

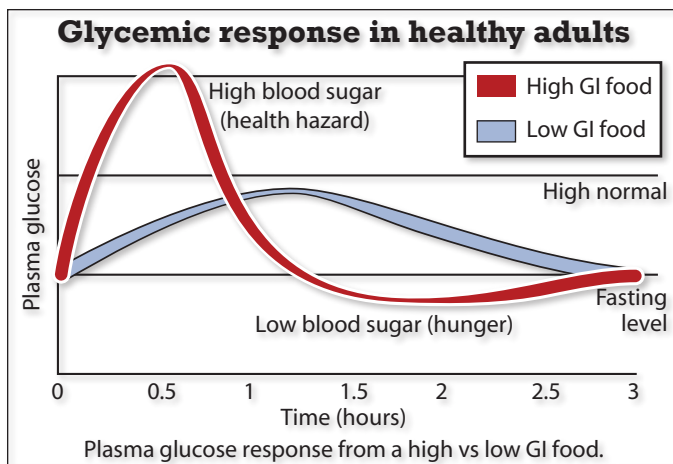
Glycemic Index



What You Need to Know

Carbohydrates are the primary source of calories in the American diet. Recent research indicates that choosing healthy carbohydrates is as essential for good health as choosing healthy fats. Traditionally, the effect of carbohydrates on health was evaluated by whether it was a simple carbohydrate (sugar) or complex (starch). Sugars were bad. Complex carbohydrates were good.

Researchers observed, however, that blood sugar levels were similar if people were fed similar energy intakes of table sugar, wheat starch (white bread), or potatoes. The first is a simple carbohydrate, the last two are complex carbohydrates, but they all caused a rapid rise in blood sugar and insulin levels which is associated with increased risk of heart disease, obesity, and diabetes. A better system was needed for evaluating the effect of carbohydrates on blood sugar levels.

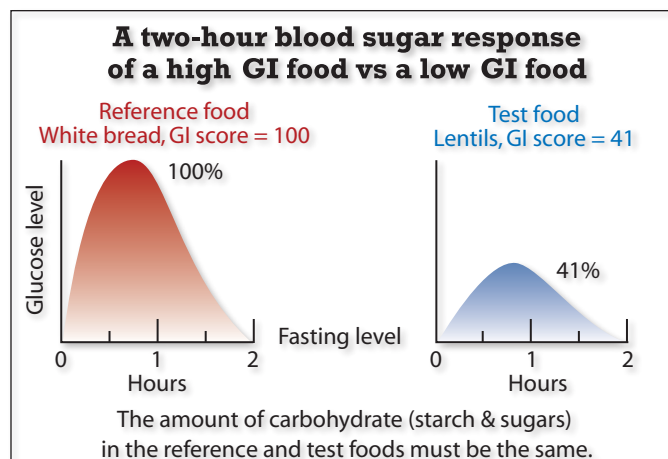


Glycemic Index or GI is a way of evaluating the effect of all carbohydrates on blood sugar levels. It's determined by:

1. Feeding several people 50 grams of carbohydrate from a specific food,
2. Measuring its effect on blood sugar levels, and then
3. Comparing the rise in blood sugar with an equal amount of carbohydrate from glucose (or white bread) fed to the same people on another day.

People dislike eating 50 grams of glucose so most tests are now compared with 50 grams of carbohydrate from white bread. Using this standard, white bread has a GI of 100.

The chart to the right illustrates this process. Each food must be tested to know its GI.



High GI foods have a GI of 100 or higher.

They raise insulin levels, causing blood sugar to fall quickly which results in hunger and desire to eat. In the Nurses' Health Study, women who had a high intake of high GI



foods were twice as likely to have a heart attack as women eating mostly low GI foods. They were also more likely to develop diabetes. Examples include soft drinks, sweets, white bread, pastry, white rice, corn chips, most snack foods, and French fries.

Low GI foods have a GI less than 80.

They are more healthful and help control your appetite – blood sugar levels are more stable and you are not as likely to get hungry so soon. Examples include low starch vegetables, most fresh fruits, whole grain, sprouted wheat breads, brown rice, nuts, legumes/beans including soy, and milk.



When choosing healthy carbohydrates,

it's helpful to know a food's GI. Other factors to consider include:

- **How much dietary fiber does the food have?** Generally, the higher the fiber content, the lower the GI (brown rice, peas, beans, soy, cabbage).
- **How refined is the food?** Generally, the more refined the food is, the higher the GI (e.g. white bread, table sugar, soft drinks, white rice).
- **How processed is the food?** The more processed, finely ground, or precooked the food is, the faster it is absorbed and the higher the GI. For example, steel-cut oat kernels are a low GI food, but instant oats and ready-to-eat oat cereal made from oat flour are rapidly absorbed and are high GI foods.

Summary

Eating a few high GI foods occasionally is not a problem. The problem comes when people choose most of their daily carbohydrates from high GI foods such as white bread, white rice, sweetened drinks, chips, and French fries.

For best health, choose primarily unrefined, whole carbohydrate foods such as brown rice, beans, peas, apples, oranges, salads, soy burger, lentils, sprouted-wheat bread, steel-cut oats, nuts, and other low GI foods.

Glycemic Index of Common Foods

Use this chart to become familiar with the glycemic index (GI) of common foods. The GI¹ is shown in parentheses by each food.



High GI* foods (100+)

Glucose, Dates	(143)	(164)	Tofu frozen dessert
French bread	(136)	(142)	Fruit leather
White rice, Corn chips	(125)	(130)	Corn flakes
Potato (mashed)	(119)	(121)	Pretzels
Rice cakes, Cocoa puffed cereal	(110)	(112)	Jellybean candy
Donut	(108)	(109)	Waffles made with white flour
Soda crackers, Cheerios®	(106)	(107)	French fries
Toaster pastries, White bread	(100)	(103)	Bagel, Watermelon

Glycemic Index

100+ High GI foods
80-99 Moderately high
<80 Low GI foods

Moderately high GI foods (80-99)

Instant oatmeal	(94)	(99)	Whole-wheat bread (finely ground flour, soft)
Fruit canned in syrup	(91)	(92)	Table sugar
Muffin (typical)	(84)	(87)	Ice cream
		(81)	Fruit drink



Low GI foods (<80)

Sweet potato, Sweet corn-on-the-cob	(77)	(79)	Brown rice
Steel-cut oats, Banana, Kiwi, Orange juice	(74)	(76)	Stone-ground or sprouted whole wheat bread
Grapefruit juice (unsweetened)	(69)	(70)	Carrots, Old-fashioned oatmeal
Pasta	(64)	(66)	Grapes
Peach, Chickpeas	(60)	(63)	Orange
Pinto beans, Navy beans	(55)	(57)	Strawberries, Apple juice (unsweetened)
Low-fat milk	(46)	(54)	Apple, Pear (fresh)
Prunes, Lentils	(41)	(44)	Soymilk
Cherries	(32)	(36)	Grapefruit, Barley
Broccoli, Cabbage, Greens, Cauliflower, Summer squash, Peppers	(20)	(26)	Soybeans, Peanuts



*GI values are based on a white bread standard. To convert to a glucose standard, multiply by 0.7.

Low glycemic index foods help²:

- Reduce hunger – keep you feeling full longer
- Prevent weight gain
- Increase the body's sensitivity to insulin
- Improve blood sugar control
- Reduce the risk of diabetes
- Reduce the risk of heart disease
- Prolong physical endurance
- Prevent low blood sugar symptoms