

Glycaemic Index

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What is the Glycaemic Index?

The Glycaemic Index (GI) was devised as a way to differentiate between dietary carbohydrates and their effect on the body.

When carbohydrate foods are eaten they cause a rise and subsequent fall in blood glucose (sugar) levels known as the 'glycaemic response'. The 'glycaemic index' ranks foods according to the rate they release glucose into the blood stream on a scale of 1 to 100. Foods with a low GI ranking (less than 55) are digested and absorbed slowly and produce gradual rises in blood sugar levels. Foods with a high GI ranking (greater than 70) are digested and absorbed more quickly and cause marked fluctuations in blood sugar levels.

How can GI be used?

The GI has many applications:

• Diabetes

Low GI foods assist blood glucose control in people with diabetes by helping to maintain steady blood glucose levels.

• Weight loss

A recent study by Australian researchers found that a high carbohydrate diet based on low GI foods may be the most effective diet for weight loss, especially for women¹. The success of low GI diets in weight loss is thought to be related to their effect on appetite control. High GI foods cause fluctuations in blood glucose and insulin levels which contributing to hunger and inhibit the breakdown of fat, whereas low GI foods do not produce this response.

Although low GI foods may assist with weight loss, it is important to remember that it is total kilojoule intake in relation to energy output which ultimately causes weight loss.

• Sports performance

Considering the GI of carbohydrate foods may also benefit sports performance. Consuming low GI carbohydrates within one hour before exercise provides fuel for muscles without triggering rapid rises in insulin that can cause hypoglycaemia (low blood sugar levels). High GI foods and beverages consumed after exercise can help to quickly restore depleted stores of carbohydrate in the muscles.

• Steady energy levels

Because low GI carbohydrates help maintain steady blood sugar levels, they also help sustain energy levels throughout the day and avoid fluctuations between extreme highs and lows.

What foods are low GI?

Generally, low GI foods include wholegrain breads and cereals, dairy products, pasta, legumes, corn, sweet potato,

and many fruits and other vegetables. High GI foods include cakes, biscuits, some breads, potatoes and some cereals. Sometimes knowing which foods are high or low GI can be tricky. Some foods, such as rice, have a different GI depending on the type or variety. Jasmine rice for example, is high GI, while basmati rice is low GI.

What is 'glycaemic load?'

Unlike glycaemic index, glycaemic load (GL) measures both the type *and* amount of carbohydrate in a typical serve of a food. The GL is calculated by multiplying the GI by the amount of carbohydrate in a defined serve of food, then dividing by 100. Low GL diets appear to be protective against weight gain and lifestyle-related diseases such a heart disease and diabetes.

Low GI meal plan

- **Breakfast:** Porridge or muesli with low-fat milk or yoghurt and toasted multigrain bread with cheese.
- **Morning tea:** Low-fat yoghurt.
- **Lunch:** Salad with 4-bean mix and tuna. Fresh fruit.
- **Snack:** Fruit loaf with margarine
- **Dinner:** Stir-fry vegetables with lean meat, egg-noodles and a stir-through sauce.
- **Supper:** Low-fat custard or ice-cream with canned fruit.

GI Classification

Low - 55 or less

Medium - 56-69

High - 70 or more

Make the switch

High GI food (GI)	Lower GI food (GI)
Broad beans (79)	4-bean mix (38)
Jasmine rice (109)	Basmati rice (58)
Mashed potato (91)	Sweet potato (44)
Rice pasta (92)	Fettuccini (40)
White bread (70)	9 grain bread (43)
Bagels (72)	Fruit loaf (54)
Jelly beans (80)	Dried apricots (30)

*GI figures from www.glycemicindex.com

Part of a healthy diet

GI should not be used in isolation to other healthy eating principles. On its own, the GI value doesn't give enough information about a food, as it only relates to carbohydrate content. Chocolate and ice cream, for example, generally have quite low GIs but are high in fat, whereas many high GI foods, particularly bread and potatoes, are an important part of a healthy diet. Remember to eat a variety of foods which are low in total fat, saturated fat, salt and sugar, and high in fibre.

Reference

1. Joanna McMillan-Price, et, al. Arch Intern Med. 2006;166:1466-1475.