

the glycemic index

People with diabetes are advised to include carbohydrate foods at every meal as part of their daily eating plan. It is important to consider both the *amount* and the *type* of carbohydrate food eaten, as both of these affect blood glucose levels. The *amount* of carbohydrate includes both the sugars and starches in food, whereas the *type* of carbohydrate refers to the glycemic index (GI).

Carbohydrate foods

Carbohydrate foods are the body's main energy source. Most carbohydrates are broken down in the gut and released as glucose into the blood stream. This is why, for optimal blood glucose management, it is important to have three regular meals each day, with each meal containing suitable amounts of carbohydrate foods depending on your energy needs. This will help prevent large rises and falls in your blood glucose levels throughout the day. Depending on your medications or if you're on insulin, snacks may also be required between meals to help manage your blood glucose levels.

Foods containing carbohydrates:

- > Breads
- > Breakfast cereals
- > Rice, pasta, noodles and other grains such as barley and couscous
- > Some vegetables (eg: potatoes, sweet potatoes, corn, taro, cassava, parsnip)
- > Legumes (eg: dried or canned beans, lentils, chickpeas)
- > Fruit, canned fruit, fruit juices* and dried fruit*
- > Milk, yoghurt, custard* and ice cream*
- > Sugars*, honey*, jam*, soft drinks and confectionery*
- > Snack foods like potato and corn chips*
- > Biscuits*, cakes* and pastries*.

* These foods contain a high fat and/or sugar content and therefore should be limited or swapped for lower fat/sugar options.

Most carbohydrate foods are digested to produce glucose but they do so at different rates, some slowly and some quickly. The glycemic index (GI) is a ranking of carbohydrate foods according to their effect on blood glucose levels.



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How can the GI help?

Research has shown that by eating a diet with a lower GI, people with diabetes can reduce their average blood glucose levels and, as they become easier to manage, fluctuations in blood glucose levels may become less likely to occur. This is important in reducing the risk of developing diabetes-related complications. A lower GI diet may improve the body's ability to use glucose for energy and help to lower blood fats (such as triglycerides) and raise HDL (a healthy cholesterol). Low GI foods may also help improve satiety (feeling of fullness) which may help with weight management.

GI of commonly eaten foods:

Food group	Lower GI choices
Bread	Burgen — Soy-Linseed, Wholemeal and Seeds, Grain with Barley, Rye, Pumpkin Seed, Wholegrain and Oats, Fruit and Muesli Tip Top — 9 Grain Original, 9 Grain Wholemeal, 9 Grain Original Mini Loaf Country Life — Gluten Free Low GI Wonder White — Lower GI Cripps — 9 Grain (available Tasmania only) Authentic Pumpnickel, Authentic Sourdough Rye, Authentic Sourdough Wheat
Breakfast cereals	Goodness Superfoods — Digestive 1st, Protein 1st Kellogg's — All Bran, Guardian, Sustain Morning Sun — Apricot & Almond Muesli, Peach and Pecan Muesli Sanitarium — Hi-Bran Weet-Bix, Up & Go Woolworths Select — Bircher Muesli Vogels — Ultra Bran Unprocessed oats
Grains	Pasta (all types) Rice — Basmati, Sunrice Doongara Clever rice (white), Wild Rice Noodles — Mung Bean Noodles, Rice Noodle (fresh), Soba Noodles Blue Gourmet Pearl Couscous Barley, Buckwheat, Bulgur, Quinoa, Semolina, Whole Rye Kernels,
Legumes	Kidney Beans, Soy Beans, Chickpeas, Split Peas, Lentils, Baked Beans
Vegetables	Sweet Corn, Taro, Yam, Nicola Potatoes
Fruit	Apple (fresh and dried), Apricots (fresh, dried, canned), Banana, Grapes, Kiwi Fruit, Mango, Nectarine, Orange, Peach, Pear (fresh, dried, canned), Plums
Dairy and alternatives	Milk, Soy Drink, Yoghurt (low fat and diet), Frûche, Custard, Le Rice, Low Fat Ice Cream, Light Flavoured Milk
Biscuits and snacks	Freedom foods (97% fat free fruit cookies), Ryvita (pumpkin seeds and oats, sunflower seeds and oats), Arnott's Snack Right (Fruit Pillow – apple and blackberry, apple and sultana, wild berry; Fruit Slice – sultana)



How can I apply the GI to my eating plan?

Incorporating the glycemic index into your eating plan simply means including healthy lower GI foods at each meal (and snack if you have them) every day. Try swapping the high GI foods in your current eating plan with lower GI options such as switching from a high GI white bread to a grainy low GI bread. If you have a high GI food, include a low GI carbohydrate to lower the overall GI of the meal.

To ensure a food is healthy overall, you need to also consider other nutritional qualities such as the amount and type of fat, the amount of added refined sugar and starch, and the fibre and sodium (salt) content. Refer to the *Reading Food Labels* information sheet.

Quantity of carbohydrate

If you eat too much carbohydrate at one time, it may result in high blood glucose levels, even if it has a low GI. Carbohydrate intake is directly related to blood glucose levels, therefore consideration must be given to the total amount of carbohydrate-containing foods you eat. Of course, individual requirements vary, therefore it is best to talk to your dietitian about the optimal amount of carbohydrate foods you need each day.

Remember, the GI is one part of healthy eating for people with diabetes. For a more complete picture refer to the *Food Choices for People with Diabetes* information sheet.

How do I find healthy low GI foods when shopping?

Most of us make up our mind about which foods we are going to buy when we're in the supermarket. As most foods have a Nutrition Information Panel, it is easy to check the kilojoule, total carbohydrate, saturated fat or sodium content of a food. However it is not mandatory for food companies to put the GI on the label of foods.

Keep an eye out for the GI Tested logo

To help people identify healthy low GI foods while shopping, the University of Sydney, State and Territory Diabetes Organisations and the Juvenile Diabetes Research Foundation joined forces to develop the easily identifiable GI Symbol. The Symbol



indicates that a food has had its GI measured using the Australian Standard to ensure its accuracy, and that it meets strict nutrient criteria consistent with Australia's Dietary Guidelines ie: be low in saturated fat, moderate in kilojoules and sodium (salt), and where appropriate a source of dietary fibre and calcium. They must also contain at least 10 grams of carbohydrate per serve.

A broad selection of carbohydrate-containing foods and beverages displaying the GI symbol is now available in your local supermarket. Not all foods however contain a low GI symbol on

the packaging. It is therefore a good idea to refresh your memory of low GI foods by looking at the lower GI food table on page 2.



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For more information

To find out more about the glycemic index, go to www.glycemicindex.com or www.gisymbol.com. Alternatively consult an Accredited Practising Dietitian (APD) by contacting:

- The Dietitians Association of Australia on 1800 812 942 or www.daa.asn.au.
- Your State or Territory Diabetes Organisation on 1300 136 588 or go to their website as listed below.

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For more information phone **1300 136 588** or visit your State/Territory Organisation's website:

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NT	www.healthylivingnt.org.au	QLD	www.diabetesqueensland.org.au
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