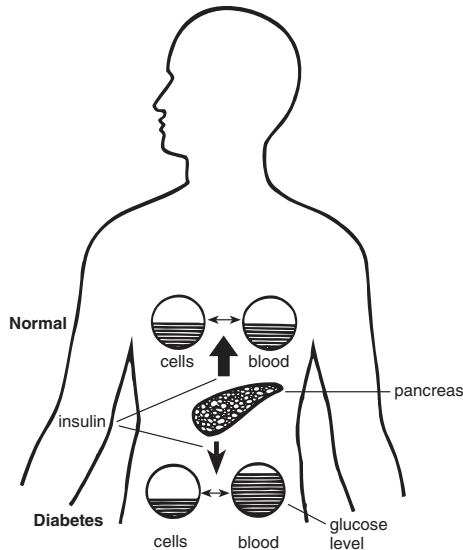


# Diabetes

## What is diabetes?

*Diabetes mellitus* is a disorder in which there is too much sugar in the blood. It is caused by a lack of an important hormone called *insulin*, which is made by a gland behind the stomach called the *pancreas*. *Diabetes* comes from a Greek word meaning 'to pass or flow through' and *mellitus* means 'sweet'. Insulin controls the balance of sugar (glucose) in the body.



Glucose balance in the body

## What are the two main types of diabetes?

*Type 1* diabetes is also known as *juvenile-onset diabetes* or *insulin-dependent diabetes mellitus*. It occurs mainly in young people, and because their pancreases produce very little insulin they require injections of insulin. The cause is not known exactly.

*Type 2* diabetes is known as *maturity-onset diabetes* or *non-insulin-dependent diabetes mellitus*. It mainly affects people over 40, many of whom are overweight and have a diet with excess calories. It is usually controlled by a proper diet only, but often tablets may have to be used. Insulin may be needed also for ultimate control.

## What are the symptoms?

The classical symptoms of untreated diabetes are:

- excessive and frequent urination (every hour or so)
- excessive thirst
- loss of weight (mainly in type 1)
- tiredness and lack of energy
- a tendency to get infections, especially of the skin

## How common is the problem?

About 1 person in 30 gets diabetes. It tends to increase as we get older because the pancreas, like other organs, tends to wear out.

## What are the risks?

Modern treatment is very effective for diabetes, but the results depend on the patient following the treatment, especially the diet. If diabetes is untreated, the complications are very severe and include coma (from the blood sugar being either too high or too low), kidney disease, blindness and heart disease. The feet and eyes are at special risk and need special care and regular checks.

## Can diabetes be cured?

No, not yet, but it can virtually always be controlled by a proper diet and regular exercise, and if necessary insulin or special tablets. Although the diagnosis comes as a shock to patients, it is not the major problem that it is generally believed to be—most patients lead normal lives. A key factor is to get good control of blood pressure as well as blood sugar and cholesterol.

## Is diet a vital treatment?

Yes; all diabetics require a special diet in which carbohydrate and fat intake is controlled. The objectives of the diet are:

- to keep to ideal weight (neither fat nor thin)
- to keep the blood sugar level normal and the urine free of sugar

This is achieved by:

- eating good food regularly (not skimping)
- spacing the meals throughout the day (three main meals and three snacks)
- cutting down fat to a minimum
- avoiding sugar and refined carbohydrates (e.g. jam, honey, chocolates, sweets, pastries, cakes, soft drinks)
- eating a balance of more natural complex carbohydrates (starchy foods) such as wholemeal bread, potatoes and cereals
- eating a good variety of fruit and vegetables
- cutting out alcohol or drinking only a little
- learning about glycaemic index (GI) foods and preferably eating low-GI foods

## Is exercise important?

Yes—it really benefits your health. Exercise is any physical activity that keeps you fit. Good examples are brisk walking (e.g. 2 km per day), jogging, tennis, skiing and aerobics. Aim for at least 30 minutes 3 times a week, but daily is ideal. Go slowly when you start.

### Good advice

- Exercise is important.
- Do not get overweight.
- A proper diet is the key to success.
- A low-fat, low-sugar diet is needed.
- Do not smoke.
- Minimise alcohol.
- Take special care of your feet.
- Self-discipline will help make your life normal.

# Diabetes: healthy diet for diabetics

Diet is the key to controlling both type 1 and type 2 diabetes.

A proper diet for people with diabetes is based on a healthy eating plan that applies to all people. There is no need to prepare separate meals or buy special foods.

The basis of the diet is reduction in total energy from fat and sugar and having a high-fibre complex carbohydrate diet of foods such as wholemeal bread, rolled oats, pasta, beans, lentils, apples and low-sugar breakfast cereals.

Meals should be eaten at regular times and spread throughout the day. It is good to be advised by a diabetic nurse educator.

## Simple healthy guidelines:

- Limit sugar in your diet.
- Limit fat.
- Limit alcohol.
- Drink lots of water.
- Reduce salt in cooking and on food.
- Eat a variety of fruit, vegetables, cereals and bread.
- Eat fish regularly.
- Eat a high-fibre diet.

## Objectives

- Achieve an ideal weight through diet and exercise (most important).
- Maintain a diet low in fat and sugar and high in fibre and complex carbohydrates.
- Aim to eat a complex carbohydrate at each meal.
- Keep the fasting blood sugar below 6 mmol/L.

## Fat in the diet

People generally eat too much fat and it should be reduced. Common sources of fats and oils are:

- high-fat dairy products
- high-fat meats
- fats added to cooking
- snack and takeaway foods
- processed sausages and smallgoods

## Carbohydrates and the glycaemic index (GI)

Carbohydrates are good for people with diabetes as they provide a ready source of essential glucose in the blood stream. However, different carbohydrates affect blood glucose levels differently.

It is best to prevent your blood glucose level from swinging too high or too low. The 'best choice' carbohydrates are those that cause the smallest rise in blood glucose levels because they are digested slowly and

released slowly. As a general rule the slow-acting carbohydrates that are rich in fibre—the complex carbohydrates—are best. These are called *low glycaemic index* or *low-GI* foods, ('glycaemic' is a term for blood glucose).

The glycaemic index is related to a standard of 100 represented by taking 50 grams of glucose. It has a scale of 1 to 100. High-GI foods are those above 70. Low-GI foods are those below 55.

It is good to have at least one low-GI food at each meal.

## Examples of low-GI foods

- *Cereals*: Porridge, oat bran, Special K™, muesli, All-Bran™.
- *Breads*: Wholegrain, fruit loaf, sourdough, raisin bread, pumpnickel.
- *Fruit*: All fresh fruit especially apples, firm bananas, oranges, stone fruit, grapes, canned fruit in natural juice.
- *Vegetables*: All fresh, frozen and canned vegetables.
- *Dairy*: Milk (especially skim, low-fat), yoghurt, low-fat cheese (e.g. cottage).
- *Starchy foods*: Sweetcorn, lentils, pasta, noodles, basmati rice, brown rice, sweet potato, dried beans and baked beans.
- *Snacks*: Prunes, dried apricots, nuts, Vita Weat™ biscuits, Snack Right™ biscuits, peanuts, dark chocolate.

## Examples of high-GI foods

- *Cereals*: Cornflakes™, Rice Bubbles™, Coco Pops™, Nutrigrain™.
- *Breads*: White, wholemeal, crumpets, scones, bagels, French bread.
- *Fruits*: Watermelon, dates, ripe bananas.
- *Dairy*: Cream, butter, ice-cream, cheese.
- *Starchy foods*: Potato (including baked, mashed, boiled and chips), regular rice, Calrose and Jasmine rice.
- *Snacks*: Pretzels, Twisties™, glucose lollies, most biscuits, water crackers, rice cakes, raisins, corn chips, cordials.

## Other general advice

- Use low-fat cooking methods.
- Use low-fat spreads (e.g. light margarine, ricotta or cottage cheese).
- Use low-fat cuts of meat and poultry without the skin.
- As a rule avoid foods that contain large amounts of added sugar, for example sweets, cakes, sweet biscuits, chocolates, soft drinks, jellies and desserts (can be eaten occasionally).
- Discuss a personalised meal plan with your dietician or doctor.
- The GI of foods can be found at [www.glycemicindex.com](http://www.glycemicindex.com)

# Diabetes: foot care for diabetics

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## Why are doctors so concerned about your feet?

Problems with the feet are common complications that diabetics suffer from and need special attention. A foot problem can be very difficult to heal once it has set in. Diabetes can decrease the circulation to your feet so that healing is relatively poor. Diabetes can also affect the nerves to the feet so that they are less sensitive to pain, touch and temperature. Diabetics are also prone to infection because the feet are almost 'out of sight and out of mind' and problems can develop without your being aware of them. Very special care of your feet is essential, and they should be checked every day.

## What type of problems occur?

Pressure sores can develop on the soles of your feet from things such as corns, calluses and stones or nails in your shoes. Minor injuries such as cuts and splinters can become a major problem through poor healing. Problems with toenails such as *paronychia* (infection around the nail) and ingrowing nails can get out of control. Prevention of these problems is the best way. Watch out for soggy skin between the toes.

## What should you do?

1. Keep your diabetes under good control and do not smoke.
2. Check your feet *daily*. If necessary use a mirror to inspect the soles. If your vision is poor ask someone else to check for you. Report any sores, infection or unusual signs. Make sure you check between the toes.
3. Wash your feet daily:
  - Use lukewarm water (beware of scalds).
  - Dry thoroughly, especially between the toes.
  - Soften dry skin, especially around the heels, with lanoline.
  - Applying methylated spirits between the toes helps stop dampness: a cotton bud can be used.

4. Attend to your toenails regularly:
  - Clip them straight across with clippers.
  - Do not cut them deep into corners or too short across.
5. Wear clean cotton or wool socks daily; avoid socks with elastic tops.
6. Exercise your feet each day to help the circulation in them.
7. Check the insides of your shoes each week or before wearing them to make sure no nails are pointing into the soles.

## How to avoid injury

- Wear good-fitting, comfortable leather shoes.
- Shoes should never be 'broken in'—they should fit from the start.
- The shoes must not be too tight or too loose.
- Do not walk barefoot, especially out of doors.
- Do not cut your own toenails if you have difficulty reaching them or have poor eyesight.
- Avoid home treatments and corn pads that contain acid.
- Be careful when you walk around the garden and in the home. Sharp objects such as stakes in the garden, protruding nails and sharp corners of beds at floor level should never be in the home of a diabetic.
- Do not use hot-water bottles or heating pads on your feet.
- Do not test the temperature of water with your feet.
- Take extra care when sitting in front of an open fire or heater.

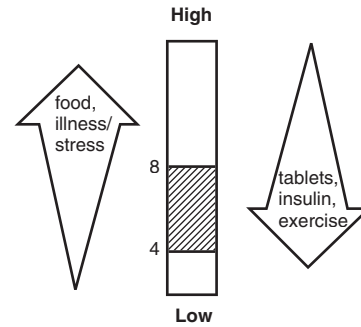
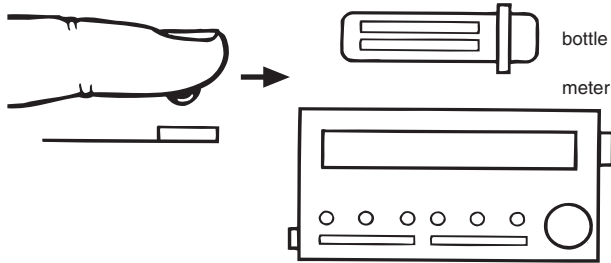
## Visit the expert

If you have problems with your foot care and especially if your physical condition makes attending to toenails, corns and calluses difficult, you should visit a podiatrist. Your doctor will advise you.

# Diabetes: blood glucose monitoring at home

## How do you check blood glucose levels?

Put blood from a finger prick on a strip. Blot off excess blood with a tissue. Read the strip either by comparing the colour with the colour chart on a bottle or by using an electronic meter. It is important to follow the instructions on the bottle or meter carefully.



## What are the ideal levels?

*Ideal blood glucose levels* are 4–6 mmol/L before meals and 4–8 mmol/L 2 hours after meals.

*Fair control* is 6–8 mmol/L before meals and 8–11 mmol/L after meals.

*Poor control* is over 8 mmol/L before meals and over 11 mmol/L after meals.

## When should you check the levels?

### Routinely

For type 2 diabetes (usually controlled by diet and tablets, or by diet alone), 2–3 times each week at different times of the day is enough.

For type 1 diabetes (which requires insulin), more regular checking is required; that is, at least once a day, usually first thing before breakfast and then about 2 hours after a meal.

Your blood glucose levels are likely to be *low* before meals, and *high* 2 hours after meals.

### Special circumstances

Stress, illness or too much food will push your blood glucose *up*. Exercise and your medications will pull the blood glucose *down*.

When you are ill or under a lot of stress or exercising more than usual, you may need to check your blood glucose level more often than usual.

### Key points

1. Check your blood glucose regularly, and record the result and the date and time of the test.
2. Be careful to follow the instructions accurately.
3. Ideal blood glucose levels are between 4 and 8 mmol/L.
4. If you are ill or under stress, your blood glucose level is likely to go up. You should check it more often than usual, and see your doctor if it does go up.

*Don't forget to record the date, time and result of your blood tests.*