

Nutrition: Glucose / Book Review

Book review by Sandy Bjerkness, RD, LD, CDE, a dietitian and diabetes educator at Olmsted Medical Center

The Glucose Revolution: The Authoritative Guide to The Glycemic Index

by Jennie Brand-Miller, Thomas M.S. Wolever, Stephen Colagiuri, Kaye Foster-Powell
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Carbohydrate takes the 1999 award as the most picked-on nutrient for weight loss. The term, carbohydrate, is often referred to as starch or sugar. High carbohydrate foods include bread, cereals, vegetables, fruit, milk and sweets. The Glucose Revolution puts a different twist onto the carbohydrate theme so well known this past year.

The thesis of the book states that carbohydrate foods are classified according to how quickly they raise blood glucose (also known as blood sugar). The glycemic index classifies carbohydrate containing foods according to how each raises blood glucose levels compared to pure glucose.

The authors recommend eating more low glycemic index foods to lose weight, improve diabetes and heart disease. They suggest altering the glycemic index of foods for athletic performance depending on when the energy is needed. Use the high glycemic index foods if energy is needed sooner and low glycemic index foods if the energy is needed much later.

Carbohydrate foods that break down quickly during digestion have the highest glycemic index values because they raise the glucose level in the bloodstream rapidly. On the other hand, those carbohydrate foods which break down slowly release glucose more gradually into the bloodstream resulting in a lower glycemic index. The substance which produces the greatest rise in blood sugar level is pure glucose with a glycemic index rating of 100. Other food is ranked on a scale of 0 to 100 according to its effect on blood sugar levels. Below is a table listing a few foods with glycemic index ratings:

Food Item	Glycemic Index
Glucose	100
Baked potato	93
Com flakes	84
VvUte bread	70
AR Bran with extra fiber	51
Chocolate	49
Spaghetti	41
Skim milk	32
Kidney beans	27
Grapefruit	25
Peanuts	14

As you can see, baked potatoes have a very high glycemic index value affecting the blood glucose almost as much as pure glucose. Low glycemic index foods such as kidney beans would result in a flatter blood sugar response.

There are a number of factors which influence a food's glycemic index. One hypothesis is the nutrient make up of a food affects it's glycemic index. Protein and fat tend to digest more slowly and result in lower glycemic response. Since the chocolate and peanuts are high in fat content, that may be the reason behind their lower numbers. Other factors may include certain types of dietary fiber or the presence of a fibrous coating (as in the kidney beans) causing a lower glycemic response. Additionally, acid and amylose content, and the degree of starch gelatinization are other elements that may effect the glycemic index of a food. As you can see, the material becomes quite complex.

One major downfall is that the authors focused almost exclusively on the glyceinic effect of carbohydrate containing foods. Little information was given on the glycemic response to eating meals containing a combination of protein, carbohydrate and fat. As stated above, this interplay could affect the release of glucose into the blood stream. This is a major flaw to the thesis since we generally eat mixed meals. The relationship between diet and health cannot be oversimplified in that manner.

As with many "hot off the press" diet books that whisper the idea you might lose weight, this book was impossible for local bookstores to keep on the shelves for part of 1999. Many people have purchased *The Glucose Revolution* for it's weight loss claim. The low glycemic foods may be more filling since they are digested slowly. Yet a simple truth remains, which is energy output (physical activity) needs to exceed energy intake (food calories) for weight loss to occur.

One benefit of the book is the recommendation to choose low fat, high fiber foods as well as plenty of fruit and vegetables. Scientific studies verify these are important weight management strategies. They can also help to manage diabetes and reduce risk for heart disease.

The second half of the volume assists the reader in putting the dietary guidelines into practice. There are 61 recipes which are fairly quick and simple to prepare. Along with each recipe is nutrition information on the amount of calories, fat, carbohydrate, fiber, and the glycemic index per serving. There are suggestions on how to stock the pantry, refrigerator and freezer with low glycemic index foods. Finally, a listing of references from well respected publications on glycemic index can provide you with more information on the subject.

The information in the book is interesting, and might be useful for a small percentage of people. If you have diabetes, be sure to talk to your registered dietitian or health care provider before making major dietary changes. Since the book encourages healthful eating, individuals following this eating plan should do themselves no harm; unlike the high-protein, low carbohydrate fad diets.

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