

# Glycemic Index and Glycemic Load

## What is the glycemic index?

The glycemic index (GI) is a tool to measure how individual foods are expected to impact blood sugar levels.

## What does the number mean?

The number is a comparison between individual foods and a sugar called glucose. Glucose is given a value of 100. If the test food is assigned a value below 100, that food is expected to impact your blood sugar less than glucose. If the test food is assigned a value over 100, that food is expected to impact your blood sugar more than glucose.

## Who may be interested in the glycemic index?

- People who have diabetes may use GI values as an additional tool for managing blood sugar levels.
- GI values can also be used when treating reactive hypoglycemia.
- Studies have shown that when eating low GI foods, people tend to snack less, which may be helpful in weight control as well as blood sugar control.

## What are the limitations of using glycemic index?

- Glycemic index values were determined in studies where volunteers ate portions containing 50 grams of carbohydrate of each test food. However, 50 grams of carbohydrate isn't necessarily a usual portion size. For example, 50 grams of carbohydrate from popcorn is ten cups popped, while 50 grams of carbohydrate from white rice is about one cup cooked.
- There is a wide variation in values assigned to the same food. One source may say a russet potato has a GI of 56 and another source may say the GI is 111.
- GI values can vary depending on the ripeness of the food, the degree of processing, and the cooking method.
- Glycemic index values measured the effect of a test food when that food was eaten alone. Most meals contain a variety of foods in combination. The glycemic effect of a food changes when it is combined with other foods. For example, fat delays digestion.
- The effect of food on blood sugar can vary from person to person. Blood sugar levels are also affected by activity, exercise, hormones, and medications.
- A lower GI value does not necessarily mean the food is a better choice. For example, a chocolate candy bar and 1 cup of brown rice may both have a GI of 55, but the overall nutritional value is very different.

## What is the glycemic load?

The glycemic load (GL) is an equation that takes into account the planned *portion size* of a food as well as the glycemic index of that food. **Glycemic Load = GI/100 multiplied by the net grams of planned carbohydrate** (net carbohydrate is the total grams of carbohydrate minus the dietary fiber). In theory, a large amount of a low GI food may increase your blood sugar as much as a small amount of a high GI food.

Food	Glycemic <i>Index</i>	Serving Size	Glycemic <i>Load</i>
Peanuts	14	¼ cup	1
Grapefruit	25	½ large	1.4
Kidney beans	28	1 cup	7
Cheese pizza	30	2 slices	5.1
Skim milk	32	1 cup (8 oz)	4
Lowfat yogurt (plain)	33	1 cup	10.2
Apple, raw	38	1 medium	6
Pear, raw	38	1 medium	4
All Bran cereal	38	1 cup	9
Spaghetti (white, boiled 5 minutes)	38	1 cup	15
Spaghetti (white, boiled 15 minutes)	44	1 cup	18
Orange, fresh	48	1 medium	4.4
Banana, fresh	52	1 large	12.4
Snickers candy bar	55	1 bar	22.1
Honey	55	1 Tbsp	11.9
Brown rice (boiled)	55	1 cup	18
Oatmeal (cooked)	58	1 cup	11.7
Raisins	64	2 Tbsp	27.3
White rice (boiled)	64	1 cup	23
White table sugar	68	2 tsp	7
Popcorn (air popped, plain)	72	2 cups	5.7
Watermelon	72	2 cups	4.3
White bread	73	1 slice	10
Doughnut	76	1 medium	17
Russet potato (baked)	76	1 medium	23
Rice cakes	78	3 cakes	17
Jelly beans	78	10 large	22
Corn Flakes	81	1 cup	21
Carrots, boiled	92	½ cup	3.9

Sources: Linus Pauling Institute, Oregon State University, 2005

<http://www.glycemicindex.com/>

Key	Low	Medium	High
<b>Glycemic Index</b>	55 or less	56 - 69	70 or higher
<b>Glycemic Load</b>	10 or less	11 - 19	20 or higher

### Tips for using the Glycemic Index and Glycemic Load:

- Eat more fruits and vegetables.
- Choose higher fiber foods and more whole grains.
- Keep in mind, liquids digest quickly and raise blood sugar levels faster than solids. For example, sugar sweetened beverages and even natural fruit juices can rapidly raise blood sugar levels.
- Limit high fat, lower GI foods (like chocolate bars)!