University Hospitals
Coventry and Warwickshire
NHS Trust

Department of Nutrition and Dietetics

Healthy Eating with Diabetes

This leaflet is for people with diabetes

What is diabetes?

Diabetes is a common condition in which the amount of glucose (sugar) in your blood is too high. This can be because the pancreas cannot produce any insulin to help glucose enter the cells where it is used as fuel (energy), or because the insulin that is produced does not work properly, which is known as **insulin resistance**.

Blood glucose (sugar) comes from the food we eat, either from sugary foods or from the digestion of starchy foods, such as bread or potatoes. These are called carbohydrates. The liver can also make glucose.

In Type 1 Diabetes, the pancreas cannot produce insulin because a person's immune system has attacked and destroyed their insulin-producing cells in the pancreas. Treatment is always insulin. Diet and exercise cannot prevent or reverse the condition but are advised for a healthy lifestyle, as with the general population.

For more information on Type 1 Diabetes, turn to page 2.

In Type 2 Diabetes, the insulin produced by the pancreas cannot work effectively to help glucose enter cells. This is known as **insulin resistance**. Diet and exercise play a major role in prevention and treatment of Type 2 Diabetes. Weight carried around the abdomen can cause an increase in insulin resistance and so weight loss (if you are overweight) can help control diabetes. Tablets, injected medicines and insulin can also help control Type 2 Diabetes.

For more information on Type 2 Diabetes, turn to page 3.

In both types of diabetes, high blood glucose levels over time can increase your risk of heart disease, stroke and damage to eyes, kidneys and nerves.

Type 1 Diabetes

When you are first diagnosed with Type 1 diabetes you will need to take insulin straight away. There are two main types of insulin regime, either twice daily or 'basal-bolus'. The type of regime you are on will depend on your lifestyle. For both regimes it is important to consider carbohydrate intake. The aim of treatment is to have near normal blood glucose levels by balancing your insulin dose and carbohydrate intake.

If you are started on a basal-bolus regime you will often be put on set doses of insulin at each meal initially. It is important that you have a portion of carbohydrates at each meal when on set doses. Your Dietitian can then help you to adjust your insulin according to your carbohydrate intake, if required.

If you are on a mixed insulin regime, it is important that you have regular small portions of starchy foods at breakfast, lunch and evening meal. Your Dietitian can help you to distribute your intake of starchy foods equally throughout the day to help control blood glucose levels.

Exercise

When exercising you need to be mindful that your blood glucose levels can change rapidly depending on the type and intensity of exercise. Depending on the type of insulin you are on, your Dietitian may be able to help you adjust your insulin.

Hypoglycaemia or a 'hypo' occurs when the levels of glucose in the blood drops too low. A blood glucose level below 4mmol/L is the beginning of a hypo. Always carry your hypo treatment and carbohydrate snacks when exercising, and monitor your blood glucose levels regularly to prevent a hypo.

Alcohol

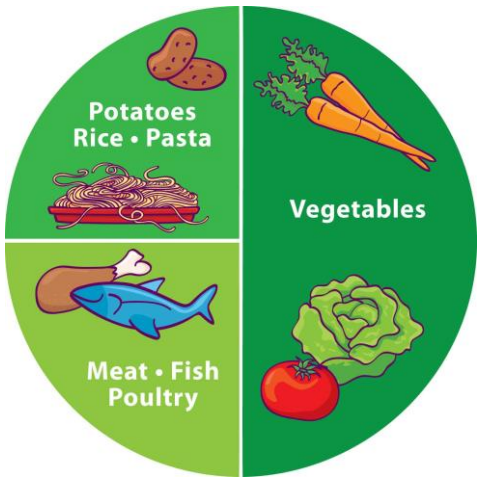
Having large amounts of alcohol can increase your risk of hypoglycaemic episodes for up to 24 hours, due to the effect of alcohol on the liver. To prevent this, avoid drinking on an empty stomach, eat something starchy before bed and test your blood glucose more regularly than usual.

The amount of carbohydrate in alcoholic beverages can also vary greatly, which can affect your blood glucose levels.

Type 2 Diabetes – Key Messages!

Weight control is an important part of good diabetes management. If you are overweight, losing weight can help to improve your diabetes control by reducing insulin resistance (helping your own insulin work more effectively). Reducing your overall energy intake (calories from food) and increasing the amount of exercise you do can help you lose weight. Losing weight from around your waistline has the biggest impact on diabetes.

Reducing the amount of carbohydrates in your diet (both sugary and starchy) can help to reduce blood glucose levels and help with weight loss. Ensure that you speak with your Diabetes Specialist Nurse/Dietitian when reducing carbohydrates, as your medications may need to be changed.
Aim for no more than a quarter of a plate of starchy carbohydrates.



Different types of carbohydrates are broken down into glucose by the body at different rates, a concept known as the **glycaemic index (GI).** Foods broken down slowly enter the blood more slowly and can prevent a spike in blood glucose levels. This can both reduce appetite and tends to help control blood glucose levels. Low GI foods include: oats and oat based cereals, bran based cereals, granary/multigrain bread, basmati and long grain rice, sweet potato and yam. Eating protein with each meal can help lower the GI of a food and is another great way of keeping full.

It is important to remember that no matter how slowly glucose is released, if carbohydrate is eaten in large quantities it will raise your blood glucose level too high. This is known as the **glycaemic load**. It is always necessary to **remember portion size when eating starchy foods**.

Exercise can help to reduce weight and reduce blood glucose levels. Any increase in exercise above your normal routine can help!

Remember to always take medication as prescribed alongside any diet and lifestyle change. Medication will be reviewed over time by your healthcare team to try to achieve the best possible control of your diabetes.

Which foods contain carbohydrate?

Starchy foods

Potatoes, yam, sweet potato, plantain, fufu, maize meal, semolina, bulgur wheat, quinoa, bread, pasta, rice, noodles, couscous, oats, corn, chapattis, breakfast cereals, flour and foods prepared with flour, i.e. pizza, pastry, crackers, biscuits, buns, thickened sauces and soups.

Starchy foods are generally higher in fibre, vitamins and minerals than sugary foods and can be eaten regularly as part of a healthy balanced diet. The effect on blood glucose levels after eating these foods will depend on the quantity eaten, cooking methods and how quickly the food is digested along with other food eaten at the same meal.

Sugary foods/drinks

Glucose, sugar (white and brown), jaggery, honey, syrup, jam, honey, full sugar fizzy drinks, fruit juices or squashes, milky drinks, jelly, sweet puddings, custard, ice cream, cakes, biscuits, sweets, other confectionery and chocolate.

These foods are broken down into glucose more quickly than starchy foods, so will rapidly effect blood glucose levels.

Remember… sugary foods are less nutritious than starchy foods and can be high in calories, so keep them for an occasional treat.

Dairy foods/drinks

Milk – cows, goat and sheep, yoghurts and fromage frais.

These dairy foods contain a sugar called lactose which will affect your blood glucose levels. Dairy foods should be eaten regularly because they are an important source of calcium. There is added sugar in some fruit yoghurts so it is important to read the labels – most diet/light types have no added sugar.

Cheese and cream will **NOT** affect your blood glucose levels, but are usually high in fat so small portions are recommended.

Fruits

All fruit - including fresh, dried, tinned and frozen.

Fruit contains a natural sugar called fructose which will affect your blood glucose levels. Fruit is rich in important vitamins and minerals, so you should aim to eat some fruit every day. Dried fruit and fruit juice are concentrated sources of sugar, so should be taken in smaller quantities than fresh fruit. Fruit that is tinned in juice is preferable to syrup, because syrup is much higher in sugar.

Other carbohydrate foods

Beans, pulses, lentils and vegetables.
The carbohydrate content of these foods is variable. There are only small amounts of carbohydrate in most vegetables. Vegetables should ideally be eaten every day.

Beans, pulses and lentils are absorbed into the blood stream very slowly due to their high fibre content. These are important sources of iron and fibre in your diet.

Healthy Eating for all

Eat your 5 a day
Eat 5 or more servings of a mixture of vegetables, salad and fruit each day. Try not to have most of these servings from fruit, as this can have lots of natural sugar and raise blood glucose levels. Having one portion of fruit at a time and spreading these throughout the day can help control your blood glucose levels.

Aim for at least 2 protein portions a day
These include meat, fish, eggs, beans, quorn, soy, tofu and other non-dairy sources of protein. Protein can help you feel full after a meal and does not affect blood glucose levels.

Starchy foods
These include bread, rice, pasta, potatoes, cereal, chapattis, naans etc. These will all enter the blood as glucose. Try to choose the high fibre wholegrain varieties as glucose will enter the blood stream slower and help you feel full for longer. Reducing the amount of starchy foods on your plate can help you to reduce weight, and if you have Type 2 Diabetes, help to control your blood glucose levels.

Milk and dairy foods
Aim for 3 portions daily to help protect your bone health. One portion is 200ml milk, 30g cheese (around a match-box size) and 150g of yogurt (small pot). Choose lower fat versions to help with weight loss and reduce cholesterol levels; however also check the label as lower fat yogurts can be high in sugary carbohydrates.

Fats
Eating too much fat in your diet can lead to weight gain and can affect your cholesterol levels.

Saturated fat may increase the level of 'bad LDL cholesterol' in your blood, which may increase your risk of heart disease. Sources of saturated fats include lard, butter, dripping, ghee, palm oil, coconut oil, full fat dairy foods, red meat, skin on meat. Saturated fats are also often used to make biscuits, cakes, chips and pastries.

Replace saturated fats with small quantities of unsaturated fats to help protect your heart:
Monounsaturated fat is much better for the heart than saturated fat. Sources include olive oil or olive oil based spreads, rapeseed oil and groundnut oil.

Polyunsaturated fat is better than saturated fat, but not as good as monounsaturated fat. Sources include sunflower oil, soya oil, sunflower based spreads and corn oil.

Remember that all types of fat are still high in calories therefore limit the total amount of fat in your diet if you are keen to lose weight.

Fish and Omega 3
Fish is high in protein and low in fat so is a great choice at mealtimes. Oily fish contains omega 3 fatty acid. This helps to reduce the stickiness of blood, reduce blood pressure and reduce the levels of 'bad' cholesterol in the blood. Examples of oily fish include; mackerel, salmon, sardines, pilchards, fresh or frozen tuna (not tinned), herrings, kippers and trout.

Aim to eat fish twice a week, including one portion of oily fish. A portion is around 140g cooked weight, about the size and thickness of your hand.

Sugary foods
These foods should be limited as much as possible to help improve control of your blood glucose levels. They are also quite high in calories, so cutting them out can help you lose weight.

Below is a list of foods to avoid and alternatives to try:

Foods high in sugar to reduce in diet	**Replace with these alternatives**
Sugar, glucose, fructose, powdered sweeteners containing sugar e.g. Sucron & Halfspoon	Artificial sweeteners such as saccharin, Sweetex, Canderel, Hermesetas, Splenda and own supermarket brands
Jam, marmalade, honey, syrup, treacle, lemon curd	Low sugar jam or marmalade, fruit spread
Squash and fizzy drinks containing sugar, e.g. Lucozade, Ribena, Coke. Smoothies, milkshakes, fruit juices.	Sugar-free squash, or diet fizzy drinks, water, soda water, mineral water, slimline mixers, Ribena Really Light
Drinking chocolate, malted milk drinks	Tea, coffee, cocoa, low calorie drinks such as Options or Highlights drinks
Sweets, chocolates, toffees, mints, sugar-free sweets containing isomalt, Indian sweets such as burfi, jalebi, gulabjaman, halva, penda	Fresh fruit, sugar free mints or sugar-free chewing gum
Tinned fruit in syrup, jelly, instant whips, flavoured yoghurts and puddings sweetened with sugar, rice puddings.	Fresh fruit, tinned fruit in natural juice, puddings sweetened with artificial sweeteners, sugar-free jelly, sugar-free instant whip, diet or light yoghurt, small portion of ice cream
Sweetened condensed milk	Low fat evaporated milk
Sugar coated breakfast cereals.	Porridge, wheat based cereals, sugar free cereals.

Salt
Salt in our diet can cause high blood pressure. Avoid adding salt to meals whilst cooking and at the table. Instead, experiment with herbs, spices and black pepper to add flavour. Lots of added salt comes in processed foods such as ready meals, cheese, bacon and cured meats, stock cubes, salted nuts and many pre-made soups. Look at labels and use the traffic light system to check the salt levels by aiming for the green. Adults should aim for less than 6g per day.

Alcohol
Men and women should not have more than 14 units per week and this should not be saved for one day. You should try to have several alcohol free days a week.

(Continued on next page)

What is a unit?

14 units is equivalent to six pints of average strength beer (4%) or six 175ml glasses of average strength wine (13%) or fourteen 25ml glasses of 40% spirits.

Fluid
It is common to feel thirsty when you are diagnosed with diabetes as this can be a result of your blood glucose levels being too high. Once your diabetes is more controlled this should stop. It is important to maintain hydration and ensure you have around 8-10 cups daily. This can include teas and coffee. Ensure you select the sugar free drinks as these will not affect your blood glucose levels.

Exercise
Adults should aim for at least **150 minutes of moderate aerobic activity**, such as cycling or fast walking every week, **and strength exercises on two or more days a week.** Moderate activity will raise your heart rate and make you breathe faster and feel warmer. You should still be able to talk.

OR

75 minutes of vigorous aerobic activity, such as running or a game of tennis every week **and strength exercises on two or more days a week**. Vigorous activity makes you breathe hard and fast. You should not be able to say more than a few words.

Diabetic foods
Don't be tempted to buy diabetic foods. These are costly and can still affect your blood glucose levels. They can also have laxative effects.

Your action plan

List below any changes you can make to improve your health:

☺ _____

☺ _____

☺ _____

☺ _____

Useful contacts

Diabetes UK Tel: 020 7424 1000
Careline: 0845 120 2960
Website: http://www.diabetes.org.uk

Diabetes UK is a useful source of additional information about diabetes which you can read, order or download. They also have books to buy, details of local diabetes groups and general news/articles about diabetes.

Dietitian / Health Professional: ……

Contact Number: ……...

Further Information

This information has been produced by Coventry and Rugby Dietitians, University Hospitals Coventry & Warwickshire NHS Trust. If you have any more questions you can contact the team on: 024 7696 6161.

The Trust has access to interpreting and translation services. If you need this information in another language or format please contact 024 7696 6161 and we will do our best to meet your needs.

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