

Glycemic Index and Glycemic Load: Pros and Cons

The glycemic index is a system for classifying foods. It quantifies how much 50 grams of a carbohydrate-containing food, when eaten by itself, will cause blood sugar to rise during the first two hours after eating. The more the blood sugar rises, the higher is the food's "glycemic index." A glycemic index of 70 or more is considered high while a glycemic index of 55 or less is considered low.

The glycemic load is a food-classifying method that takes into consideration not only the glycemic index but also the amount of carbohydrates in a typical serving size of a food. A glycemic load of 20 or more is considered high and a glycemic load of 10 or less is considered low. Low glycemic index foods also have a low glycemic load. However, other foods range from low to high in their glycemic load, depending on the amount typically eaten and the carbohydrate content (see chart). For example, while carrots have a high glycemic index, their glycemic load is low.

Choosing low glycemic index or low glycemic load foods is not the best way to select a health-promoting diet, since neither reflects

the whole nutrition picture. For example, they do not give any indication of the amount of saturated or trans fat, the quality of the protein, or levels of vital nutrients.

A food's glycemic index changes when one eats more than one food at a time, which is usually the case at mealtime. Many other factors affect one's glycemic response.

While sucrose, premium ice creams and soft drinks, for instance, are low or moderate glycemic index foods (see chart), they have few to none of the essential vitamins, minerals, fiber, antioxidants and phytochemicals recommended for good health. On the other hand, some foods that are high in vitamins, fiber, minerals and antioxidants also have a high glycemic index, for example, popcorn, bran flakes, shredded wheat and carrots.

Nutrition and health are more complicated than either of these two systems for categorizing foods would suggest.

Rather than looking at the glycemic index of foods, available research shows that a more effective intervention for normalizing blood

sugars in people with diabetes is to count the total amount of carbohydrates in each meal or snack.

The glycemic index may be helpful for achieving small adjustments to blood sugars for

those individuals with diabetes who know which foods contain carbohydrates, portion sizes, and how many servings to select for meals and snacks, but the data reveal no clear trend in outcome benefits.

Examples of Glycemic Index and Glycemic Load, based on glucose = 100

<u>Food Examples</u>	<u>Glycemic Index</u>	<u>Glycemic Load</u>
Premium ice cream	38 low	3 low
Cola soft drink	63 medium	16 medium
Sucrose	68 medium	7 low
Popcorn	72 high	8 low
Bran flakes cereal	74 high	13 medium
Shredded wheat cereal	75 high	15 medium
Carrots	92 high	5 low

References:

- American Diabetes Association Position Statement: Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. 2003. *Diabetes Care* 26(1):S51-S61.
- Foster-Powell et al. 2002. International table of glycemic index and glycemic load values: 2002. *American J. Clinical Nutrition* 76:5-56.

Information in this fact sheet, *Glycemic Index and Glycemic Load: Pros and Cons*, is for educational purposes only. Follow the advice of your health care professional. For more information about healthy eating, contact your local extension office. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Mary Meck Higgins, Ph.D., R.D., L.D., CDE, Associate Professor, Department of Human Nutrition, **Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Manhattan, KS**. First published in the Nutrition Spotlight 8(2), June/July 2004. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied, of similar products not mentioned. K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture cooperating. Fred A. Cholick, Director.