

Patient information

Type 3c diabetes

Nutrition and Dietetics

Hospital: _____

Dietitian name: _____

Dietitian contact number: _____

Diabetes nurse name: _____

Diabetes nurse contact number: _____

The pancreas is a gland that lies behind the stomach. The main functions of the pancreas are:

- to make digestive juices (which contain enzymes) which helps to break down the nutrients you eat and drink so they can be digested and used by the body for energy.
- to make hormones called insulin and glucagon which help to control your blood sugar levels.

Diabetes is a condition where your blood sugar level is too high. It can happen when your body doesn't make enough insulin or the insulin it makes isn't effective. Or, when your body can't make any insulin at all.

You may be aware of type 1 diabetes (when your body can't make insulin) and type 2 diabetes (when your body can't make enough insulin, or the insulin is not working properly).

Type 3c diabetes is a type of diabetes that develops when a condition or disease causes damage to the pancreas. e.g. pancreatitis, pancreatic cancer, surgery which has removed all or part of the pancreas. People with type 3c diabetes are not able to make enough insulin to control blood sugar levels well.

Blood sugar levels are affected by food and drinks, some medications, how active you are, and if you are unwell.

This leaflet gives you information on which food and drinks can affect your blood sugar levels, how to manage low blood sugar levels (hypoglycaemia), and why taking pancreatic enzyme replacement therapy (PERT) is important to manage type 3c diabetes.

Medication for type 3c diabetes

If you have been diagnosed with type 3c diabetes, you will usually be prescribed insulin injections. Insulin helps to keep your blood sugar levels in a healthy range. If you are prescribed insulin your diabetes nurse will speak with you about the best insulin regime (how often you need to inject insulin) for you and your lifestyle.

Once you start on insulin injections your diabetes nurse will give you information and guidance on how to give yourself insulin injections, how often you need to inject and what your dose is.

You will be asked to check your blood sugar levels regularly, and your diabetes nurse will discuss your blood sugar level targets with you. This is usually between 5 – 8mmol before a meal and aiming no higher than 12mmol after meals.

Food and blood glucose (sugar) levels

Foods contain a mixture of nutrients including carbohydrate, protein, fat, vitamins and minerals. All carbohydrate foods are broken down by the body into glucose (sugar), where insulin moves it into the cells to be used as fuel to provide energy. Food and drinks which contain carbohydrates cause your blood sugar levels to rise. Carbohydrates can be found in many different foods. We can separate them into the following groups:

Starchy Carbohydrates	Added Sugars	Natural Sugars	No Carbohydrates
• Bread • Potatoes • Rice • Pasta • Noodles • Breakfast cereals • Foods containing flour* • Chapatti • Naan	• Sugar • Fizzy drinks • Sweets • Biscuits • Cake • Chocolate • Jam • Ice Cream	• Fruit • Fruit juice • Milk • Yoghurt • Honey	• Meat • Fish • Seafood • Butter, spreads • Oils • Nuts • Mayonnaise, Cream • Cheese • Eggs

*Foods cooked in batter, breadcrumbs or pastry are made with flour and therefore will contain carbohydrate.

How do carbohydrates affect my blood glucose levels?

All carbohydrates, whether starchy or from sugars, break down into glucose (sugar) and raise your blood sugar levels. It is important to include carbohydrates at each mealtime as carbohydrates provide our body with energy to make sure our cells, tissues and organs work well.

If you take certain diabetes medications (e.g. insulin) and eat very little carbohydrate at mealtimes, then your blood sugar levels may drop too low (hypoglycaemia).

If you eat lots of carbohydrates at in one sitting (e.g. at a mealtime), then your blood sugar levels may rise too high (hyperglycaemia).

How much carbohydrate should I eat?

You should include a portion of carbohydrate foods at each meal. This is especially important if you are prescribed insulin. To keep your blood sugar levels stable it is helpful to spread your carbohydrate evenly through the day (e.g. at each mealtime) and try to keep your portions of carbohydrate similar at each meal. If possible, choose snacks which are lower in carbohydrates as these will affect your blood sugar levels less.

An example day of eating including carbohydrates at each meal:

Breakfast • a bowl of wholegrain cereal such as porridge or bran flakes, with semi-skimmed or skimmed milk. If you prefer a dairy alternative like soya or almond milk, choose one that is unsweetened, and calcium fortified. • egg and wholegrain toast with unsaturated spread (sunflower or olive oil) or avocado • unsweetened yogurt and fruit
Mid-Morning • Lower Carbohydrate Snack, see below.
Lunch • a sandwich made with wholegrain bread or a wrap with chicken, turkey or fish, filled with plenty of salad • soup paired with wholegrain/rye crispbreads
Mid-Afternoon • Lower Carbohydrate Snack, see below.
Evening Meal • Meat/roast chicken with vegetables and potato • Lasagne and salad • Stir fry or curry with long grain rice • Air fried fish and chips and garden peas
Supper • Lower Carbohydrate Snack, see below.

Lower Carbohydrate Snack examples include:

- Cheese and wholegrain crackers.
- 1 piece of fruit
- Unsweetened yoghurt
- 1 boiled egg
- Hummus and wholegrain crackers.
- Packet of plain popcorn
- Handful of unsalted nuts
- Low sugar cake

Please note, the number of snacks required differ from person to person, please discuss this with your Dietitian

What is a hypo (hypoglycaemia)?

A hypo is when your blood sugar level drops too low. This is usually below 4mmol/l. A hypo, also called hypoglycaemia, can happen quickly. It's important to always have hypo treatments with you. It's also important to know what the signs are and how to treat a hypo if you have one.

Everyone has different symptoms, but a few common symptoms of hypoglycaemia are:

- feeling shaky
- feeling confused
- blurred vision
- being hungry

When you have a hypo take your hypo treatment immediately. The hypo treatments listed here are just a guide and your needs may vary. Speak with your diabetes nurse if you have any questions about your hypo treatment.

- five glucose or dextrose tablets.
- four jelly babies.
- a small glass (150-200ml) of a sugary (non-diet) drink e.g. Lucozade ®.
- a small carton of pure fruit juice (200ml).
- Glucose juice e.g. Lift Shots®.

After treating a hypo, recheck your blood sugar levels after 15 minutes. Your blood sugar level should be above 5mmol after your hypo treatment. In some cases, you might need to repeat your hypo treatment.

You also need to eat some food to stop your blood sugar levels from dropping again. Eat a portion of a starchy carbohydrate to keep your blood sugars level. This could be a:

- sandwich or a piece of toast.
- piece of fruit.
- a small bowl of cereal.
- your next meal, if it's due.

Hypos can happen if the balance of food you eat, the amount of physical activity you do and diabetes medication you take, especially insulin, sometimes isn't right. Not everyone with diabetes will have hypos.

Checking your blood sugar regularly may help you prevent a hypo before it happens.

Pancreatic enzyme replacement therapy (PERT)

One of the jobs of the pancreas is to make digestive enzymes which break your food and drink down into small pieces which are absorbed by the small bowel into the blood stream. The nutrients can then be used by the body for energy.

If your pancreas is not able to make enough enzymes anymore this means you are unable to break down and absorb your nutrients properly (this is called **malabsorption**). When this happens you may lose weight, have oily/greasy stools which can be loose and yellow/pale in colour, feel bloated when you eat, and you may get a low blood sugar level (hypoglycaemia).

Pancreatic enzyme replacement therapy (PERT) is a medication which contains the enzymes that your pancreas usually makes and helps you to absorb and use all the nutrients from your food and drinks.

PERT medications you may have heard of include Creon ® and Nutrizym ®.

When we absorb nutrients from our food properly, this will increase our blood sugar levels (this is completely normal).

If you are prescribed PERT but forget to take it with the food or nourishing drink you are having, this will mean that you will not be able to absorb the nutrients properly into the blood stream to be used for energy.

If the nutrients are not absorbed properly this can mean that your blood sugar levels drop too low (hypoglycaemia), especially if you have injected the insulin you are prescribed. You may also get some of the symptoms of malabsorption listed above if you forget to take your PERT.

If you are prescribed it, taking PERT with every meal and every snack you have is very important to make sure you are able to absorb the nutrients in the food and drink properly. This includes nourishing drinks like oral nutritional supplements (e.g. Fortisip ®, Ensure ®, Complan ®) and milky drinks like milkshakes, hot chocolate and milky coffees (e.g. latte, cappuccino).

If you want to discuss your PERT dose, or you would like some guidance on how to take your PERT correctly, or you think you should be taking this medication, please contact your dietitian.

Notes:

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Feedback

Your feedback is important to us and helps us influence care in the future.

Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

Further information

Royal Liverpool University Hospital dietitians

Tel: 0151 706 2120

Text phone number: 18001 0151 706 2120

Royal Liverpool University Hospital diabetes nurses' helpline:

Tel: 0151 706 2829

Text phone number: 18001 0151 706 2829

British Dietetic Association: www.bda.uk.com

Diabetes UK: www.diabetes.org.uk

Guts UK: www.gutscharity.org.uk

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