

# clips on sugars

FOR UP-TO-DATE INFORMATION ON SUGARS IN HEALTHY EATING

## Understanding the Glycemic Index

Carbohydrates are our most important source of energy. Foods that are high in carbohydrates include grains (e.g., cereals, breads), milk products, fruits, starchy vegetables (e.g., potatoes, parsnips) and sweets. When consumed, all carbohydrates are broken down primarily into glucose, which enters your bloodstream. The glucose in your blood is used for energy by your body, especially by your brain and muscles.

Glycemic Index (GI) is a scale that ranks carbohydrate rich foods based on how much they increase blood glucose levels about 2-3 hours after eating. The GI uses a numbering system to identify foods as low GI (less than 55), medium GI (55-70) or high GI (more than 70) compared to glucose which is 100. Foods with a high GI are more quickly digested, and cause a larger increase in blood glucose, than foods with a low GI. Foods with a low GI are digested more slowly and do not raise blood glucose as high, or as quickly, as high GI foods.

The GI was created to help people with diabetes control their blood glucose levels. The Canadian Diabetes Association suggests that people with diabetes choose low and medium GI foods more often than high GI foods. However, it is important to note that the GI system does have some limitations, including:

- The GI of a single food may change when it is eaten with other foods as part of a meal or snack.
- High GI foods can also be planned into a healthy diet. For example, parsnips, winter squash and rutabaga have a high GI but are also rich in fibre, vitamins and minerals.
- The GI of a food may vary depending on how it is cooked or where it was grown.

The **Glycemic Index (GI)** is a scale that ranks carbohydrate-rich foods based on how much they increase blood glucose levels.



### Sugar and Your Blood Glucose

It is often mistakenly believed that eating sugars-containing foods causes a large rise in blood glucose followed by an extreme low, causing fatigue and food cravings. The idea of a 'sugar high' followed by a 'sugar crash' is, in fact, a myth. In healthy people, the body keeps blood glucose levels within a narrow range. A gradual rise after eating, followed by a slow decline, is a normal part of the body's regulation of blood glucose.

## FACTORS THAT AFFECT GLYCEMIC INDEX

### Factors that Affect Glycemic Index

**Cooking:** foods that are less cooked or processed are digested more slowly and have a lower GI than foods that are more cooked or processed.

**Fibre:** fibre helps to slow digestion of carbohydrate foods. High fibre foods tend to have a lower GI than low fibre foods.

**Fat and Protein:** fat or protein eaten along with carbohydrate helps to slow down digestion and reduces the GI of carbohydrate.

**Acids in Foods:** acids in food slow the time it takes for the stomach to empty after eating. Acids lower the GI of carbohydrate foods.

### Examples

- Less processed foods, such as slow cooking oats or brown rice, have a lower GI than more processed foods such as instant oats or instant rice.
- Pasta cooked "al dente" (tender yet firm) has a lower GI than pasta cooked until very tender.

- High fibre foods such as whole grain breads, oats, beans and lentils have a lower GI than low fibre foods such as white bread and rice cereal.

- A snack that includes carbohydrate with protein or fat has a lower GI than a snack with carbohydrate only. For example, crackers with peanut butter have a lower GI than crackers alone.

- Vinegar, lemon juice, or citrus fruits added to foods will lower the GI of those foods.

## GLYCEMIC INDEX OF VARIOUS FOODS

	Low GI (<55)	Medium GI (55-70)	High GI (>70)
<b>Grains and Starches</b>	• All cereals provide energy, vitamins and minerals. Whole grain and bran cereals also provide fibre.		
<b>Cereals</b>	All Bran™, Steel Cut Oats, Oat Bran	Shredded Wheat™, Quick Oats	Rice Krispies™, Corn Flakes™, Bran Flakes™, Cheerios™, Instant Oats
<b>Breads</b>	Stoneground Whole Wheat Bread, 12-Grain / Mixed Grain Bread, Pumpernickel Bread	Whole Wheat Bread, Rye Bread, Sourdough Bread	White Bread, White Bagel, Kaiser Roll
<b>Grains / Pasta</b>	Pasta (cooked "al dente"), Converted or Parboiled Rice	Basmati Rice, Brown Rice, Couscous	Instant Rice
<b>Fruits and Vegetables</b>	• High GI vegetables, such as parsnip, rutabaga and winter squash, are also rich sources of vitamins, minerals and fibre.		
<b>Starchy Vegetables</b>	Sweet Potato, Green Peas, Yam	Raw Carrots, Baked Potato with skin, New Potato, Corn	Baked Potato without skin, Mashed Potato, Parsnip, Rutabaga, Winter Squash
<b>Fruit and Fruit Juices</b>	Apple, Orange, Strawberries, Peach, Cherries, Grapes, Apple Juice, Orange Juice, Grapefruit Juice	Banana, Raisins, Apricots, Grape Juice, Cranberry Cocktail	Watermelon, Dried Dates
<b>Milk Products</b>	• Milk products provide important minerals for bone health including calcium, phosphorus and magnesium.		
	Milk, Plain Yogurt, Sweetened Yogurt, Chocolate Milk	Sweetened Condensed Milk	
<b>Legumes</b>	• Legumes, including beans and lentils, are an excellent source of protein and fibre.		
	Lentils, Kidney Beans, Chick Peas, Baked Beans		
<b>Sweeteners</b>	• Maple syrup, brown sugar, honey and white sugar (sucrose) are all mainly carbohydrates and provide the same number of calories (4 Calories per gram).		
	Fructose	Table Sugar (Sucrose), Brown Sugar, Honey	Glucose (GI = 100)

Source: International table of glycemic index and glycemic load values: Am J Clin Nutr 2002;76:5-56.

Canadian Diabetes Association. The Glycemic Index. <http://guidelines.diabetes.ca/cdacpg/media/documents/patient-resources/glycemic-index.pdf>

Remember that GI is only a small part of healthy eating. People with diabetes should eat a well-balanced diet while paying attention to portion sizes and distribution of carbohydrates in order to manage blood glucose levels. For more information on healthy eating for diabetes, speak with your doctor or Registered Dietitian. To find a Dietitian in your area, click on the "Find a Dietitian" link at [www.dietitians.ca](http://www.dietitians.ca).



This fact sheet, developed with the collaboration of Registered Dietitians and Nutrition Researchers, is published by the Canadian Sugar Institute. If you have any questions about sugar and its relation to nutrition and health, feel free to contact:

Canadian Sugar Institute  
10 Bay Street, Suite 620  
Toronto Ontario M5J 2R8  
Tel: (416) 368-8091  
Fax: (416) 368-6426  
Email: [info@sugar.ca](mailto:info@sugar.ca)  
[www.sugar.ca](http://www.sugar.ca)



*Nutrition Information Service*