EATING WELL

RIGHT BALANCE

CARB COUNTING

HEALTHY COOKING

TYPE 1 DIABETES

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Welcome

Welcome to Eating Well – Type 1 diabetes. You’re likely to have lots of questions about your diet, and this guide is intended to get you started by understanding the different aspects of your diet. From eating out to cooking healthier meals, you can make informed food choices that fit into your lifestyle.

Balancing your insulin with your diet is important for managing your diabetes. You’ll still be able to enjoy a wide variety of food, but by changing your eating habits, if you need to, will also help to protect your long-term health.

Your dietitian and diabetes healthcare team will also work with you to make sure that you get information specific to you and this guide is not intended to replace any of that advice. In this guide there’s also lots of information about how Diabetes UK can support you as you live your life to the full.

For detailed diabetes information and lifestyle tips, visit www.diabetes.org.uk/Guide-to-diabetes.

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TYPE 1 DIABETES EXPLAINED

You may hear a lot of different and sometimes conflicting information about diabetes and how it affects people. This can be confusing. It’s important to get the right information from a trusted source, so here are some of the facts.

What is diabetes?
Diabetes is a condition where your body can’t produce insulin, doesn’t produce enough, or where your insulin doesn’t work properly. Insulin helps your body use the glucose in your blood to give you energy. If you don’t have the right amount of insulin, or if your insulin isn’t doing its job properly, you can become very ill.

What is insulin?
It is a hormone that helps your body use the glucose in your blood to give you energy. Insulin is made by an organ called the pancreas, which lies just behind the stomach. It acts as the ‘key’ that ‘unlocks’ the body’s cells to let the glucose in, which is then converted to energy.

Where does glucose come from?
Glucose enters the bloodstream when we digest carbohydrate from various kinds of food and drink, including starchy foods (such as bread, rice, potatoes), fruit, some dairy products, sugar and other sweet foods. Glucose is also produced by the liver. In people without diabetes, insulin carefully controls the amount of glucose in the blood.

What happens in someone with Type 1 diabetes?
Type 1 diabetes develops when the pancreas doesn’t produce any insulin because the insulin producing cells in the body have been destroyed. As a result, glucose remains in the bloodstream and is unable to enter the cells where it can be converted into energy, which is why some people with untreated diabetes...
often feel tired. The body then gets rid of the excess glucose via urine. This can make you pass more urine than usual and become dehydrated, which may lead to extreme thirst. The cause of Type 1 diabetes is unknown.

**How is Type 1 diabetes treated?**

Type 1 diabetes can be successfully treated with insulin, using injections or a pump.

Your healthcare team will talk to you about how to manage your diabetes, but you may need to make lifestyle changes, such as eating more healthily and being more active, and, if necessary, losing weight. You may also want to learn about carbohydrate counting and how to adjust your insulin, so that you can eat more flexibly without compromising your diabetes control.

"Your healthcare team will talk to you about how to manage your diabetes."

"Type 1 diabetes can be successfully treated with insulin, using injections or a pump."

**Q&A**

**What’s the difference between Type 1 and Type 2 diabetes?**

There are two main types of diabetes — Type 1 and Type 2. Unlike those with Type 1, people with Type 2 still have some insulin-producing cells, but either not enough insulin is produced or it doesn’t work properly. In most cases, Type 2 is linked with being overweight and usually appears in people over the age of 40 (or over the age of 25 in South Asian people). It is treated with lifestyle changes, and in many cases medication and/or insulin.
GETTING THE BALANCE RIGHT

We know we’re meant to eat a healthy, balanced diet, whether we have diabetes or not. Here’s how to get it right.

Everyone needs to make sure they get enough fruit and vegetables, milk and dairy, carbohydrate and protein every day. And no food is off limits when you have diabetes – it’s fine to have a treat every now and again, just don’t overindulge. The foods you choose are an important part of your diabetes treatment, just like taking your medication, testing blood glucose and being active.

Food can be divided into five groups:

1. STARCHY FOODS
   Bread, rice, potatoes and pasta contain the all-important nutrient carbohydrate, which is broken down into glucose and used by the body’s cells as fuel. Starchy foods are naturally low in fat, and the high-fibre varieties are good for keeping your bowels regular and preventing digestive disorders.

   How much per day? 5–14 portions. One-third of your diet should be made up of these foods, so try to include them in all meals.

   What’s a portion? One portion is equal to: 2–4 tbsp cereal; 1 slice of bread; 2–3 tbsp rice, pasta, couscous, noodles or mashed potato; 2 new potatoes or half a baked potato; half small chapatti; 2–3 crispbreads or crackers.
2. **FRUIT & VEGETABLES**
All of these foods are low in fat and calories, and packed with vitamins, minerals and fibre, which are vital for good health. They can help protect against stroke, heart disease, high blood pressure and certain cancers.

**How much per day?** Aim for at least 5 portions. Fresh, frozen, dried and tinned fruit and veg all count.

**What's a portion?** Roughly what you can fit into the palm of your hand. It's best to mix and match fruit and veg to get as wide a range of vitamins and minerals as possible. See p8, point 4 for some examples.

3. **DAIRY PRODUCTS**
Milk, cheese and yogurt contain calcium, which helps to keep your bones and teeth strong. They are also a good source of protein, but some can be high in fat, so choose lower-fat alternatives where you can.

**How much per day?** Aim for 3 portions.

**What's a portion?** 1/4 pint of milk; a small pot of yogurt; 2 tbsp cottage cheese; or a matchbox-sized portion of cheese (40-45g/1½oz).

4. **FOODS HIGH IN FAT AND SUGAR**
Technically, your body doesn't need any foods in this group, but eating them in moderation will still mean you are following a healthy, balanced diet. Sugary foods will raise your blood glucose, as will sugary drinks, so bear this in mind and choose diet or low-calorie soft drinks instead. It's also worth remembering that fat contains a lot of calories, so try to reduce the amount of oil you use in your cooking and choose lower-fat alternatives where possible.

**How much per day?** 0–4 portions (the fewer the better).

**What's a portion?** One portion is equal to: 2 tsp spread, butter, oil, salad dressing, sugar, jam or honey; 1 tbsp Bombay mix; rashers of bacon; ¼ of a vegetable samosa; 1 mini chocolate bar; 1 scoop of ice cream or 1 tbsp cream.

5. **MEAT, FISH, EGGS & PULSES**
These foods are high in protein, which is needed for building and replacing muscle cells in the body. They also contain minerals, such as iron, which are needed for producing red blood cells. Omega-3 fish oils, found in oily fish such as mackerel, salmon and sardines, can help to protect the heart. Good sources of protein for vegetarians are beans, pulses, lentils, soya and tofu.

**How much per day?** Aim to have 2–3 portions.

**What's a portion?** One portion is equal to: 60–85g (2–3oz) meat, poultry or vegetarian alternative; 120–140g (4–5oz) fish; 2 eggs; 2 tbsp nuts; 3 tbsp beans, lentils or dahl.

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**Seasoning**
Eating too much salt (6g/0.2oz or more per day) can raise your blood pressure, which can lead to stroke and heart disease, so limit the amount of processed foods you eat and try flavouring foods with herbs and spices instead.
TOP TIPS FOR EATING WELL

There are many ways you can enjoy eating well. Small, simple changes all go a long way to improving your diet and help to protect your long-term health. Here are our top 10 tips...

1. EAT REGULAR MEALS
   It's important not to skip your meals. Try to space them evenly throughout the day as this will help control your appetite and blood glucose levels – especially if you are on twice-daily insulin.

2. INCLUDE CARBS
   Include starchy carbohydrate foods in your diet. Carbohydrate (carbs) affects blood glucose levels, so be conscious of how much you eat (see p10). Your diabetes team can help you learn more about how to adjust your insulin to the amount of carbohydrate you eat and drink.

3. CUT THE FAT
   Eat less fat – particularly saturated fat – as a low-fat diet is healthier for you. So try:
   - unsaturated fats and oils, especially mono-unsaturated fats like olive oil and rapeseed oil, as these types of fat are better for your heart
   - using skimmed or semi-skimmed milk and other low-fat dairy products
   - grilling, steaming or baking foods instead of frying.

4. TRY THE ‘FIVE A DAY’ RULE
   Aim for at least 5 portions of fruit or vegetables a day to give our bodies all the vitamins and minerals and fibre we need.
   A portion is:
   - 1 piece of fruit, like a banana or apple
   - 1 handful of grapes
   - 1 tbsp dried fruit
   - 1 small glass of fruit juice or fruit smoothie
   - 3 heaped tbsp vegetables.

5. DON'T BE MEAN WITH THE BEANS
   Brilliant beans, lovely lentils and perfect pulses. They're all low in fat, high in fibre, cheap to buy and packed with nutrition. They don't have a big impact on blood glucose and may help to control blood fats (eg cholesterol). And there are so many to choose from: kidney beans, chickpeas, green lentils, and even baked beans. Try them:
   - hot in soups and casseroles, or cold in salads
   - in baked falafel, bean burgers and low-fat hummus and dahls.
6 DISH UP THE FISH
All types of fish are healthy, but top choices are oily fish like mackerel, sardines, salmon and trout. These contain polyunsaturated fat, called omega-3, which helps protect against heart disease. Aim to eat 2 portions of oily fish a week, ideally from a sustainable source.

7 SAY ‘YES’ TO LESS SUGAR
Having diabetes doesn’t mean you need to eat a sugar-free diet. You can include some sugar in foods and baking as part of a healthy diet, just aim to have less of it. You can use sweeteners as an alternative to sugar, too. Some easy ways to cut back on your sugar intake are:
• choosing sugar-free, no-added sugar or diet fizzy drinks and squashes
• buying canned fruit in juice rather than syrup
• reducing or cutting out sugar in tea and coffee.

Remember, sugary drinks are an excellent treatment for hypos.

8 SLOW DOWN ON THE SALT
Reduce salt in your diet to 6g or less a day. Too much salt can raise your blood pressure, which increases your risk of heart disease and stroke.
• 70 per cent of our salt intake comes from processed foods, so cut back on these types of food where you can.
• Try flavouring foods with herbs and spices instead of reaching for the salt cellar.

9 THINK BEFORE YOU DRINK
The recommended daily alcohol limit for women is 2–3 units and 3–4 units for men.
• 1 unit is a single measure (25ml) of spirits
• half a pint (284ml) of lager, beer or cider has 1 to 1½ units, and a 175ml glass of wine up to 2 units.
• Alcohol is high in calories. To lose weight, think about cutting back.
• Never drink on an empty stomach as alcohol can make hypos (hypoglycaemia - low blood glucose level) more likely to happen. See p22 for more on alcohol.

10 DITCH ‘DIABETIC’ FOODS
These products offer no benefit to people with diabetes and may still affect your blood glucose levels. They contain as much fat and calories as ordinary versions, are expensive and can have a laxative effect.
THE CARB CONNECTION

Carbohydrates are often in the spotlight and there are conflicting stories about why we need them, what they really do, which ones are best and how much we should eat or not (in the case of low- and no-carb diets). So let's go back to basics...

WHAT ARE CARBOHYDRATES?
There are two main types of carbohydrate – starchy carbohydrates and sugars.

Starchy carbohydrates: These include bread, pasta, chapattis, potatoes, yam, noodles, rice and cereals.

Sugars: These can be divided into naturally occurring sugar and added sugar. Natural sugars are found in fruit (fructose) and some dairy products (lactose). Added sugars are found in table sugar, glucose syrup, invert syrup and honey.

Sugars can often be identified on food labels as those ingredients ending in “ose”, eg sucrose, glucose, lactose, fructose.

Why do we need carbohydrate?
Carbohydrate is a nutrient that is an important source of energy. All carbohydrates that you eat and drink are broken down into glucose, which is the body’s essential fuel that keeps us functioning – especially the brain. High-fibre varieties are important for keeping your bowels regular and preventing digestive disorders.

How much do we need?
It depends on your age, weight and activity levels. In ‘Getting the balance right’ (p6), we looked at carbohydrate portions – what they were and how much was needed. Remember that all carbohydrates break down into glucose, and the total amount you eat and drink will have an effect on your blood glucose
levels. So, being aware of how much carbohydrate you are eating could help you to achieve your optimal glucose control.

**What is carbohydrate counting?**
Carbohydrate counting is a method of matching your insulin requirements with the amount of carbohydrate you eat and drink. For many people with Type 1 diabetes, it is an effective way of managing the condition that, once mastered, will lead to better blood glucose control, more flexibility and freedom of lifestyle. It is an approach that needs a great deal of time and effort with guidance from a diabetes healthcare professional. To do it successfully, you will need to learn all about carbohydrates, learn how to adjust your insulin and be dedicated to monitoring your blood glucose levels frequently.

**How can I learn more about it?**
You will need the support of healthcare professionals from your diabetes healthcare team or through a structured carbohydrate counting course. Talk to your diabetes healthcare team about courses in your area. Courses don't suit everyone, so if this isn't for you, talk to your nurse or dietitian about arranging some one-to-one education. A good starting point is the Diabetes UK book *Carbs Count: an introduction to carbohydrate counting and insulin dose adjustment*, which is available for free. Download it at [https://shop.diabetes.org.uk/store/literature](https://shop.diabetes.org.uk/store/literature).

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**COELIAC DISEASE**

People with Type 1 diabetes should be assessed for coeliac disease and be aware of possible symptoms

More common in people with Type 1 diabetes, coeliac disease is where the body reacts to gluten (a protein found in wheat, barley and rye), which damages the gut lining and affects absorption of food. Symptoms include stomach ache, diarrhoea, constipation, anaemia, poor growth and unexplained hypos. But sometimes there are no symptoms.

It is recommended that all adults with Type 1 diabetes are assessed for coeliac disease and tested if showing any symptoms. This is done by a blood test. If the test is positive, the diagnosis will be confirmed by a gut biopsy under general anaesthetic. The only treatment is a permanent change in diet to avoid gluten, and it is essential that you see a dietitian who can advise on both diabetes and coeliac disease.

If you think you might have coeliac disease, discuss your symptoms with your GP. You shouldn't start a gluten-free diet until you have a definite diagnosis. Following a gluten-free diet before a test for coeliac disease may give an inaccurate result.

For essential information about coeliac disease and a gluten-free diet, visit Coeliac UK at [www.celiac.org.uk](http://www.celiac.org.uk).

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Eating well for Type 1 diabetes
LOOKING AT LABELS

The first step to eating more healthily is understanding what is in your food.

Most supermarkets and large food and drink manufacturers display “traffic light” and/or Guideline Daily Amount (GDA) food labels on the front of their products to help you make informed (and healthier) choices. Here are the different systems explained:

TRAFFIC LIGHT LABELLING
These tell you if the product has low (green), medium (amber) or high (red) amounts of fat, saturated fat, sugars, salt and calories per portion (see Table 1, below, for a guide). So the healthier the food, the more green lights it will have. Most foods will have a mixture of different-coloured lights, so try to choose products with more green and amber lights than red.

"Traffic light and/or GDA food labels help you to make informed choices."

Table 1: What is ‘high’, ‘medium’ and ‘low’ per 100g?

<table>
<thead>
<tr>
<th>PER 100G</th>
<th>LOW</th>
<th>MEDIUM</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugars</td>
<td>5g or less</td>
<td>5.1g–15g</td>
<td>More than 15g</td>
</tr>
<tr>
<td>Fat</td>
<td>3g or less</td>
<td>3.1g–20g</td>
<td>More than 20g</td>
</tr>
<tr>
<td>Saturates</td>
<td>1.5g or less</td>
<td>1.6g–5g</td>
<td>More than 5g</td>
</tr>
<tr>
<td>Salt</td>
<td>0.30g or less</td>
<td>0.31g–1.5g</td>
<td>More than 1.5g</td>
</tr>
</tbody>
</table>

With both labelling systems, check the manufacturer’s idea of a portion size (given in grams), as it may be different to yours.
GDA LABELLING
Guideline Daily Amounts are what an average adult of normal healthy weight should eat per day. How much we need depends on age, weight and activity levels (see Table 2, below, for a guide). GDA labelling shows the amount of calories, sugar, fat, saturated fat and salt per portion of the product, and then expresses it as a percentage of the total amount of nutrient that is recommended each day as a healthy, balanced diet (see Table 3, bottom). This is useful for helping you decide how a particular food fits into your overall diet.

Table 2: Guideline Daily Amounts (GDAs) of calories and nutrients recommended for a healthy, balanced diet

<table>
<thead>
<tr>
<th></th>
<th>Calories</th>
<th>Sugars</th>
<th>Fat</th>
<th>Saturates</th>
<th>Salt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>2000</td>
<td>90g</td>
<td>70g</td>
<td>20g</td>
<td>6g</td>
</tr>
<tr>
<td>Men</td>
<td>2500</td>
<td>120g</td>
<td>95g</td>
<td>30g</td>
<td>6g</td>
</tr>
</tbody>
</table>

Table 3: Example of GDA labelling

- Looking at the label can help you decide whether the product contains 'a little' or 'a lot' of fat, sugar, salt and fibre.
- Use the 'per 100g' column on the label to compare the make-up of similar food and the 'per serving' for different foods.
- Table 3 (bottom), gives a guide as to how much nutrient is in your food or drink per 100g. Use this to check against your actual serving size.
- The figures for sugar don't tell you how much of the sugar comes from natural sugars, eg fruit sugar (fructose) and how much comes from added sugars (sucrose).
- To see whether a product is high in added sugar, look at the ingredients list, which always starts with the biggest ingredient first.
- Remember that you don't need to avoid all food and drink that contain a lot of fat, sugar or salt. It's the overall balance of your diet that counts.