooth decay and is slowly and only partially absorbed by the body, so it doesn't create a significant insulin response; thus it is used in sugar-free and diabetic applications. It has been safely used in processed foods for almost half a century. Sorbitol is typically used in food products as a low-calorie sugar replacer (almost one-half that of sugar), and to help protect against loss of moisture. Because it is slowly and only partially absorbed, much of the sweetener reaches the colon where the resident microflora use it for food and make products that can help benefit health, much like dietary fibers.

Xanthan gum: is a food gum with dietary fiber properties that was developed to perform as a thickening agent for pourable salad dressings, sauces and gravies, pastry fillings, puddings, dairy products, and fruit juices. Xanthan gum is made using a fermentation process that employs the bacterium *Xanthomonas campestris*. This organism utilizes sugars, like corn glucose to produce the gum. It is not digested by the body, but reaches the colon intact where it is used for food by resident microflora that produce products of the fermentation process that help reduce cholesterol and smooth fluctuations in blood glucose, and help maintain the health of the large intestine (colon). Xanthan gum is a widely used and approved food ingredient.