

Glycemic Index

Compiled by Tere Griffin (griffin@cam.nist.gov) - with the assistance of Rick Mendosa (mendosa@rain.org) and David Kehoe (kehoe@netcom.com).

Introduction:

- What is Glycemic index (GI)?

It is a measure of how fast the carbohydrate of a particular food is converted to glucose and enters the blood. The numbers are percentages with respect to a reference food. In this list, they are given with respect to white bread.

- How is GI determined?

Basically, test foods are fed to various people, some with diabetes, others without, in portions that contain 50 grams of available carbohydrates. The blood sugar levels are carefully and periodically monitored over the next three hours and the response curve plotted. The response to the reference food is tested at least three times and the results averaged.

Next, the area under the response curve for the test food is expressed as a percent of the mean value for the reference food for the same subject. Finally, these percentages from each subject are averaged together to obtain the GI for that food.

For more information, see Wolever, Thomas M.S. et al. "The Glycemic Index: Methodology and Clinical Implications," listed in the bibliography below.

- What does it all mean?

The more glucose that reaches the blood in the first three hours, the higher the GI. Since the reference food is bread, numbers greater than 100 tend to raise the blood glucose (bG) faster than white bread, and numbers less than 100 are slower than white bread. A food is generally considered to have a high GI if it is greater than 69 (1/2 of the value of glucose).

- Are there any shortcomings to GI?

Yes, there are. Glucose response to a particular food is highly individual. There are significant differences in response from person to person. Also, combinations of foods can produce unexpected results. In addition, how the food is prepared can have an effect on the GI. So, it is probably a good idea to carefully watch your own bG after eating foods and determine if they have high or low GI *for you*.

Also, GI should *not* be the only criterion by which foods are selected. Other considerations such as fat, protein, carbohydrate, and other nutritional content *must* be considered and fit to your specific dietary needs.

So, the idea of Glycemic Index is a very useful one, but these numbers should be used as very broad, general guidelines. If you find a specific food produces an unexpected result, either high or low, take note of it and incorporate that into your meal planning.

Also note that the numbers may vary slightly from study to study. This may be due to variations in the individuals of a particular study and slightly different methods.