



Grains of truth about CARBOHYDRATES

Definitions

There are two kinds of carbohydrates: simple and complex.

Simple carbohydrates require little digestion and thus are a quick energy source. Fruits, fruit juices and milk contain simple sugars (carbohydrates) that provide valuable nutrients in addition to an energy boost. Candies, table sugar, alcoholic beverages and sweetened soft drinks are simple sugar sources that provide calories, but usually no nutrients.

Complex carbohydrates are found in grains, some vegetables and legumes. They are starches and require more digestion than simple carbohydrates. Rich in B-vitamins, fiber and iron, complex carbohydrates from grains are the body's best source of energy because they are burned in a constant, time-released manner. They provide sustained energy for athletic events and can help manage blood sugar irregularities. The fiber found in complex carbohydrates, fruits and vegetables can help lower blood cholesterol in some people when eaten as part of a low-fat diet.

Daily consumption

Although there is no Recommended Dietary Allowance (RDA) for carbohydrates, most nutrition authorities recommend that carbohydrates comprise at least 45 percent—and up to 70 percent—of a person's daily calories. In contrast, most Americans average only 50 percent of their daily calories from carbohydrates.

Americans can meet their carbohydrate goals by eating five to ten ounces of bread, cereal, rice or pasta (depending on age, gender and activity level), with half of them coming from whole grains, daily as recommended by the sixth edition of the "Dietary Guidelines for American"



Sports performance

Athletes should eat 60 to 70 percent of their total calories in the form of carbohydrates, which are stored as glycogen in the muscles and then used as a source of energy. High glycogen stores are essential for endurance sports. Regular inclusion of complex carbohydrates foods such as bread, cereals, pasta, corn and potatoes will supply sustained energy for most athletic events.

Weight control

Why are Americans getting fatter on a low-fat, high carbohydrate diet? We're not. Because we are not eating less fat; we are eating the same number of grams of fat as we did 20 years ago, and about 300 to 500 extra calories per day. Therefore, the *percentage* of fat calories has gone down but only because total calories have gone up.

| | % Calories from fat | Total calories | Calories from fat |
|------|---------------------|----------------|-------------------|
| 1978 | 36 | 1969 | 709 |
| 2001 | 35 | 2000 | 748 |

Source: USDA, NHANES III

Complex carbohydrates foods play an important role in weight control because they are usually low in calories and fat and high in dietary fiber which creates a full feeling, and may help discourage over-consumption of higher caloric foods.

Contrary to the recent resurgence of high-protein-diet claims, both controlled, peer-reviewed studies & epidemiological data show that high carbohydrate diets are best for weight control. High protein diets promise that "magic bullet" that dieters are always looking for. Unfortunately, these diets have not been shown to be either safe or effective long term.

Diabetes

Carbohydrates are crucial to managing diabetes and high blood sugar. Under medical supervision, persons with diabetes who follow a diet high in complex carbohydrates and fiber often have better blood sugar control. Many are able to reduce or eliminate their need for drugs or insulin for non-insulin dependent diabetes.

Heart disease

A diet high in fiber and complex carbohydrates may be beneficial in lowering blood cholesterol. The soluble fiber in oats, legumes, fruits, vegetables and some grains is effective in lowering blood cholesterol, which reduces the risk of heart disease.

A high-carbohydrate, low-fat diet

The following meal pattern contains about 2,100 calories, 59 percent of them from carbohydrates and only 17 percent from fats. This meal plan also provides 29 grams of dietary fiber (20 to 38 grams are recommended daily).

Breakfast

- 1 orange
- 1 ½ ounces wheat flakes cereal with ½ cup skim milk and 1 teaspoon sugar
- 1 cup skim milk
- Coffee (optional)

Lunch

- 1 ham sandwich made with 2 ounces lean ham, 2 slices whole wheat bread
- 1 cup vegetable soup
- 1 cup skim milk

Snack

- 1 bagel with 1 teaspoon jelly
- 1 ounce low-fat mozzarella cheese, melted on 1 wheat tortilla
- 1 cup skim milk

Dinner

- 3 ounces lean beef
- 1 cup pasta and vegetable salad
- 1 cup broccoli, seasoned with spices
- 1 whole wheat dinner roll with 1 teaspoon butter
- 1 slice angel food cake with 1 cup fresh strawberries

Revised 2005



High-carbohydrate foods

| <u>FOOD</u> | <u>% of Calories from Carbohydrates</u> |
|---|---|
| <u>GRAINS</u> | |
| All-bran cereal | 80 |
| Angel food cake | 89 |
| Bagel | 79 |
| Banana nut bread | 55 |
| Biscuit | 61 |
| Bulgur | 84 |
| Cheese pizza | 53 |
| Cheerios cereal | 70 |
| Corn flakes | 91 |
| Cream of Wheat | 85 |
| English muffin | 79 |
| French bread | 78 |
| Graham cracker | 72 |
| Pancake | 58 |
| Pasta | 82 |
| Pita bread | 80 |
| Raisin bread pudding | 56 |
| Rice, white | 89 |
| Saltine cracker | 67 |
| Shredded wheat cereal | 83 |
| Wheaties cereal | 86 |
| Wheat tortilla | 69 |
| White bread | 76 |
| Whole wheat bread | 73 |
| <u>FRUITS</u> | |
| Apple – 1 medium | 94 |
| Banana – 1 small | 92 |
| Bing Cherries – ½ cup | 83 |
| Cantaloupe – ½ of medium size | 92 |
| Orange – 1 medium | 91 |
| Peach – 1 medium | 92 |
| Strawberries – sliced ½ cup | 83 |
| <u>VEGETABLES</u> | |
| Broccoli – ½ cup | 57 |
| Carrots – ½ cup sliced | 87 |
| Green Beans – ½ cup | 78 |
| New Potatoes – ½ cup | 93 |
| Squash – ½ cup | 73 |
| Sweet Peas – ½ cup | 75 |
| Sweet Potatoes – ½ cup mashed | 91 |
| Menu/food analysis from ESHA Corp., "Food Processor," nutrient analysis, 2000. | |

Wheat Foods

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