



Carbohydrate Basics

Carbohydrates have a number of important functions, and eliminating them from the diet can have serious health consequences.

Functions of Carbohydrates

Carbohydrates are the body's primary fuel source. The body processes carbohydrates into glucose. Glucose travels through the bloodstream and is stored in the liver and muscles until it is used for energy. The muscles prefer carbohydrates, and the brain requires them. Americans are currently advised to consume at least 14 grams of carbohydrates per 1000 calories.

In fact, carbohydrates are so crucial to the body that if you severely restrict or eliminate them, your body will begin to make them! The problem is that it will do that by breaking down muscle and other protein-containing tissues, such as your heart and other vital organs (a process known as "gluconeogenesis").

Types of Carbohydrate

Carbohydrates are broadly classified as simple or complex, based on chemical structure.

Simple carbohydrates, as their name implies, have a simple chemical structure consisting of one or two molecules. Examples include the monosaccharides – glucose, fructose, galactose – and the disaccharides – sucrose, lactose, and maltose.

Complex carbohydrates, such as starch, glycogen and fiber, have a more complex chemical structure, containing two or more molecules linked together.

Fiber is a unique type of carbohydrate. It is not digested or absorbed, so—unlike other carbohydrates – it does not give the body energy. Fiber is found only in plant foods: fruits, vegetables, nuts and seeds. One good source of fiber is a medium potato eaten with the skin (3 grams);

meats, poultry, fish, eggs, fats and oils have no fiber. Health benefits of fiber include:

- Lowers blood cholesterol levels and may decrease risk of heart disease
- Maintains bowel regularity
- May aid in weight loss

Carbohydrates for Health

The 2005 Dietary Guidelines for Americans recommends choosing fruits, vegetables and whole grains often, while staying within energy needs, for health (1). These foods, as well as dairy products, provide carbohydrate as well as protein. Below is a list of the carbohydrate content of some common foods:

Food	Carbohydrate (grams) ^{2,3}
Banana (1 medium)	30
Orange (1 medium)	19
Broccoli (1 medium stalk)	8
Potato (1 medium)	26
Wheat bread (2 slices)	24
Brown rice (1/2 cup)	23
Nonfat milk (1 cup)	12

Some people hold the misconception that they need to cut down on carbohydrates to manage body weight. But mainstream science advises that excess calories are to blame for weight gain, regardless of what foods they come from. Those calories come from three sources: carbohydrates, proteins and fats. Fats contain the most -- 9 calories per gram; protein and carbohydrates each contain 4 calories per gram.

Depriving yourself of carbohydrate from vegetables, like potatoes, denies your body of essential nutrients. One medium-sized potato, for example, contains zero fat and cholesterol for a satisfying 110 calories. Eaten with the skin, the potato is an excellent source of vitamin C and a good source of potassium and vitamin B6.

Practice common sense when selecting carbohydrate foods. Foods from all macronutrient categories are welcome in a healthy eating plan – so long as portion sizes match the body's needs. Carbohydrate is required for meeting the energy demands of daily life and to fuel physical activity, an essential component of a healthy lifestyle.

- 1) Department of Health and Human Services/US Department of Agriculture. Dietary Guidelines for Americans 2005. Available at: <http://www.health.gov/dietaryguidelines/dga2005/document/>. Accessed January 25, 2007.
- 2) US Department of Agriculture, Agricultural Research Service, 2006. USDA Nutrient Database for Standard Reference, Release 19. Nutrient Data Laboratory homepage www.nal.usda.gov/fnic/foodcomp
- 3) Department of Health and Human Services. Food and Drug Administration. 21 CFR Part 101. Docket No. 2001N-0548. Food Labeling; Guidelines for voluntary nutrition labeling of raw fruits, vegetables, and fish; correction. Federal Register Vol. 71, No. 159, Aug. 17, 2006.

For healthy recipes and nutrition information, go to: www.potatogoodness.com .

