Glycemic Index

What is it?

The *Glycemic Index* (GI) is a numerical system of measuring how fast carbohydrate triggers a rise in circulating blood sugar – the higher the number, the higher the blood sugar response.

Why is GI important?

When blood sugar rises, a hormone called *insulin* is released. Insulin carries blood sugar (as well as blood amino acids and fatty acids) into the body's cells where it can be either used immediately for energy or stored for later use. Insulin's actions bring blood sugar back down to normal.

When foods with very high GIs are eaten, blood sugar rises very quickly and insulin levels soar. This hyper-secretion of insulin may cause a rapid drop in blood sugar (*reactive hypoglycemia*), which can make you feel dizzy, shaky, tired, light-headed, and hungry for more sugar shortly after you've eaten!

People with *diabetes* or a pre-diabetic condition called *insulin resistance* are especially vulnerable to the negative effects of high GI foods because they already have high blood sugar and/or high insulin levels. Eating foods with high GIs further aggravate these unhealthful conditions. Chronically high blood sugar levels (as seen in diabetes) can eventually lead to heart disease, nerve damage, kidney failure, and blindness. Chronically high blood insulin levels (as seen in insulin resistance) are associated with increased appetite, sugar cravings, fat storage, difficulty losing weight, high blood triglycerides, high blood pressure, heart disease, and eventually diabetes.

When foods with a low to moderate GI are eaten, blood sugar levels rise and fall more slowly and steadily, and insulin release is blunted. As a result, you're likely to feel full longer after you've eaten, enjoy longer lasting energy, maintain steady blood sugar levels, and prevent the negative effects of excessive insulin in the blood.

Is it "bad" to eat high GI foods?

Not necessarily. Many foods with high GIs are loaded with nutrients and disease-fighting phytochemicals (i.e. watermelon, raisins, and some whole grain breakfast cereals like Cheerios and Shredded Wheat). Others may not be nutrient "powerhouses" but they sure taste good and provide an excellent source of carbohydrate energy.

Keep in mind that individual foods cannot be considered "good" or "bad." It's how you build your meals and structure your overall eating plan that counts. For instance, if you eat a high GI food (like a baked potato) with protein (like grilled chicken), fiber, and fat (like a spinach salad with an oil-based dressing), the overall glycemic effect of the meal is much lower. Protein, fiber, and fat all slow digestion and delay blood sugar release.

Also, remember that regular physical activity and maintaining a healthy weight improves insulin sensitivity so that your body can better handle high GI foods.

Are there certain times when it's "good" to eat high GI foods?

Yes! During and immediately after exercise, it's actually desirable to consume foods/beverages with high GIs. In these situations, you want "fast-acting" carbohydrates that raise blood sugar levels quickly. In addition, after exercise it's desirable to raise insulin levels as much as possible for optimal recovery. Insulin facilitates repletion of muscle carbohydrate (glycogen), decreases muscle protein breakdown, and increases muscle protein synthesis.

Bottom Line:

Most (but not all) high GI foods are highly processed carbohydrates (sugar and starch) with very little fiber and few nutrients. By choosing an eating plan that consists mostly of low to moderate GI foods (vegetables, whole fruits, minimally processed whole grains, legumes, nuts, lean protein rich foods, and heart healthy oils), you'll benefit from the extra nutrients and also enjoy long-lasting energy and better health. By staying active and maintaining a healthy weight, you can also include some high GI foods into your eating plan without fear of negative health effects. Immediately after exercise is a good time to incorporate some of your favorite high GI foods into your eating plan.

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	Low (< 40)	Moderate (40-60)	High (61-100)
Vegetables & Legumes	Soy beans (18) Lentils, Kidney beans, Black beans, Garbanzo beans, Pinto beans (29-39) Cooked carrots (39)	Canned beans (42-52) Green peas (48) Yam, Sweet potato (51-54) Sweet corn (55) New potato (57)	Fava beans (79) Mashed potato (70) French fries (75) Pumpkin (75) Baked potato (85)
Fruits	Cherries (22) Grapefruit (25) Dried apricots (31) Pear (37) Apple, Plum (38-39)	Peach (42) Orange (44) Grapes (46) Banana (54) Mango (56)	Raisins (64) Cantaloupe (65) Pineapple (66) Watermelon (72) Dates (103)
Breads, cereals, grains	Barley, pearled (25) Whole wheat pasta (37)	White pasta (41) Bulgar wheat (48) Brown rice (55) White rice (58) All Bran (42) Oatmeal (49) Special K (54) Bran Chex (58) Kelloggs' Just Right (59) Oat bran bread (48) Pumpernickel bread (50) White pita bread (57) Pound cake (54) Pastry (59)	Cous Cous (65) Cornmeal (69) Instant rice (90) Life, Shredded Wheat Grape Nuts, (66-69) Cream of Wheat (70) Cheerios, Total (74-76) Rice Krispies, Cornflakes, Rice Chex (82-89) Whole wheat bread (69) White bread, bagel, or Kaiser roll (71-73) French baguette (95) Muffins (62) Croissant (67) Donut, Waffles (76)
Milk products	Low fat yogurt, artificially sweetened (14) Soy milk (30) Fat free milk (32) Low fat fruit yogurt (33)		Ice cream (61) Non dairy tofu frozen dessert (115)
Sweets & Snacks	Peanuts (15) Peanut M&Ms (32)	Snickers bar (40) Chocolate (49) Popcorn (55) Power Bar (57)	Stoned wheat thins (67) Skittles (69) Corn chips (74) Graham crackers (74) Rice cakes (77) Jelly beans (80) Pretzels (81)
Beverages	Soy milk (30) Fat free milk (32)	Apple juice (41) Grapefruit juice (48) Orange juice (52)	Gatorade (91) Soft drink (68)
Sugars	Fructose (22)	Lactose (46) Honey (58)	High fructose corn syrup (62) Sucrose (64) Glucose (96) Glucose tablets (102) Maltodextrin (105)

Source: http://www.mendosa.com/gilists.htm

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