



Diet and diabetes: for those not requiring insulin

Building healthier lives

UHB is a no smoking Trust

Diabetes mellitus (often shortened to diabetes) is a condition where the body is unable to make enough or respond properly to a hormone called insulin. Insulin helps blood glucose (sugar) enter our body cells to be used as energy – without insulin, blood glucose levels rise above normal.

There are lots of different types of diabetes, but it is likely you have: Type 2 diabetes: this is when the body either does not produce enough insulin, or the insulin it produces does not work as well as it should (insulin resistance). There are several treatment options for those with type 2 diabetes. As the pancreas becomes weaker, the body requires more support to control blood glucose levels. This is usually treated with oral medication and/or insulin injections.

Lifestyle changes, such as following a balanced diet, increasing physical activity, and weight control are especially important in managing this type of diabetes.

Diabetes medication

Many different types of diabetes medications are available; these can be prescribed on their own or in combination as each medication works in a different way to lower blood glucose levels. Some medications act more aggressively than others and can increase the risk of low blood glucose levels (hypoglycaemia or 'hypo'). These medications include:

- Sulphonylureas e.g. Gliclazide/Glimepiride/Glipizide
- Any insulin e.g. Novomix 30/Humalog Mix 25/Novorapid/Lantus/Levemir/Apidra/Insulatard/Actrapid

If you have been prescribed the above medications, the “Why do I sometimes feel shaky, dizzy and sweaty” leaflet may also be useful. If you have been prescribed other diabetes medications such as Metformin, Empagliflozin, Pioglitazone, Linagliptin, Ozempic or Victoza your risk of hypo is minimal.

Diet and diabetes

Whilst there is no 'special diet' to follow, understanding how different foods can affect your weight and your blood glucose levels will help you to make healthier food choices.

Most of us eat different foods everyday – it is important to have variety in your diet to get the many different vitamins and minerals we need. A balanced diet should contain food from each of the three main nutrients (see Eatwell diagram):

- **Carbohydrates (CHO)** are important as they provide our bodies with energy needed to function. Insulin helps the blood glucose enter our body's cells to be used as energy however eating carbohydrate in excessive amounts can increase blood glucose levels and affect weight control. For examples of CHO see page 7
- **Protein** foods help with tissue repair and muscle strength. However, eating more than you need will lead to weight gain.
- **Fat** provides some essential vitamins, but is only needed in very small amounts in your daily diet. Too much will lead to weight gain and increases your risk of complications including those from diabetes, heart disease and stroke

"A varied, balanced diet is important in helping control blood glucose levels – no matter what medication you have been prescribed, following a healthy way of eating is key to good diabetes control."

Tips to a healthier diet/lifestyle:

- Eat regular meals – aim to have x3 meals per day
- Include carbohydrate with each meal, keeping your carbohydrate portion sizes consistent
- Avoid snacking (unless advised by Diabetes Team)
- Keep physically active

Eatwell Guide

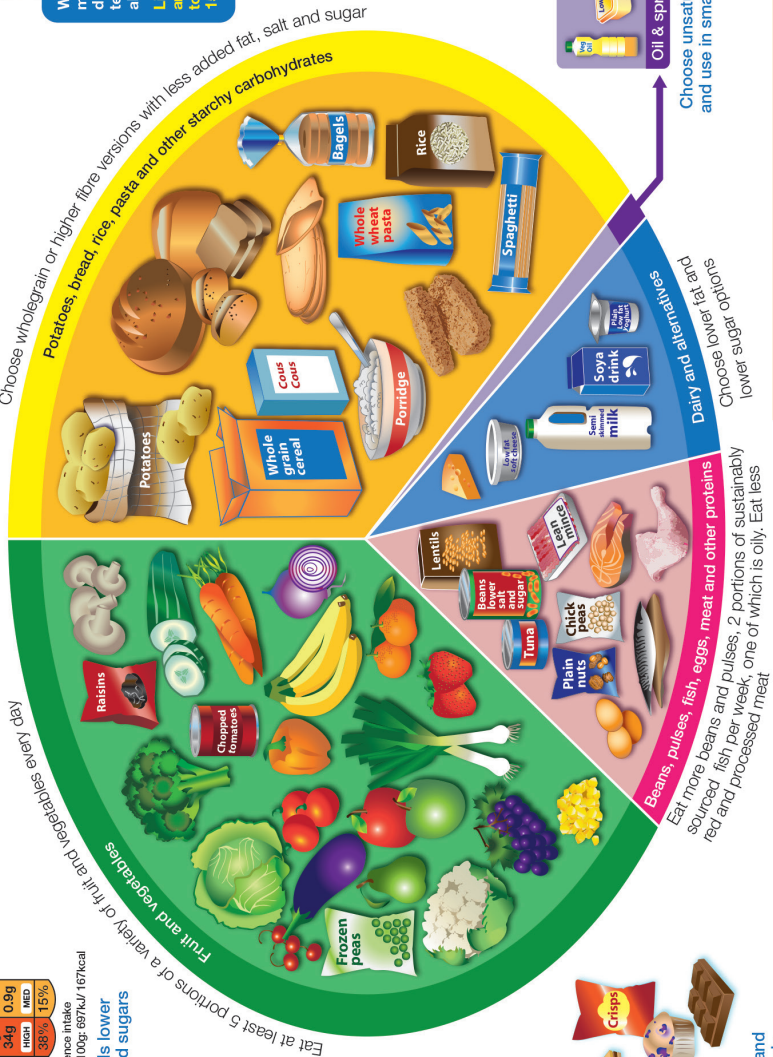
Check the label on packaged foods

Each serving (150g) contains					
Energy	Carbs	Fat	Salt		
100kcal	3.0g	1.3g	24g	0.9g	
250kcal	LOW	LOW	MED	MED	
13%	4%	7%	38%	15%	

Typical values (as sold) per 100g: 697kcal/ 167kcal of an adult's reference intake

Choose foods lower in fat, salt and sugars

Use the Eatwell Guide to help you get a balance of healthier and more sustainable food. It shows how much of what you eat overall should come from each food group.



Water, lower fat milk, sugar-free drinks including tea and coffee all count.

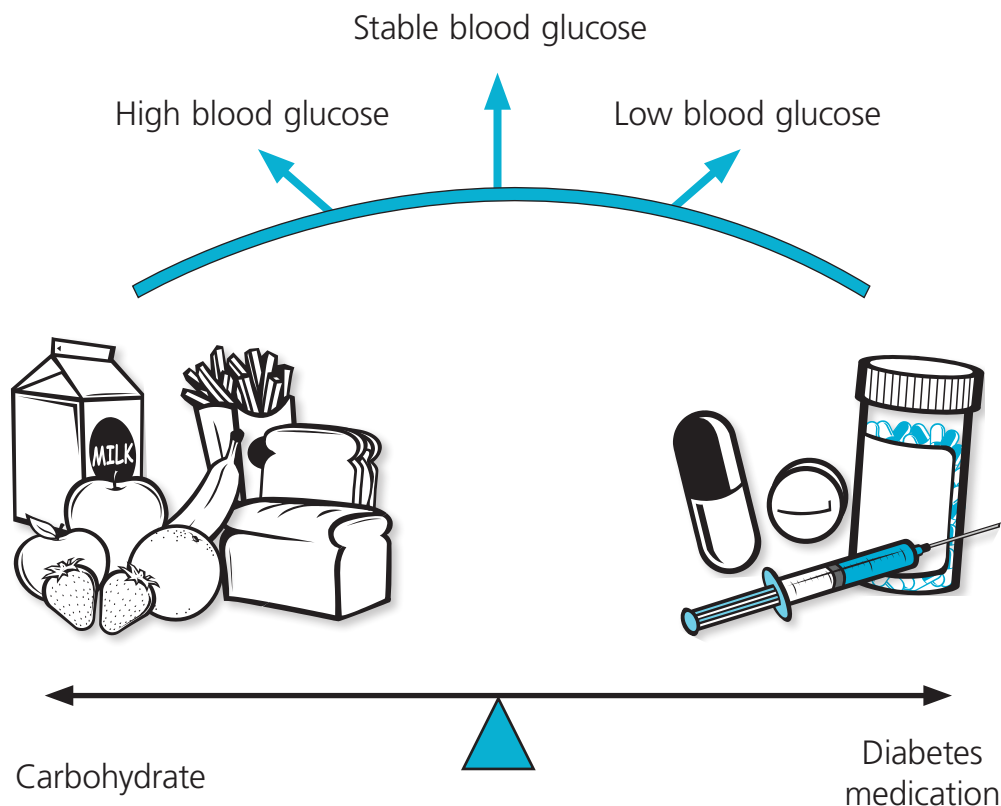
Limit fruit juice and/or smoothies to a total of 150ml a day.

Per day 2000kcal 2500kcal = ALL FOOD + ALL DRINKS

Carbohydrate and diabetes

Foods that contain starch and sugar are collectively called carbohydrates; when digested these foods are broken down to glucose and absorbed into the bloodstream.

Carbohydrates are important as they provide our bodies with energy needed to function. For people with diabetes, eating large amounts of these foods will increase blood glucose levels because there is not enough insulin working in your body.



What can I do to help my blood glucose levels?

Whilst there is no 'special diet' to follow, there are a number of small changes you can make. These are changes to the timing, amount and type of carbohydrate you choose to eat.

Timing – spread carbohydrate throughout the day

Eating regular meals spreads the carbohydrate load across the day. This reduces the amount of glucose released into your blood at one time.

Amount – eat regular, consistent portions of carbohydrate at mealtimes

All carbohydrate foods are digested and absorbed into the blood as glucose – the more you eat, the greater the effect on your blood glucose level.

For example, you might normally have one slice of toast at breakfast but today you feel hungry so you have a bowl of cereal and two slices of toast. Today, your blood glucose level will be higher because you have eaten more carbohydrate.

Eating similar portion sizes of carbohydrate at each mealtime helps to keep your blood glucose level more stable and helps your diabetes team to prescribe the correct dose of medication.

Do not be tempted to cut out carbohydrate completely, some tablets e.g. Gliclazide require you to have carbohydrate at mealtimes to minimise the risk of you having a low blood glucose level (hypoglycaemia or 'hypo').

Type – choose carbohydrate foods that are broken down slowly

When you feel that you are eating the correct amount of carbohydrate, you may wish to look at the type. Different types of carbohydrate are digested at different speeds and so changes how quickly they may affect your blood glucose level; this is also called the Glycaemic Index (GI).

Lower GI foods are slower to raise blood glucose levels which allows your body to handle the glucose more efficiently. They are also often higher in essential nutrients such as fibre, vitamins & minerals.

1. Starchy CHO	2. CHO as fructose	3. CHO as lactose	4. CHO in snacks
These foods often form the basis of meals, for example: Wholegrain cereals (All Bran, coarse porridge) Potatoes/sweet potato, Granary/seeded/rye breads Wholegrain pasta Basmati rice These are an important part of a balanced, varied diet as they provide 'slow release' energy, fibre, vitamins and minerals.	Whether dried or fresh, fruit contains natural sugar, for example: Apples Oranges Raisins Strawberries Mangos These are an important part of a balanced, varied diet as they provide essential fibre, vitamins and minerals.	Liquid dairy products contain milk sugar (lactose), for example: Milk Yoghurts Ice cream Crème fraiche Fromage frais These are an important part of a balanced, varied diet as they provide essential vitamins and minerals.	These products often have large amounts of added sugar and fat, for example: Sugar Honey Sugary drinks Sweets Fruit juices Crisps Biscuits Chocolate If eaten regularly they may cause weight gain/erratic blood glucose control – avoid these foods where possible.

Fat and diabetes

Having diabetes is a risk factor for heart disease and other conditions; being overweight increases your risk further. Eating as little fat as possible and choosing 'healthier' fats will help with weight control and reduce your risk of complications.

Saturated fat (such as butter, lard, fat on meat and in cakes and pastries)	Polyunsaturated fat (such as plant-based oils and spreads)	Monounsaturated fat (such as olive & rapeseed oils & spreads)	Omega-3 (such as salmon, trout and fresh tuna)
✗ High energy ✗ Too much can cause weight gain ✗ Can increase cholesterol levels ✗ More than 5g per 100g is high ✓ Swap to other fats where possible ✓ Choose reduced fat options ✓ Limit these foods to treats eaten occasionally ✓ Do not add any extra fat ✓ Less than 1.5g per 100g is low	✗ High energy ✗ Too much can cause weight gain ✓ Swap to monounsaturated fat where possible ✓ Choose reduced fat options ✓ Do not add any extra fat	✗ High energy ✗ Too much can cause weight gain ✓ Choose reduced fat options e.g. olive oil based spread ✓ Do not add any extra fat ✓ Use rapeseed/ground nut oil for cooking and olive oil for dressings	✓ Choose oily fish ✓ Vegetarian sources include linseed/flaxseed

Protein and diabetes

Where possible choose lean/low fat sources of protein – aim to have x2 small portions daily.

Meat, poultry and eggs	Fish	Milk and dairy	Beans pulses, nuts and seeds
✓ Good source of iron Suggestions: • Choose lean cuts of meat • Keep portion sizes to 2–3 oz (50–75g) • Trim off excess fat • Remove skin from poultry • Avoid adding fat - grill/steam/poach/boil instead • Limit eggs to one per day	✓ Oily fish contain omega-3; important for heart health ✓ White fish lower in fat Suggestions: • Aim for two portions a week – include one portion of oily fish Oily fish include mackerel, sardines, salmon, trout, fresh tuna	✓ Good source of calcium Suggestions: • Choose low fat varieties • Milk and other 'liquid' dairy will contain carbohydrates too and will affect your blood glucose level	✓ Good vegetarian source of protein ✓ Contains monosaturated fat; better for heart health ✓ Good source of fibre Suggestions: • Avoid varieties with added salt • Some beans and pulses will contain carbohydrate but normally will not affect your blood glucose level • Be aware that the sauces that these foods often come in may contain sugar and will affect your blood glucose level

Alcohol and diabetes

Unless advised by your doctor, there is no reason to completely avoid alcohol because of your diabetes. Alcoholic drinks do contain varying amounts of alcohol and carbohydrate so will affect your weight and may also affect your blood glucose levels.

There are no 'safe' limits. It is recommended that you keep your alcohol intake to less than 14 units per week.

It is also recommended that if you are drinking up to 14 units of alcohol, this should be spread over the week.

Units can be difficult to understand as most people drink by the glass, not by the unit.



2 Units

182 calories
3.5% ABV



1 Unit

120 calories
37.5% ABV



1 Unit

55 calories
40% ABV



1.5 Units

93 calories
125ml
12% ABV



2.1 Units

130 calories
175ml
12% ABV



9 Units

556 calories
12% ABV



1.4 Units

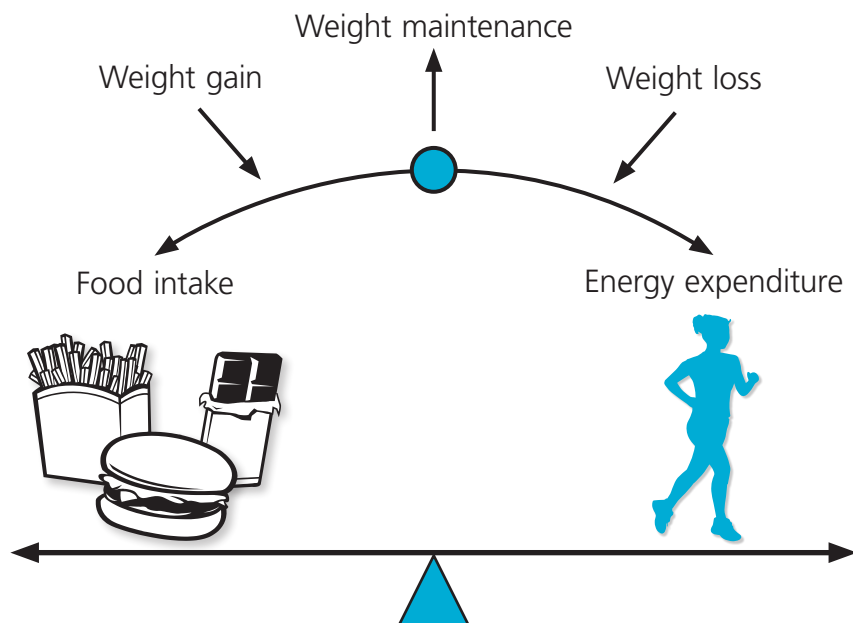
200 calories
5% ABV

If you take any of the medications which increase your risk of hypo, you should take the following precautions if drinking more than three units of alcohol:

- Drink with meals not on an empty stomach
- Do not skip usual meal/cut down on carbohydrate intake
- Have a small carbohydrate containing snack before bed if drinking in the evening such a slice of toast or a small bowl of cereal

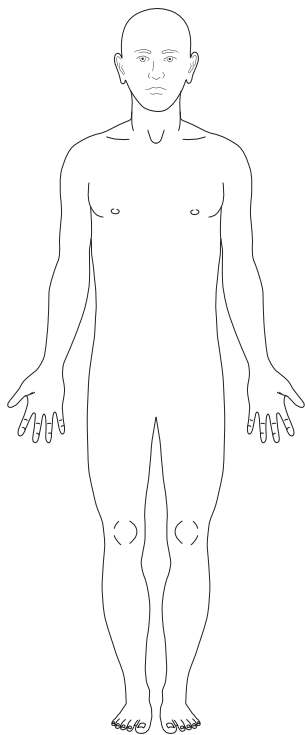
Body weight and diabetes

Eating/drinking provides energy which is used to perform everyday activities such as breathing and walking; any energy not used is stored in the body as fat. The more fat stored, the less effective insulin becomes resulting in higher blood glucose levels.



Measuring your waist and estimating your Body Mass Index (BMI) can help identify if you are at risk of secondary complications. The greater your waist size and/or BMI the greater you are at risk.

To measure your waist



To measure your waist:

- 1. Find the top of your hip bone
- 2. Find your lowest rib
- 3. Measure in between these points making sure the tape measure is kept level with the floor and not pulled too tight

		At risk
Men	White European	>90cm (>35inches)
	Black, Asian and other minority ethnic groups*	>94cm (>37inches)
Women	White European	>80cm (>32inches)
	Black, Asian and other minority ethnic groups*	>80cm (>32inches)

*these groups are known to have an increased risk of diabetes

To estimate your BMI

Using the table opposite:

- 1. Find your weight along the top of the table
- 2. Find your height along the side of the table
- 3. Follow along the column and row; where they meet is an estimation of your BMI

E.g. For an individual of 175cm, weighing 85kg; BMI = 27.8kg/m2

Weight in kilograms

	45	48	50	53	55	58	60	63	65	68	70	73	75	78	80	82.5	85	87.5	90
145.0	21.4	22.6	23.8	25.0	26.2	27.3	28.5	29.7	30.9	32.1	33.3	34.5	35.7	36.9	38.0	39.2	40.4	41.6	42.8
147.5	20.7	21.8	23.0	24.1	25.3	26.4	27.6	28.7	29.9	31.3	32.2	33.3	34.5	35.6	36.8	37.9	39.1	40.2	41.4
150.0	20.0	21.1	22.2	23.3	24.4	25.6	26.7	27.8	28.9	30.0	31.1	32.2	33.3	34.4	35.6	36.7	37.8	38.9	40.0
152.5	19.3	20.4	21.5	22.6	23.6	24.7	25.8	26.9	27.9	29.0	30.1	31.2	32.2	33.3	34.4	35.5	36.5	37.6	38.7
155.0	18.7	19.8	20.8	21.9	22.9	23.9	25.0	26.0	27.1	28.1	29.1	30.2	31.2	32.3	33.3	34.3	35.4	36.4	37.5
157.5	18.1	19.1	20.2	21.2	22.2	23.2	24.2	25.2	26.2	27.2	28.2	29.2	30.2	31.2	32.2	33.3	34.3	35.3	36.3
160.0	17.6	18.6	19.5	20.5	21.5	22.5	23.4	24.4	25.4	26.4	27.3	28.3	29.3	30.3	31.3	32.2	33.2	34.2	35.2
162.5	17.0	18.0	18.9	19.9	20.8	21.8	22.7	23.7	24.6	25.6	26.5	27.5	28.4	29.3	30.3	31.2	32.2	33.1	34.1
165.0	16.5	17.4	18.4	19.3	20.2	21.1	22.0	23.0	23.9	24.3	25.7	26.6	27.5	28.5	29.4	30.3	31.2	32.1	33.1
167.5	16.0	16.9	17.8	18.7	19.6	20.5	21.4	22.3	23.2	24.1	24.9	25.8	26.7	27.6	28.5	29.4	30.3	31.2	32.1
170.0	15.6	16.4	17.3	18.2	19.0	19.9	20.8	21.6	22.5	23.4	24.2	25.1	26.0	26.8	27.7	28.5	29.4	30.3	31.1
172.5	15.1	16.0	16.8	17.6	18.5	19.3	20.2	21.0	21.8	22.7	23.5	24.4	25.2	26.0	26.9	27.7	28.6	29.4	30.2
175.0	14.7	15.5	16.3	17.1	18.0	18.8	19.6	20.4	21.2	22.3	22.9	23.7	24.5	25.3	26.1	26.9	27.8	28.6	29.4
177.5	14.3	15.1	15.9	16.7	17.5	18.3	19.0	19.8	20.6	21.4	22.2	23.0	23.8	24.6	25.4	26.2	27.0	27.8	28.6
180.0	13.9	14.7	15.4	16.2	17.0	17.7	18.5	19.3	20.1	20.3	21.6	22.4	23.1	23.9	24.7	25.5	26.2	27.0	27.8
182.5	13.5	14.3	15.0	15.8	16.5	17.3	18.0	18.8	19.5	20.3	21.0	21.8	22.5	23.3	24.0	24.8	25.5	26.3	27.0
186.0	13.1	13.9	14.6	15.3	16.1	16.8	17.5	18.3	19.0	19.7	20.5	21.2	21.9	22.6	23.4	24.1	24.8	25.6	26.3
187.5	12.8	13.5	14.2	14.9	15.6	16.4	17.1	17.8	18.5	19.2	19.9	20.6	21.3	22.0	22.8	23.5	24.2	24.9	25.6
190.0	12.5	13.2	13.9	14.5	15.2	15.9	16.6	17.3	18.0	18.7	19.4	20.1	20.8	21.5	22.2	22.9	23.5	24.2	24.9

Height in centimetres

 Underweight  Normal  Overweight  Obese

Activity and diabetes

Aim to be active for at least 30 minutes every day – by being more active, less energy needs to be stored. If you do not usually exercise or have any other health conditions, please discuss this with your GP before starting.

Activity can include using the stairs instead of a lift, brisk walking, swimming, dancing and gardening. If you are currently not able to manage 30 minutes in one go, start slowly and gradually increase your activity. Doing so may:

- Improve your response to insulin
- Help control weight
- Reduce your stress levels
- Improve your heart health
- Improve how you look/feel

Please use the space below to write down any questions you may have and bring this with you to your next appointment.

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Contact details

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Diabetes Dietitians
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Telephone: **0121 770 4432**

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