



Medical Bariatrics of Lexington

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"It's time now"

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The Glycemic Index

With the rising epidemic of obesity and obesity related medical conditions such as high blood pressure, elevated cholesterol levels, heart disease, and even diabetes, many of us are constantly looking for new ways to lose weight and fight hunger. Often hunger is triggered from rapidly rising and rapidly falling levels of blood sugar (glucose) from the foods we choose to eat. This has led researchers to examine various foods to see which ones tend to cause more of a dramatic rise and fall of blood sugar and insulin levels causing earlier hunger, fatigue, poor food absorption balance, and widely varied glucose levels that can be even more dangerous in diabetics. Some foods they have found do not tend to have this peak to blood sugar levels but are broken down more evenly which may lead to less hunger and better controlled glucose levels.

Thus, the glycemic index (GI) is a scale (0-100) that ranks carbohydrate foods by how much they raise blood glucose levels compared to a standard food. Lower GI rating foods are felt to be harder to digest, so there is less of a glucose spike and better baseline control from a gradual glucose release. Eating foods with a low GI may help to control blood glucose levels, control cholesterol levels, control appetite, increase energy, prolong physical endurance, decrease the risk of heart disease, and even decrease the risk of obtaining diabetes. Low GI foods increase the body's sensitivity to insulin thus improving medical conditions such as the metabolic syndrome, polycystic ovarian syndrome, and diabetes. Lowering insulin levels is an essential part of weight loss and long-term health.

There are several factors that influence a food's glycemic index. The first is the type of starch in the food. Amylose is a starch that consists of tight molecules that are harder to digest, so lead to a lower GI rating. Amylopectin starch, however is a more open molecule that is easier to digest, thus giving it a higher GI rating. Cooking style and processing also affects the glycemic index. Cooking swells and softens the starch molecules making it easier to digest and increasing the GI rating. For example, boiled spaghetti for 5 minutes has a GI = 34, whereas boiling it for 10 minutes increases the rating to 40. Highly processed foods (such as cornflakes with a GI of 86) are digested faster so has a higher GI rating compared to less processed foods such as oatmeal with a GI of 49. Also, the higher the acid content, the slower the digestion, and lower the GI index. Foods high in protein slow the rate of stomach emptying slowing down digestion and thus have a lower GI index. However, be careful with only choosing low GI foods because foods higher in fat are also harder to digest, so have a lower GI rating. (A baked potato has a GI of 93 versus potato chips with a GI of 75.) It is best to choose foods lower in fat content and having a low GI index.

Understanding that the glycemic index clues us into the type of carbohydrate and how potentially it could raise the blood glucose levels is important to know, however it does not tell us how much carbohydrate is in a food. The **glycemic load** tells us the actual effect on blood glucose by looking at the GI and the quantity of carbohydrates in the food.

For example, some vegetables have a higher GI but should not be avoided because they are low in carbohydrates. So, despite their high GI, their GL (GI x carbs per serving divided by 100) is actually low. They also have micronutrients, so eat lots of them. Note also that you will likely not find the GI for foods like beef, chicken, fish, eggs, nuts, many fruits, wine, and some vegetables because they contain no or little carbohydrates. These foods alone don't have much effect on your blood glucose levels.

So, what's the final thing to remember? Include at least one low GI food per meal. Have vegetables, fruits, low fat meats, and low fat milk with your meals. Plan menus with low GI food choices. Instead of high GI breads and cereals, switch to lower GI alternatives like breads with whole grains, stone-ground flour, and sour dough. Don't forget to limit sweets, salt, fatty foods, increase fiber, eat at regular times, and eat at least two hours before sleeping. For the complete glycemic index database, go www.glycemicindex.com or www.diabetes.about.com/library/mendozagi/ngilists.htm. ■