

# The glycaemic index

People with diabetes are advised to include carbohydrate foods in their eating plan. Health professionals recommend that approximately one half of all the food we eat comes from foods that are high in carbohydrate.

- The amount of carbohydrate and the type of carbohydrate you eat will affect your blood glucose level with the amount having the greatest effect.
- The type or quality of carbohydrate you eat will also have some effect but is secondary to the quantity.
- The quality of carbohydrate is often referred to as the glycaemic index (GI) and is covered in this information sheet.

## Carbohydrate foods

Carbohydrates from foods are broken down in the body to provide glucose into the blood stream. This is why, for optimal blood glucose control, it is important to have regular meals each day and include breakfast. This will prevent large rises and falls in your blood glucose level.

## Quantity of carbohydrate

If you eat a large amount of carbohydrate, it may result in high blood glucose levels and excess kilojoules. Therefore consideration must be given to the total amount of carbohydrate-containing foods you eat. Too much food and kilojoules will increase your body weight. Requirements of individuals will vary, therefore it is best to talk to your dietitian about the amount of carbohydrate foods you need.

## High carbohydrate foods

- Breads
- Cereal grains (eg: rice, wheat (flour), barley)
- Some vegetables (eg: potatoes, sweet potatoes, peas, corn)
- Legumes (eg: beans, lentils, chickpeas)
- Fruits and fruit juices
- Milk and yoghurt



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## The glycaemic index continued

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### What is the Glycaemic Index?

All carbohydrate foods are digested to produce glucose but they do so at different rates, some slowly and some quickly. The glycaemic index (GI) is a way of describing how a carbohydrate-containing food affects blood glucose levels. It is recommended that people with diabetes have moderate amounts of carbohydrate and include high fibre foods that also have a low GI.

### How can the GI help?

Some research has shown that by eating a diet with a lower GI, people with diabetes can reduce their average blood glucose levels. 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 (triglycerides) and raise HDL (healthy) cholesterol. Low GI foods may also help improve satiety (feeling of fullness), which may help with weight management.

### How is the GI measured?

Here's how it works:

- Eight to ten volunteers without diabetes are each given a serve of food that contains 50 grams of carbohydrate.
- Their blood glucose levels are measured every 15 minutes, for the next 2 to 3 hours.
- The results are then plotted on a graph and a computer program measures the size of the graph.
- The average response of the group to each food is then compared to the response to the standard (glucose) to create the GI. The average response can vary up to 50% so it is important that people with diabetes continue to monitor the effect the food has on their blood glucose level.

### What do the numbers mean?

These are to be used as a guide only as individual foods do not have the same response in all people with diabetes.

- Low GI foods are foods with a GI less than 55.
- Intermediate GI foods are foods with a GI between 55 and 70.
- High GI foods are foods with a GI greater than 70.



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The following table lists some commonly eaten foods according to their GI:

Low GI	Intermediate GI	High GI
<b>Breads</b> Multigrain breads, Burgen Soy-Lin, PerforMAX <sup>®</sup> fruit loaf, Vogel's honey and oat <sup>®</sup>	<b>Breads</b> Hamburger bun, rye bread, croissant, light rye, crumpet, wholemeal	<b>Breads</b> White bread, bagel, blackbread, Wonderwhite <sup>®</sup> , gluten free bread
<b>Breakfast Cereals</b> All Bran fruit'n oats, All Bran <sup>®</sup> Guardian <sup>®</sup> porridge, Special K <sup>®</sup> , Rice Bran	<b>Breakfast Cereals</b> Oatbran, untoasted muesli, Just Right <sup>®</sup> , Nutri Grain <sup>®</sup> , Sustain <sup>®</sup> , Weet-Bix <sup>®</sup>	<b>Breakfast Cereals</b> Sultana Bran <sup>®</sup> , Bran Flakes <sup>®</sup> , Coco Pops <sup>®</sup> , Puffed Wheat <sup>®</sup> , Rice Bubbles <sup>®</sup> , Cornflakes <sup>®</sup>
<b>Grains</b> Barley, pasta (all types), noodles, bulgur, semolina	<b>Grains</b> Basmati rice, wild rice, Sunrice, Doongara <sup>®</sup> rice, Mahatma Premium <sup>®</sup> Classic, couscous, cornmeal, tapioca	<b>Grains</b> Brown rice, calrose rice, jasmine rice
<b>Legumes</b> All Beans (kidney, soy, baked bean, etc) peas, lentils		<b>Legumes</b> Broad beans
<b>Vegetables</b> Sweet potato, taro	<b>Vegetables</b> New potato	<b>Vegetables</b> Other potatoes, parsnip, french fries
<b>Dairy foods</b> Milk, So Good <sup>®</sup> soy drink, low fat fruit yoghurt, custard, low fat ice cream		
<b>Biscuits</b> Oatmeal	<b>Biscuits</b> Digestives, Shredded Wheatmeal, Milk Arrowroot	<b>Biscuits</b> Morning Coffee
<b>Fruit</b> Cherries, grapefruit, peach, dried apricots, apple, pear, plums, orange, grapes, kiwi fruit, banana	<b>Fruit</b> Sultanas, raw and canned apricots, mango, paw paw, raisins, rockmelon, pineapple	<b>Fruit</b> Watermelon



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### How can I apply the GI to my eating plan?

Incorporating the glycaemic index into your eating plan involves including low GI healthy foods that are high in fibre each day. Some research recommends that one low GI food be included with each meal.

People need to also consider a food's other nutritional qualities such as fat, sugar and salt content. Some high fat foods and many sugary foods have a low GI, such as chocolate, ice-cream and toasted muesli. But these foods are still not suitable for everyday eating, particularly for people with diabetes.

**The GI is only a small part of the healthy eating plan for people with diabetes. For the complete picture refer to Diabetes Australia's information sheet *Food Choices for People with Diabetes*.**

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