Glycemic Index :
A simple tool to Health and Weight Management

Are you trying to lose weight, reduce body fat and prevent heart disease? Are you at risk for diabetes or have high cholesterol? Do you want to decrease inflammation in your body? Are you having troubles with acnes?

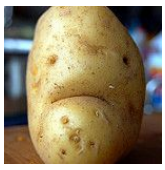
By paying attention to the foods you choose using a measurement called the **glycemic index**, you may improve your energy, decrease your hunger, prevent diabetes, hypoglycemia, improve weight loss, decrease body fat and improve your heart health.

What is the Glycemic Index?

Blood sugar levels are always raised after you eat foods containing carbohydrates (sugars and starches).

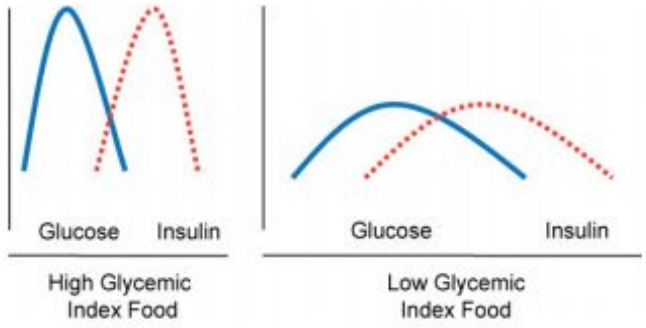
The **Glycemic index** (GI) is a measurement of how much a certain food raises your blood sugar and insulin over time in comparison to a control food, which is usually glucose, a basic sugar. Since not all carbohydrates are equal even though they have the same calories or proportions, we use GI to help us pick out which food has less yo-yoing effects on our blood sugars.

For example, a baked potato has a GI of 94, this means that the blood glucose response to the sugars in a baked Russet potato is 94% of our body's response to glucose. But for a sweet potato, it's GI is 44, so it raises blood glucose less overtime when compared to the same amount of pure glucose and baked Russet potato. (1)



Russet potato, GI = 44

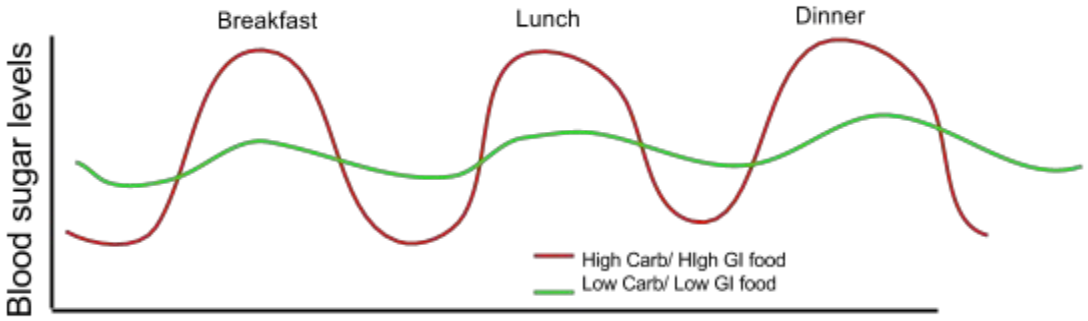
Sweet potato, GI =44



High GI foods raises glucose and insulin much faster and higher than low GI foods. (2)

Why is the glycemic index important?

Studies have linked diets with high glycemic index foods to increased diabetes, obesity, markers for heart disease such as higher triglycerides and lower HDL, increase risk for cancers of the breast, colon and ovaries. Acne is found in studies to be improved when people choose a low glycemic index diet.(3)



Large spikes in blood sugar triggers high triglycerides from the liver to store the excess sugar. And large drops in low blood sugars are associated with negative health outcomes.(3)

What is the Glycemic Load?

Glycemic load (GL) describes more accurately how rapidly a particular serving of carbohydrate raises the blood sugar. Serving sizes can be different based on culture and dietary practices. GL helps patients to account for both the quantity and the quality of their carbohydrates at the same time. E.g. The GI of watermelon is high, however, most of watermelon is water and the amount of carbohydrate per serving size is low, which results in a low GL. Therefore, consuming 1-2 servings of watermelon will not raise the blood glucose and insulin too significantly when compared to other foods that have high GI and GL. (1)

How to interpret Glycemic Index and Glycemic Load?

Foods that have **a low GL almost always have a low GI**.
Foods with an intermediate or high GL range from very low to very high GI. (4)

GLYCEMIC INDEX The smaller the number, the less impact the food has on your blood sugar.	**GLYCEMIC LOAD** The smaller the number, the less impact the food has on your blood sugar per serving size.
55 or less = Low 56 - 69 = Moderate 70 or higher = High	10 or less = Low 11-19 = Moderate 20 or more = High

What can affect the Glycemic Index in food?

1. Ripeness and storage time - The GI of many fruits such as bananas goes up as they ripen.
2. Cooking time - Cooking certain grains and starches like pasta longer increases the GI.
3. Processing method - The finer a food is chopped or mashed or juiced, the higher the GI.
4. Combination with other foods or dressings - Adding fat, fibers and acid (such as lemon juice or vinegar) lowers the glycemic index since they help slow down the absorption of sugar into the bloodstream. E.g. Baked potatoes with butter versus just baked potatoes, or sourdough bread have lower GI than non-sourdough breads. **Combining high GI foods with low GI foods will also decrease blood sugar rise.**
5. Food Variety - Certain varieties of vegetables, grains or fruits have different GI than their counterparts, e.g. short grain rice versus long grain rice, russet potatoes versus red potatoes.
6. An individual's metabolism and digestion - GI is relative to a person's age, metabolism, and digestive health.

Practical Guidelines

1. Increase consumption of fruits, vegetables and legumes.
2. Eat multi-colored unprocessed whole foods.
3. Decrease consumption of “white foods” (e.g. potatoes, fluffy breads, pasta)
4. Consume grain products that are less processed or not overcooked. (e.g. steel-cut oats, al dente pasta, stone ground breads)
5. Always combine your meal with fibers (vegetables and fruits), fats (oils) and proteins (beans and nuts).
6. Eat low GI foods regularly and eat high GI rarely and only in small quantities. Preferably with a meal.
7. Eat healthy portions. Excessive consumption of low GI foods can still trigger a hyperglycemic response.

Key Web Resources
www.glycemicindex.com
www.fammed.wisc.edu/sites/default/files//webfm-uploads/documents/outreach/im/handout_glycemic_index_patient.pdf

Glycemic Index Values for selected common foods. (1)

Food	Glycemic Index	Food	Glycemic Index	Food	Glycemic Index
Glucose (reference food)	100	Breton wheat	67	**Legumes**	
Baked Goods		Rice cakes	91	Black-eyed peas	42
Bran muffin	60	Dairy		Chickpeas	28
Oatmeal	69	Milk*	27	Lentils*	22
Pancake	67	Ice cream	61	Soya Beans*	18
Waffles	76	Yoghurt*	36	Pasta / Noodles	
Breads		Soy milk	44	Fettuccini (egg)	40
Wheat bread	52	**Beverage**		Linguine	46
White bread	73	Coca-cola	63	Mung bean noodles	26
7 Grain bread	55	Smoothie, soy/banana	30	Rice Noodles	61
Bagel	72	Apple Juice fresh	37	Spaghetti (white)	32
Baguette	95	Orange Juice	50	Spaghetti (wheat)	64
Cereals		Gatorade	78	**Nuts**	
All-Bran	38	**Fruits**		Cashews	22
Cheerios	74	Apple	40	Peanuts	14
Cornflakes	92	Banana Ripe	51	**Vegetables**	
Raisin Bran	61	Grapes	43	Beets*	64
Cereal Grains		Orange	48	Carrots*	16
Sweet corn	60	Pineapple*	39	Corn	60
White rice	64	Strawberry*	40	Peas*	97
Brown Rice	50	Strawberry jam	51	Baked Potato	60
Crackers		Watermelon*	72	Yam	37

*These food also have GI lower than 5. It's ok to have a few servings of them despite the high GI because of the low GL.

Reference Journals:

1. Foster-Powell K, Holt SHA., Brand-Miller JC. International table load values: 2002. Am J Clin Nutr.. 76:5-56 2002 PMID12081815
2. https://www.fammed.wisc.edu/sites/default/files//webfm-uploads/documents/outreach/im/handout_glycemic_index_patient.pdf
3. Lo, Yue, (2015). Glycemic Index/Load. In Rakel, D, *Integrative Medicine.* Philadelphia, PA: Elsevier Saunders.
4. http://www.mendosa.com/gilists.htm