Not all Carbohydrates are Created Equal – a Look at the Glycemic Index
By Megan Dwyer

The Glycemic Index (or GI), created in 1981, places carbohydrates on a scale of 0-100 based on their effect on blood glucose levels. Glucose is the standard by which other carbohydrates are measured, and is set at 100 on the glycemic index. High GI foods, defined as those ranking 70 or greater on the GI scale, include foods like honey, Gatorade, Cheerios, and bagels. Moderate GI foods, identified as having a rating between 40 & 70 on the scale, include foods such as oatmeal, raisins, corn, and bananas. Milk, barley, fruit yogurt, and pears are low GI foods, and are measured at 40 or less by the Index. These foods, by definition, breakdown slowly in digestion, and therefore release free glucose into the bloodstream slowly and gradually, like a time-release capsule of energy.

Quality vs. Quantity

The glycemic index measures the quality of carbohydrates, not the quantity. More specifically, it measures the effect on blood glucose levels of a particular food. This ranking is determined by many factors, such as method of preparation, (e.g., boiling versus baking), which kind of starch it contains (amylose or amylopectin) how much fat is added to the food (ice cream versus a jellybean), etc.

Blood glucose levels are determined by both the quality and the quantity of ingested carbohydrate. While the GI measures the effect of foods on blood glucose levels in isolation, more often than not foods are consumed in combination. Therefore, a measurement called glycemic load (GL) is often more useful. Glycemic load measures the total effect of a particular meal on the body. To determine glycemic load, multiply the GI ranking of each food consumed by the number of grams of carbohydrate in each food serving and divide by 100. A typical diet has about 100 GL units per day. (The average diet ranges between 60-180 units).

Blood Glucose and Insulin

Why measure the effect of carbohydrates on blood glucose? When increases in blood glucose levels are detected, the pancreas secretes the hormone insulin. Most cells require the presence of insulin to be able to absorb the nutritional energy (glucose) from the blood. When a meal with a high glycemic load (>20 units) is consumed, large and fast spikes in insulin follow fast spikes in glucose levels. Research has shown that the insulin resistance found in Type II diabetes can be created and/or magnified by large fluctuations of this hormone within the body.

Low GI diets can help people lose weight because the slow continuous release of energy can keep an individual sated longer. Low GI diets can also help manage insulin sensitivity, and thus control diabetes. Suggestions for lowering the glycemic load include adding more fiber to the diet, including whole grains, fruits, vegetables, lentils and beans. Take note that although some vegetables appear to have a high GI, such as corn, these should still be eaten plentifully because these vegetables are very low in carbohydrate and it is the glycemic load (GI x grams of carbs) that really determines the glucose response of the body. Balance is the key. With regard to exercise, high-ranking GI foods are best consumed after a hard workout, when the body needs quick energy replenishment. Low ranking GI foods are best eaten before a workout, as they have been shown to prolong physical endurance.

Low-GI or Low Carbohydrate?

It is important to note that low GI diets are completely separate from, and have nothing to do with "low-carbohydrate" diet recommendations. Low-carbohydrate diets are unnecessarily restrictive, discouraging eating breads/rice/most fruits. When saturated fats and trans-fats take the place of carbohydrates, the health implications are negative. Both low-GI foods and the fatty foods in low-carbohydrate diets empty into the blood stream slowly and gradually, making the person feel fuller longer, and encouraging fat burning as the primary fuel. Choose your carbohydrate sources well, and you will not have to worry about the scale.

Even adding one low ranking GI carbohydrate to a meal can have health benefits. For example, exchange a high-GI breakfast cereal for one made from oats, barley, or bran. The sustained energy release of the low-GI breakfast makes over consumption at lunchtime far less likely. Another simple recommendation is to cook types of pasta that have a greater surface area (such as linguine instead of angel hair) and to cook them "al dente". Both methods are proven to slow down the release of glucose into the bloodstream, giving you a more level and sustained glycemic load.

With a little knowledge and planning, a wide variety of carbohydrate can and should be enjoyed. Excess weight is a result of excess calories, not excess carbohydrate. It is worth noting that the World Health Organization now recommends that terms like "simple and complex carbs", which have little nutritional significance and no correlation to high GI/low GI foods, be replaced with GI ranking symbols and total carbohydrate content. Use this new information to make educated nutritional choices. The result will be improved health and a varied and enjoyable diet.