

The glycaemic index and diabetes

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What is the glycaemic index (GI)?

The GI is a ranking of carbohydrate foods from 0 to 100 that tells us whether a food will raise blood glucose levels just a little, moderately or dramatically. Carbohydrate foods are those that largely contain starches and sugars, such as cereals, potatoes and other starchy vegetables, legumes, bread, fruit and milk.

Why is GI useful?

There is a relation between GI and diabetes. Eating high GI foods can result in the body requiring more of the hormone insulin to be produced (or injected for those people requiring insulin) to control high blood glucose levels. Eating low GI foods can help manage established diabetes as these foods produce lower blood glucose levels and therefore less insulin is required.

Eating low GI foods can also help with weight loss and can make you feel more full, which may help in controlling appetite.

Food is not 'good' or 'bad' only on the basis of its GI. You should also consider:

- the fat content of foods – e.g. potato crisps and chocolate both have low GIs but are high in fat
- the range of carbohydrate foods that you eat – eating a wide range, such as wholegrain breads and cereals, fruit and vegetables, will ensure you are getting adequate fibre, vitamins and minerals
- the amount of food that you eat – e.g. eating a very small amount of a high GI food, such as a few dried dates, may not have a large effect on blood glucose level.

Try to incorporate GI into your meal planning

Try to include at least one low GI food at each meal. Studies show that when a high GI food is combined with a low GI food, the complete meal results in having a moderate GI.

Factors that influence the GI of food

Various factors influence the GI of a food, including the following:

- type of starch present
- physical form of the food – e.g. the particle size, ripeness of fruit (the larger the particle size, the more slowly the food is digested; the riper the fruit, the more quickly it is digested)
- amount of cooking and processing (more usually speeds up digestion)
- amount of water-soluble fibre present (more usually slows down digestion)
- type of sugar (fruit sugar is broken down more slowly than sucrose)
- amount of fat and protein (delays digestion)

This handout outlines how knowledge of the glycaemic index (GI) of foods can help in the management of diabetes.



The GI tested logo appears on some food packages. Similar to the Heart Foundation Tick symbol, the GI symbol is part of a licensing program and manufacturers pay for its display, so not all low GI foods will carry the symbol.

When you see the GI symbol, it means that the food is a nutritious choice within its food group and has been tested by an approved GI testing laboratory. Although theoretically a labelled food may be high, medium or low GI, to date only low GI foods carry the logo. The food's GI range and sometimes the GI value will appear separately near the nutrition panel on the packaging.



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The GIs of some popular carbohydrate-containing foods

Low GI foods (GI, 55 and below)	Medium GI foods (GI, 56 to 69)	High GI foods (GI, 70 and above)
<p>Breakfast cereals Rice bran, oat bran, All-Bran, Guardian, Special K,* porridge oats, semolina (cooked)</p> <p>Breads and cereals Wholegrain and multigrain breads, fruit loaf, pearl barley, pasta, noodles (low fat), cracked wheat, buckwheat</p> <p>Biscuits Vita-Weat crispbreads</p> <p>Vegetables Sweet corn, sweet potato</p> <p>Legumes and pulses Lentils, kidney beans, split peas, chick peas, baked beans</p> <p>Dairy products Milk, low fat varieties of yoghurt, custard</p> <p>Fruit Cherries, grapefruit, pears, fresh and dried apples, plums, peaches, oranges, grapes, dried apricots, bananas, mango, prunes</p> <p>Spreads Jam (100% fruit)</p> <p>Juices Fruit juices (apple, orange, pineapple, grapefruit)*</p>	<p>Breakfast cereals Sustain, Weet-Bix, Vita Brits, Just Right, natural muesli, Mini-Wheats (plain)</p> <p>Breads and cereals Polenta, couscous, rye and light rye bread, wholemeal breads, pita bread, crumpets, Basmati and Doongara rice</p> <p>Biscuits Ryvita crispbreads, digestive,† oatmeal,† Shredded Wheatmeal, Milk Arrowroot</p> <p>Fruit Sultanas, pineapple, rockmelon, fresh apricots, kiwi fruit</p> <p>Sugars Sugar (sucrose)</p>	<p>Breakfast cereals Puffed Wheat, Rice Bubbles, bran flakes (with and without sultanas), cornflakes, Mini-Wheats (fruit filled)</p> <p>Breads and cereals White breads, white bagels, baguettes, jasmine and most other white rices, brown rice, puffed rice cakes, tapioca</p> <p>Biscuits Water crackers, Sao,† Morning Coffee</p> <p>Vegetables Most potatoes (e.g. new boiled, Pontiac, Desiree), broad beans</p> <p>Fruit Watermelon, dried dates, canned lychees</p> <p>Snack foods Pretzels</p> <p>Drinks Sports drinks</p> <p>Sugars Malt (maltose), glucose, jelly beans</p>

* Low in fibre – eat only occasionally. † High in fat – eat only occasionally.

- acidity of the food – e.g. adding lemon juice or vinegar (greater acidity delays digestion).

Further information

The Diabetes Centre website, www.diabetes.org.au, has further information on nutrition for patients with diabetes, including more patient leaflets.

The book, *The New Glucose Revolution*, 3rd ed, by Professor Jennie Brand-Miller, Kaye Foster-Powell and Professor Stephen Colagiuri, and published by Hodder Headline Australia, 2002, contains more information on the glycaemic index and tables of GI values of popular foods and all foods that have been tested. MT



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