

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Introduction

Eating healthy foods is an important part of managing your child's diabetes. It will help to control your child's blood sugar (glucose) levels and reduce their risk of developing other illnesses such as heart disease.

There is no special diet to follow but with type 1 diabetes it is important that your child:

- Eats regular meals. He/she should have breakfast, lunch and an evening meal.
- Eats healthy foods.
- Checks their blood sugar levels regularly and gives themselves insulin.
- Learns to carbohydrate count. (see page 4)
- Has starchy carbohydrate foods with each main meal.
- Cuts down on sugary foods and drinks.
- Cuts down on fried and fatty foods.
- Eats the right type of fat.
- Avoids diabetic products because these are high in calories and are expensive too.
- Eats more food which is high in fibre.

You should encourage your child to enjoy their food.

What is Carbohydrate?

Blood sugar is made from the food we eat which contains carbohydrates. Carbohydrates are found in sugar and starchy foods. Your child's dietitian will tell you more about carbohydrates.

Top tips for cutting down sugar

- Change to sugar free or no added sugar squash drinks.
- If necessary have the 'diet' version of fizzy drinks.
- Try sweeteners instead of sugar.
- Have plain biscuits instead of chocolate and jam/cream filled biscuits.
- Try a scone, teacake or crumpet instead of cake.
- For pudding, try: fresh fruit, tinned fruit in its own juice, diet yoghurts, low sugar milk pudding or low sugar instant whip.
- Try jams with reduced sugar or pure fruit spreads.
- Remove sugar (white and brown), syrup, honey and molasses from the breakfast table - out of sight, out of mind!

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

- Instead of adding sugar to cereal or oatmeal, add fresh fruit (try bananas, cherries or strawberries) or dried fruit (raisins, cranberries or apricots).
- Instead of having regular yoghurt, have plain yoghurt and add fresh fruit or dried fruit.
- When baking cookies, brownies or cakes, cut the sugar in your recipe by one-third to one-half. Often you won't notice the difference.
- Instead of adding sugar in recipes, use extracts such as almond, vanilla, orange or lemon.
- Enhance foods with spices instead of sugar; try ginger, allspice, cinnamon or nutmeg.

Glycaemic Index (GI)

The glycemic index measures how fast and how much a food raises blood glucose levels. Foods with higher index values raise blood sugar more rapidly than foods with lower glycemic index values do.

Carbohydrate foods are not digested and absorbed (taken into the blood stream) at the same rate, some are taken up more quickly than others. Carbohydrate foods and drinks that break down and release sugar more quickly are called high glycaemic index foods and those that break down more slowly are called low glycaemic index foods.

Choosing lower glycaemic index foods is important as they can help to even out blood sugar levels and prevent rapid increases in blood sugars.

The food that produces the greatest rise in blood sugar is pure sugar itself.

- How to eat more low GI foods:
- Choose basmati or easy cook rice, pasta or noodles.
- Switch baked or mashed potato for sweet potato or boiled new potatoes.
- Instead of white and wholemeal bread, choose granary, pumpernickel or rye bread.
- Swap frozen microwaveable French fries for pasta or noodles.
- Try porridge, natural muesli or wholegrain breakfast cereals.
- You can maximise the benefit of GI by switching to a low GI option food with each meal or snack.

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Fats and diabetes

Many people eat more fat than they need. Eating too much fat increases the risk of becoming overweight. Being overweight makes it harder to control blood sugars. Eating too much fat also increases the risk of developing heart disease later in life.

Cutting back on the total amount of fat in the diet can help but it is also important to ensure that your child is eating healthier types of fats too.

There are three main types of fat:

- **Saturates** – these fats can raise blood cholesterol (fat in the blood). If your child has high blood cholesterol then he/she is at greater risk of developing heart disease. Foods which contain saturated fats include biscuits, cakes, butter, cheese, lard, ghee, party, pies, fat on meat and full fat milk.
- **Polyunsaturates** – these fats can help lower blood cholesterol and are found in vegetable oils such as sunflower oil, corn oil, soya oil and in margarine.
- **Monounsaturates** – these fats can also help lower blood cholesterol and are found in olive oil, rapeseed oil and margarine.

Try to replace saturated fats with polyunsaturated and monounsaturated fats.

Top tips for cutting down on fat

- Only use small amounts of margarine or butter. Choose a low fat version and one that is high in polyunsaturates or monounsaturates.
- Try to cook without adding any fat and pour off any excess fat.
- Try grilling, boiling, steaming or baking food instead of frying.
- Remove any visible fat from meat and the skin from chicken.
- Choose fat free or low fat dressings such as mayonnaise and salad cream.
- Limit snack foods such as biscuits, crisps, cakes, Bombay mix, sausage rolls, pastries and chocolate.
- Choose lower fat cheeses such as Edam or reduced fat varieties of cheddar, cottage cheese or cream cheese and cheese spreads.
- Choose diet or light varieties of yoghurts.

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Children under five

Children under the age of five need plenty of fat in their diet for them to grow well. Children under two should have full fat varieties of foods. After the age of two, start to introduce some reduced fat foods, such as semi-skimmed milk. At five years old they can eat the same healthy diet as the whole family.

Fibre and diabetes

Our bodies cannot digest fibre in foods. Fibre is sometimes called roughage.

There are two types of fibre

- **Insoluble fibre** – helps have a healthy bowel (gut) and prevents constipation. Foods which contain insoluble fibres include wholemeal bread, breakfast cereals, pasta and rice.
- **Soluble fibre** – is important in diabetes for the following reasons:
 - It slows down the rate that sugars are taken into your blood
 - It can stop your blood sugar levels from going too high.
 - It can keep your heart healthy by keeping fat levels (cholesterol) in your blood low.

Foods which contain soluble fibre include fruit, vegetables, beans, lentils and oats.

How do I include foods containing fibre in my diet?

- Aim for your child to have vegetables every day, ideally at their lunch and evening meals.
- Aim to give them fruit two to three times a day.
- Beans and lentils can be added to curries, soups, stews and mince dishes.
- Porridge oats is a good breakfast choice.
- Wholegrain breakfast cereals such as wheat biscuits and bran flakes are good at breakfast too.
- Try wholemeal, wholegrain or 50:50 bread instead of white bread.

Carbohydrate counting

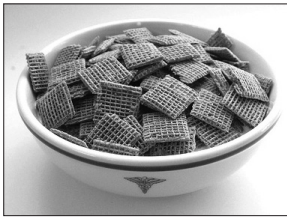
Carbohydrate counting lets you match your mealtime insulin to the amount of carbohydrate that you eat. This means you should be able to control your blood sugars more easily and with better results. It allows you to have more flexibility about what, when and how much you can eat. It is a skill that your dietitian will teach you about in the first few weeks after diagnosis.

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

The main foods which contain carbohydrates are:



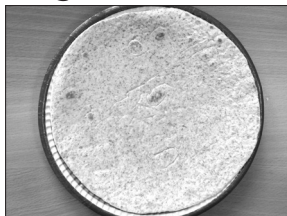
High fibre cereal



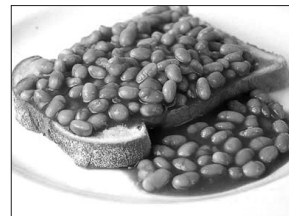
Glass of milk



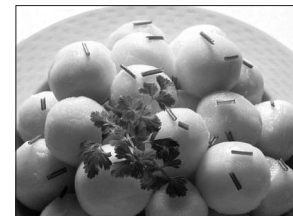
Wholemeal bread



Chapatti



Beans on toast



Boiled potatoes



Spaghetti



Boiled rice



Fruit



Yoghurt

- Starchy foods such as bread, rice, potatoes, pasta, flour, chapattis, breakfast cereal, milk and noodles.
- Sugary foods and drinks such as sweets, cakes, pastries, chocolate, ordinary squash and fizzy drinks.
- Fruit and vegetables (including baked beans) and lentils.
- Processed foods such as sausages, chicken nuggets, fish fingers, pies and pastries.
- Sauces and thickening agents.

Your child's dietitian can give you more information about different foods and their carbohydrate values.

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Foods containing carbohydrates:

There are lots of ways to calculate the carbohydrate in the food you eat. Food labels, books, websites and apps often provide information in a serving or portion size. All packaged food has nutritional information on the back or side of the product. This shows the main nutrients, including energy (calories), protein, carbohydrate and fat. It will give you information 'per 100g' (this means if you weighed out 100g of the food) and for a portion or serving size. See example of a food label below:

| Typical Values | Nutrition | |
|----------------|------------------|--------------------------|
| | 100g contains | Half of a pizza contains |
| Energy | 1193kJ (284kcal) | 1849kJ (441kcal) |
| Fat | 11.0g | 17.1g |
| Saturates | 6.2g | 9.6g |
| Carbohydrate | 29.5g | 45.7g |
| Sugars | 2.8g | 4.4g |
| Fibre | 3.1g | 4.8g |
| Protein | 15.3g | 23.8g |
| Salt | 1.2g | 1.9g |

Pizza, thin crust, 310g total weight.

In this example, if you were going to eat half a pizza you would be eating 45.7g of carbohydrates.

| Typical Values | Nutrition | |
|----------------|-------------------|------------------|
| | 100g contains | Per 30g serving |
| Energy | 1604 kJ (378kcal) | 481kJ (113 kcal) |
| Fat | 0.9g | 0.3g |
| Saturates | 0.2g | 0.1g |
| Carbohydrate | 84g | 25g |
| Sugars | 8g | 2.4g |
| Fibre | 3g | 0.9g |
| Protein | 7g | 1.2g |
| Salt | 1.25g | 0.38g |

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Cornflakes

In this example, you may not want to eat 30g of Cornflakes. You would therefore need to weigh your portion of Cornflakes (let's say it was 55g) and then use the information from the 'per 100g' column to work out the carbohydrate content of your own portion. To do this, look at the carbohydrate in 100g of the food, in this case it is 84g. Then divide this 84g by 100 ($84 \div 100$) and then multiple (times it) by your weighed portion (55g). The whole sum would be

$84 \div 100 = 0.84$ $0.84 \times 55 = 46.2\text{g}$ of carbohydrate in your portion.

Your dietician will give you more information on how to count carbohydrates. Once you can carbohydrate count the team will teach you how to alter your mealtime insulin to match your carbohydrates.

Sample meal plan

g = grams (this is the total amount of carbohydrate in the food below)

Breakfast

Two medium slices of toast 30g
Glass of milk 10g

Mid-morning snack

Apple 15g

Lunch

Three slices of wholemeal bread 45g
Margarine 0g
Ham 0g
Pot of diet yoghurt 15g
Pear 15g

Evening meal

Roast chicken 0g
Carrots and cauliflower 0g
Two medium potatoes 30g
Low sugar jelly 0g

Evening snack

One crumpet 15g

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Your meal plan

Breakfast

Mid-morning snack (optional)

Lunch

Mid-afternoon snack (optional)

Evening meal

Evening snack (optional)

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Food labels

Most foods these days have their nutritional values on the packets. The label will usually provide nutritional value per 100g of the product and usually the value per portion.

Your child may be asked to complete a food records chart by the diabetes team so their carbohydrate counting technique can be checked for accuracy. The total nutritional value per portion your child eats is the value that is required for food record charts.

Hypoglycaemia

A hypo occurs when the blood sugar level drops too low (below 4mmol/L). This is called hypoglycaemia. The symptoms of a hypo can vary but can include confusion, dizziness, sweating, tingling on the lips and paleness.

Hypos can be caused by:

- Having a late meal or missing a meal.
- Not eating enough starchy food in a meal.
- Taking too much insulin.
- Not preparing for exercise properly.
- Drinking large amounts of alcohol.

The treatment for a hypo is to take one of the following:

- Three glucose tablets or two teaspoons of sugar dissolved in water
- Quarter of a glass of lucozade.
- Half a glass of ordinary pop
- Half a glass of fruit juice

If your child does not feel better in 10–15 minutes then repeat the above.

Remember to follow this with a long-acting carbohydrate snack such as a piece of fruit, plain biscuit or one slice of toast unless a meal is due in the next 30 minutes.

If you do not treat a hypo your child will eventually lose consciousness.

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Exercise

Exercise is good for everyone and should be encouraged. The recommended amount of exercise for children is 60 minutes per day.

During exercise the body uses sugar for energy. Your child may need to take extra carbohydrate or reduce their insulin dose before the exercise to keep their blood sugar level in the normal range.

The type and amount of carbohydrate that your child will need depends on the intensity and length of the exercise.

If exercise is planned

If your child is going to do exercise within three hours of eating a meal, then you could reduce their insulin dose with that meal.

Remember to test their blood sugar before and after the exercise to check if the reduction of insulin has worked.

If your child wants to take up a new sport then speak to their diabetes team first.

If exercise is unplanned

If exercise is unplanned, then your child should have an extra snack containing carbohydrate. The amount of extra carbohydrate they should have depends on the intensity and length of the exercise.

Suitable snacks before intense exercise include: Fruit juice, banana, small packet of raisins, cereal bar, glucose tablets

Suitable exercise snacks before prolonged exercise include: Sandwich, biscuit, fruit loaf or a bagel.

During exercise

Treat any signs of a hypo immediately.

- Make sure your child:
- Always carry's glucose tablets or a sugary drink.
- Drinks water and sugar free squash during exercise to keep hydrated.
- Always carry's or wears their diabetic identification

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

Illness

- If your child is ill, they should:
- Never stop their insulin
- Drink plenty of fluids
- Check their blood sugar regularly
- Test for ketones – If ketones are present, phone the hospital or diabetes team for advice.
- Take sugar-free varieties of paracetamol/ibuprofen or cough medicines if they need to.
- Try to return to their normal diet as soon as possible – If your child's appetite is poor and they cannot manage their normal diet, then try giving emergency fluids or foods at regular intervals throughout the day.

Emergency fluids or foods

In case of a diabetic emergency, your child should:

- Quarter of a glass of lucozade (50ml)
- Half a glass of fruit juice (100ml)
- Half a glass of ordinary lemonade or cola
- Dextro / Gluco tablets/gel (available from local pharmacies)

For further advice please speak to your child's dietitian.

Useful website

Diabetes UK

www.diabetes.org.uk

Further information

For more information about our hospitals and services please see our website

www.swbh.nhs.uk, follow us on Twitter @SWBHnhs and like us on Facebook

www.facebook.com/SWBHnhs.

Remember

Your child should:

- Try to eat regular meals
- Learn to carbohydrate count
- Eat a variety of foods
- Not eat too much fat
- Eat more high fibre foods
- Eat more fruit and vegetables
- Limit their intake of sugary foods
- Choose low sugar foods

Healthy eating for young people with type 1 diabetes

Information and advice for parents and carers

Paediatric Diabetes

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