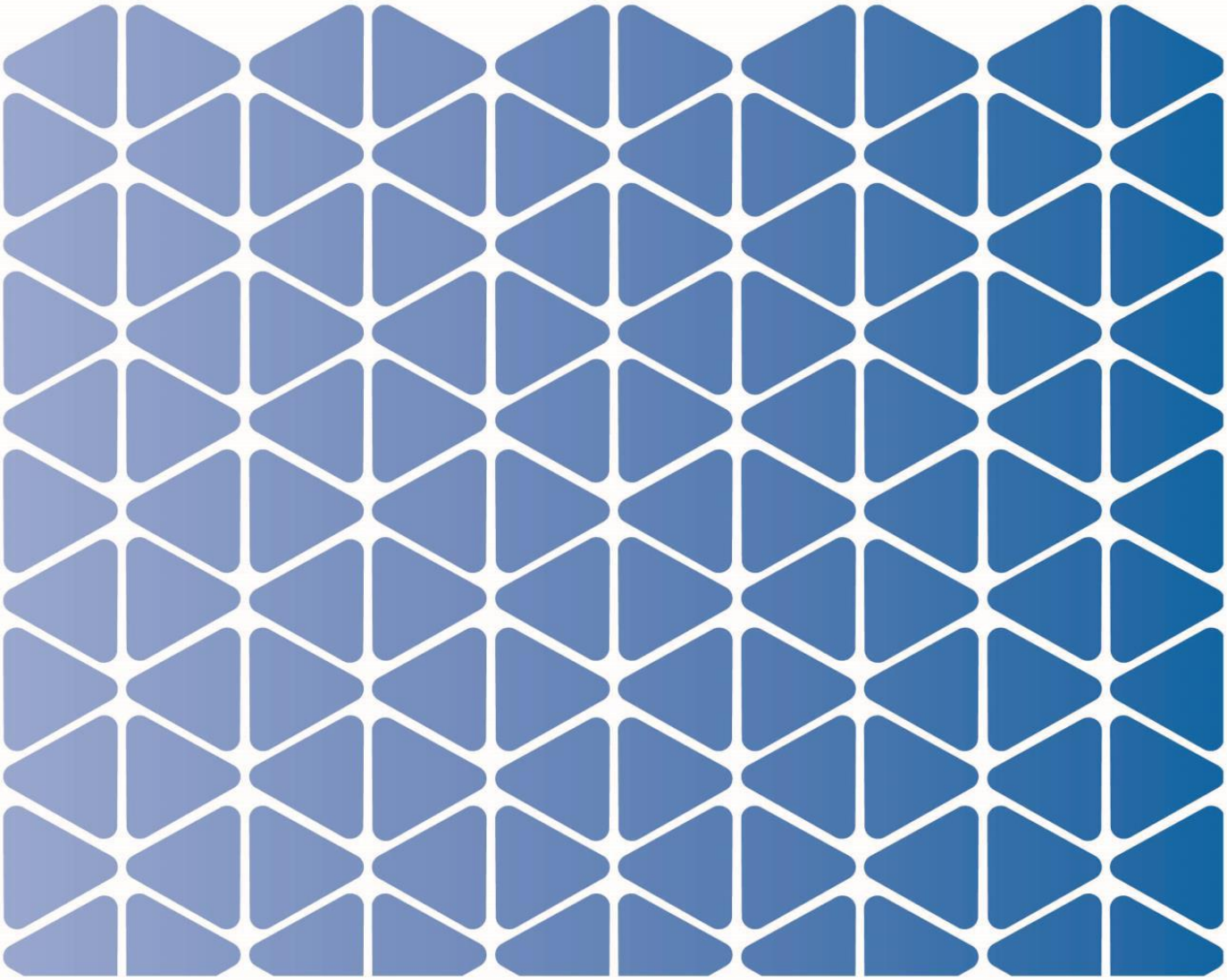
PATIENT INFORMATION

PAEDIATRIC DIABETES HEALTHY EATING



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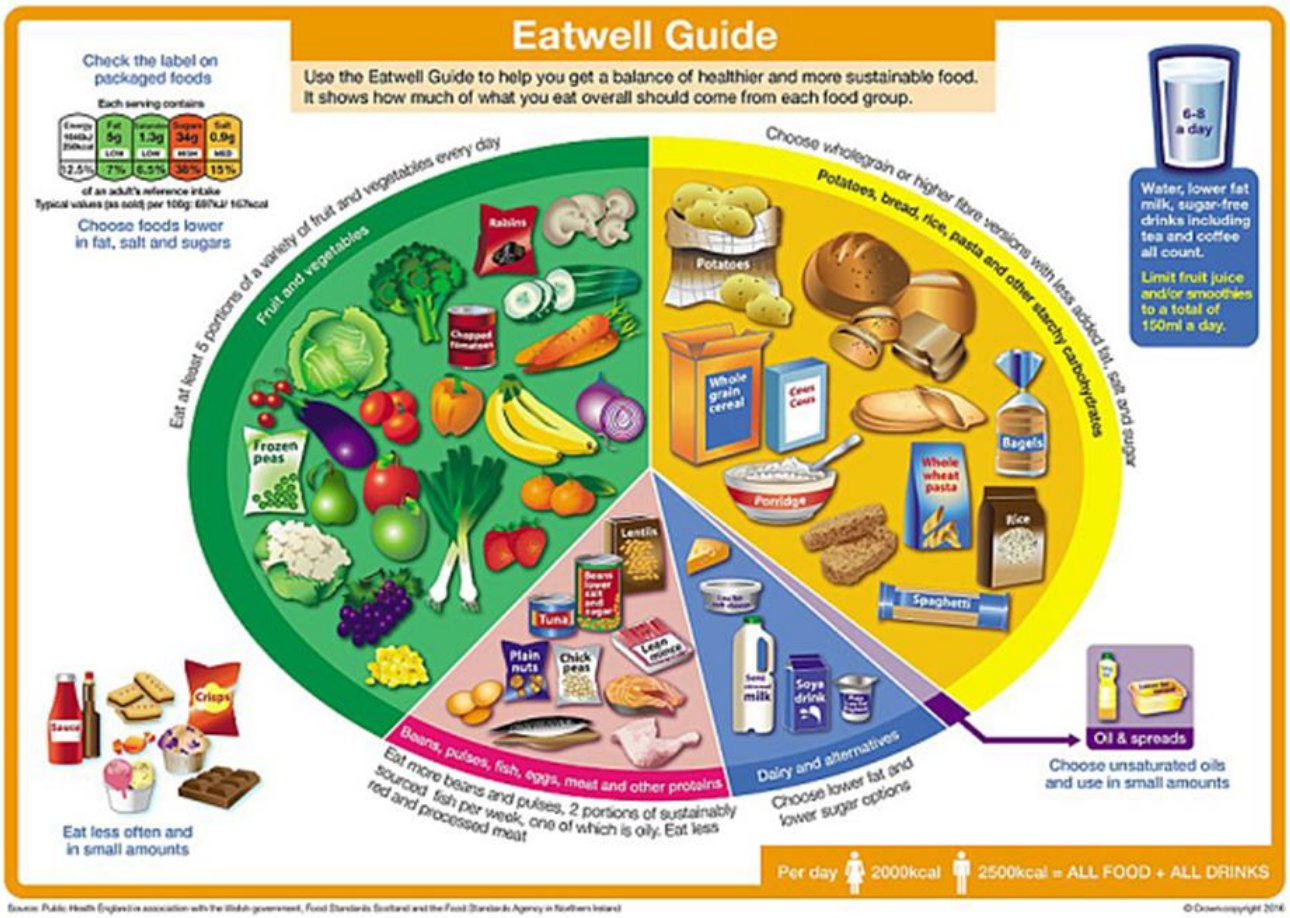
What is Healthy Eating?

A healthy eating plan includes foods that contain a combination of carbohydrate, protein, fat, vitamins, minerals and fibre. All of these nutrients are needed for the body to grow, develop and function normally.

When you have diabetes you are encouraged to follow a healthy eating plan, the same as other children and young people of your age and it is suitable for your whole family. Following a healthy eating plan helps to manage blood glucose levels and is important for good health long term.

The Eatwell Plate shows the types of food and proportions of each food group that you need to achieve a well-balanced diet. It is important to choose a variety of foods from each food group to ensure that you get all the nutrients that you need...



Healthy eating plan:

There are no foods that you must avoid completely, but some foods are better choices than others. Note that foods in the smallest section are not essential as these are foods high in sugar and fats and should form the smallest part of your diet.

- Eat regular meals
- Include some starchy foods as part of all your meals
- Eat a wide variety of foods, including plenty of vegetables and fruit

- Reduce intake of foods high in fat, sugar and salt to help to maintain your health long term
- Try to fill up at mealtimes and reduce snacking between meals

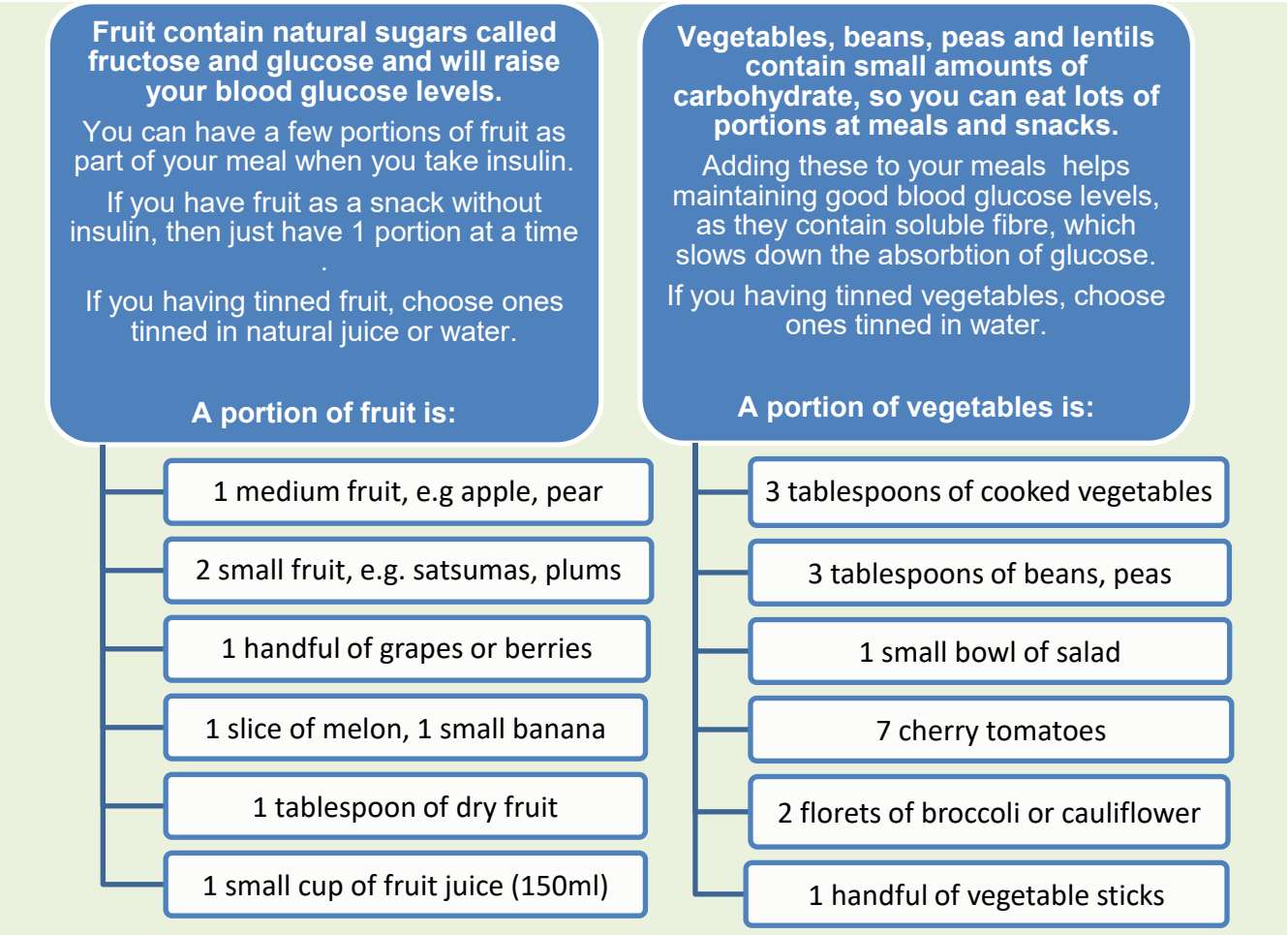
Information about different food groups

Fruit and vegetables:

These provide vitamins, minerals and fibre to make your body grow and function well.

About ⅓ of your meals should come from vegetables and fruit.

Enjoy a variety of vegetables and fruit aiming to have at least 5 different portions per day.



Meat, fish, chicken, eggs, beans and other protein sources:

These foods provide protein, iron, B vitamins, zinc and magnesium and are essential for growth and normal body function. Aim to have some protein rich foods with your main meals daily.

Choose lower-fat varieties wherever possible and eat less of the processed meat products, as they contain a lot of saturated fats, which may affect your heart health long-

term.

Try to eat more fish, especially oily fish, which provide omega 3 fats beneficial for children's development and normal body functioning. Aim to have two portions of oily fish per week, for example salmon, sardines, pilchards, mackerel, trout and fresh tuna.

Try to have more of the vegetable protein sources, such as beans and lentils.

Most protein rich foods have very little carbohydrate and do not raise blood glucose levels, unless they are in batter or breaded, such as chicken nuggets or fish fingers.

When protein rich foods are eaten in large amounts, they may cause a raise in your blood glucose about 4 to 6 hours later.

Milk and dairy foods:

Milk and milk products, such as yoghurt, contain a carbohydrate, called lactose, which affects blood glucose levels. Cheese contains only small amount of lactose, therefore will not affect blood glucose levels.

It is important to include milk products in the diet and they contain calcium and some vitamins to keep your bones and teeth healthy.

Aim for 3 portions per day.

A portion of dairy foods is:

- 1 cup of milk
- 1 pot of yoghurt
- 1 small block of cheese

Dairy foods do not include butter, cream or eggs.

Milk products, except cheese, contain lactose, a milk sugar, which will affect your blood glucose levels. One portion of dairy foods, such as a glass of milk or a small pot of yoghurt, maybe taken as a snack, but larger quantities of dairy foods should be included at meals when insulin is taken.

Children under two years of age still need a healthy eating plan, but use full-fat dairy products, rather than the low fat options, as they require more energy for growth.

By the age of two years old, children can gradually start taking some reduced fat dairy foods, such as semi-skimmed milk or low fat yoghurts.

By the age of five children should have a healthy diet and choose lower-fat alternatives where possible, the same as the rest of the family.

Foods high in fat:

Cutting down on fats is a good idea for everyone to ensure good health, as long-term they may increase the risk of having high cholesterol, heart disease and becoming overweight.

Reduce your intake of fats, especially saturated fats, by having less of: fatty meats and processed meat products, full fat dairy products, cheese, lard, butter, hard margarine, and biscuits, cakes and pastries made with saturated fats.

Replace saturated fats with small amounts of unsaturated oils and spreads made out of these oils, especially the monounsaturated ones, such as olive oil or rapeseed oil.

Use healthy preparation methods, such as boiling, steaming, grilling and baking, instead of frying your food.

Use low fat alternatives for margarine and spreads, low-fat dairy products, light mayonnaise and salad dressings, as well as baked or light crisps.

Choose low fat or 'light' biscuits, cakes, puddings, ice cream and other desserts.

A little bit about salt:

A high intake of salt long-term can cause raised blood pressure later on in life. Avoid adding additional salt at the table and use only small amounts of the salt in cooking.

Limit the high salt foods, such as pastries, crisps, bacon, ham, and other cured meats, cheese, ready meals and canned soups and packet / instant soups.

Check food labels to help you choose foods lower in salt. If you like your dietitian can provide you with more information on salt content of different foods.

It is very important for babies and small children to avoid a diet high in salt.

Carbohydrate rich foods:

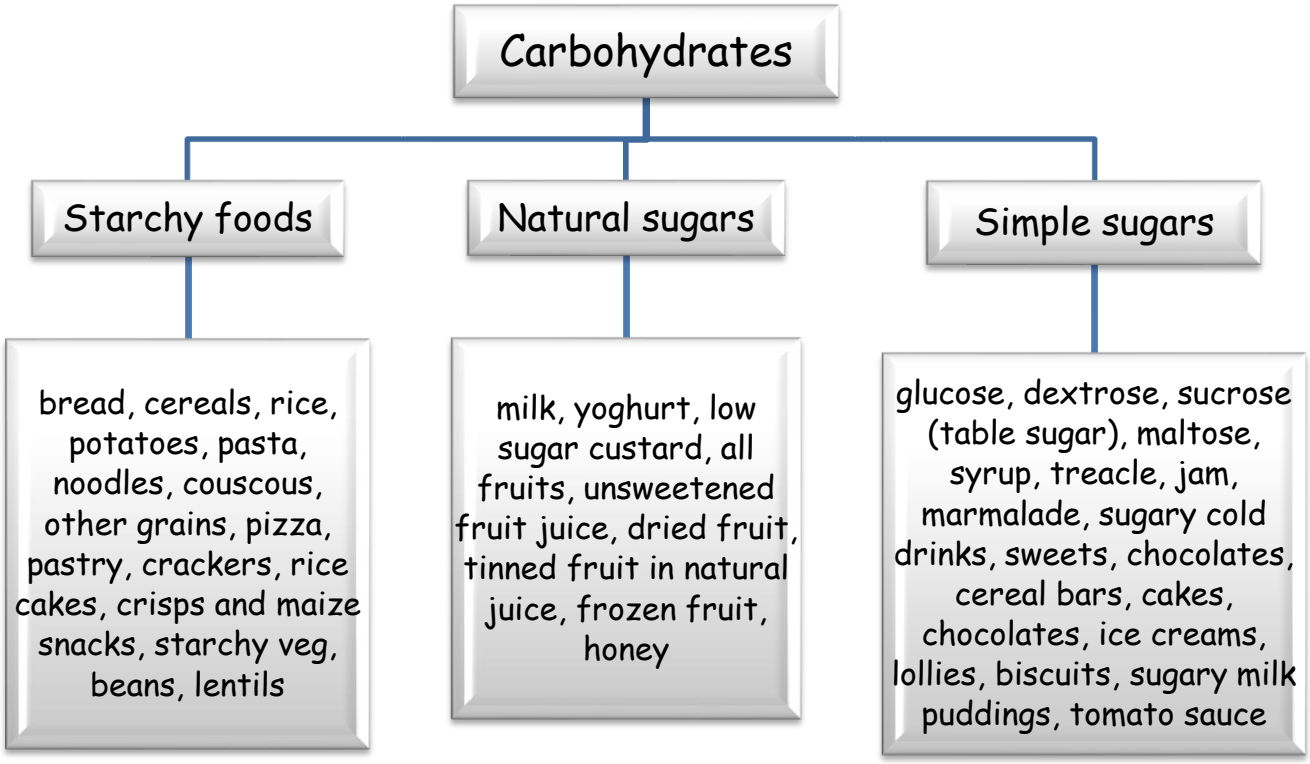
This is the food group that you need to pay most attention to when you have diabetes and in time you will need to learn to estimate the amount of carbohydrate in your meals to effectively manage your blood glucose levels.

During digestion **carbohydrates** are broken down into **glucose,** which provides your body with energy. Glucose is absorbed into your bloodstream, which causes a rise in your blood glucose level (hyperglycaemia).

Your body needs **insulin** with meals and snacks that contain carbohydrates, as insulin helps to move the glucose absorbed from the carbohydrates from your blood into your body cells where it is used to produce energy.

Carbohydrates are divided into starchy foods, natural sugars and simple sugars.

Choose carbohydrates that come from starchy foods and unsweetened foods that contain natural sugars rather than foods with added simple sugars.



Starchy foods: breads, rice, potatoes, pasta and other starchy foods

Starchy foods are our main energy foods and should form about ⅓ of all main meals. Starchy foods, especially the wholemeal, wholegrain, granary, brown or high fibre varieties are rich in fibre, vitamins, calcium and iron.

All starchy foods contain carbohydrates, which are digested and absorbed you're your blood as glucose; therefore they raise blood glucose levels and require insulin to move the glucose into the body cells, where it is used for energy.

Include the carbohydrate foods at mealtimes, as this is the time you will take your insulin.

Your snacks or supper that contains carbohydrates may also require insulin.

Having regular intake of starchy foods provides you with energy though the day and helps to maintain more constant blood glucose levels.

Starchy foods do not need to be restricted in children and young people with diabetes and restricting them may result in reduced growth and development.

Your dietitian will discuss with you the portions of your starchy foods and how to estimate the amount of carbohydrate in these foods to work out the required dose of insulin.

High-fat starchy foods, such as crisps, chips or pastry should be limited as they may increase the risk of cardiovascular problems and excess weight gain later in life.

When you have starchy foods following hypoglycaemia treatment or for additional energy for physical activity you will not need to take any insulin at the same time.

Natural sugars:

Fructose is a natural sugar found in fruit. Fructose is absorbed slowly from fruit and a lot more rapidly from fruit juice or foods sweetened with fructose.

Fructose is absorbed a lot slower from fruit, because fruit also contain soluble fibre which slows down absorption of fructose.

It is recommended to have at least 5 portions of fruit and vegetables per day, so you could have a few portions of fruit as part of your meals but as a snack in-between meals have only one portion of fruit at a time (see fruit portions on page 3).

Using fructose to sweeten foods does not offer any advantage over sucrose for people with diabetes, as it has a similar amount of calories and affects blood glucose levels the same.

Lactose raises blood glucose slowly and it is a natural sugar found in milk and milk products, which are very nutritious and are discussed previously in the section on Milk and Dairy foods.

Simple sugars:

Sucrose is used to sweeten foods and drinks, commonly known as table sugar.

You do not need to avoid sugar completely. Small amount of foods containing sugar maybe eaten as part of a healthy diet, but they need to be adequately covered with insulin to prevent hyperglycaemia.

Limit the amount of foods with added sucrose, such as biscuits, chocolate, cakes and sweet pastries helps to keep you healthy.

Foods high in sugar often also high in fat and long term can contribute not only to tooth decay but also excess weight gain.

Foods and drinks that contain a lot of sugar will raise your blood glucose level very quickly therefore it is difficult to balance it with an appropriate insulin dose.

To keep blood glucose levels more stable you should try to limit foods and drinks that have sugar as the main ingredient, for example sugary cold drinks and sweets.

Use sugar free varieties instead.

Artificial sweeteners are safe to use for children and adults in moderate quantities - have a look at the section below to find out more about different sweeteners.

Sugar-free, diet and 'no added sugar' foods:

It is not necessary to use any special 'Diabetic' products, but using different products with artificial sweeteners can be useful for children and young people with diabetes to help control blood glucose levels and prevent weight gain.

Drinks and foods labelled **sugar-free** or **diet** contain no sugar or very little sugar.
These do not affect blood glucose levels, therefore you could have them in-between meals and they do not require insulin.

It is recommended for all children with diabetes to drink water or sugar-free cold drinks. Those children who are overweight or have high triglyceride levels it is beneficial to reduce overall sugar intake and have sugar-free or reduced sugar sweets, puddings and cakes.

No-added sugar and **unsweetened** products do not have sugar added, but may not be sugar free. If these products are made from carbohydrate containing ingredients, such as fruit, fruit juice or milk, then they will raise blood glucose.

Always check the nutrition label to check how much **total carbohydrate** it contains.

For example 'no added sugar' fruit juice contains natural sugar called fructose and it will raise blood glucose levels, while 'no added sugar' squash is almost sugar free.

Information on different sweeteners:

Non-nutritive sweeteners: aspartame (Nutrasweet), saccharin (Sweetex, Low n'Sweet), stevia / rebaudioside (Truvia), sucralose (Splenda), asulfame potassium K and cyclamate.

Non-nutritive sweeteners, known as artificial sweeteners and have virtually no calories and do not affect blood glucose levels. They are used in sugar-free and low calorie cold drinks, sweets and puddings. They are available as little tablets, liquid or granulated and they can be used to sweeten drinks like tea / coffee / hot chocolate and breakfast cereals.

Only some of the non-nutritive sweeteners can be used in baking. Check the label and follow the baking instructions, as they should only be used in small amounts because they are intensely sweet and not all of them are suitable for cooking or baking.

Scientific research confirms that artificial sweeteners are safe to use in amounts not exceeding the Acceptable Daily Intake. Use different types of sweeteners in order not to have excessive intake of any one type.

Squash containing **cyclamate** (also known as cyclamic acid or E952) should be limited for children under 5 years to no more than 3 beakers per day (each beaker of 180ml of diluted volume, 1 part squash to 10 parts water).

Nutritive sweeteners: sorbitol, malitol, xylitol, isomalt and mannitol.

These sweeteners are known as polyols and they have very few calories and are not digested by the body. When eaten in large amounts polyols can cause abdominal pain, diarrhoea and flatulence, especially in young children.

Nutritive sweeteners are included on the nutrition labels as part of the total carbohydrate. For example some sugar free sweets that are sweetened with polyols do not affect the bloods glucose level, but the nutrition label states they have 95g of carbohydrate per 100g.

often found in processed foods, such as chocolate, sweets, biscuits and chewing gum. A lot of these foods may be labelled 'sugar free', but these foods may not be any healthier as they often contain a lot of fat and calories.

Polyols also eventually convert to glucose in the liver, therefore if eaten in large amounts they may raise blood glucose levels.

Foods low in carbohydrates:

Some foods contain very little or no carbohydrates, therefore they do not affect the blood glucose levels. Here are some examples:

- Raw vegetables, e.g. cherry tomatoes, cucumbers, carrots, peppers, celery

- Olives
- Nuts* and seeds, e.g. sunflower or pumpkin seeds
- Sugar free jelly, ice lollies and ice-poles
- Cheese*, cheese strings*, mini cheeses*, cheese triangles*
- Meats, e.g. ham, chicken, bacon, peperami*, cocktail sausages*, meat balls*
- Eggs

*Many of these foods are also high in fat and salt and are not healthy choices to have as snacks too frequently.

Protein rich foods will not raise blood glucose level immediately, but if eaten in large amounts, the protein will be eventually broken down to glucose and may cause a raise in blood glucose level about 4 to 6 hours after eating them.

Carbohydrates and Glycaemic Index:

The Glycaemic Index (GI) tells us how quickly foods containing carbohydrate raise blood glucose levels.

It is best to choose carbohydrates that have a Low or Medium GI, as these help to keep the blood glucose levels more steady between meals.

Low and Medium GI foods take longer to digest and glucose is absorbed into the blood more slowly than when having high GI foods. This is because a lot of the low and medium GI foods, such as wholegrain breads and cereals, fruit, vegetables, beans, peas and lentils, contain **fibre,** which slows down the digestion and absorption of glucose from the starch. Most dairy products have a low GI, because they contain lactose, a milk sugar, which also slows down absorption of glucose from these products.

Fatty foods have low GI and slow down the absorption of glucose, but fatty foods are not the best choices, as they long term affect cardiovascular health.

Regular meals containing foods with low or medium GI will provide you with slow release energy throughout the day and help to keep your blood glucose levels more stable.

High GI foods raise blood glucose levels very quickly. Usually the high GI foods are more processed during production or cooking and the carbohydrate is more easily digested and absorbed, therefore rise blood glucose levels rapidly.

Use high GO foods, such as sugary cold drinks or jellies when treating hypos, as these raise your blood glucose levels quickly.

Glycaemic Index in practice:

Look at the Glycaemic Index Table below and try to substitute the high GI foods in your diet with carbohydrates that have a low or medium GI.

When having starchy carbohydrates that have high GI try to include a low GI food at the same time, for example, include vegetables when having mash potatoes.

Foods containing natural sugars (fructose in fruit and lactose in milk) generally have a medium or low GI and can be added to meals or eaten in smaller amounts as snacks.

High GI foods, especially those with added simple sugars, can be included in small amounts, preferably as part of a meal that contain low GI foods, for example, a small cake after a having pasta salad.

Not all high GI foods are unhealthy and likewise not all low GI foods are healthy.

It is important to consider the overall balance of meals and snacks.

- To improve blood glucose levels try to choose foods that have a lower GI and also consider the total amount of carbohydrate in your meals.
- It is the combination of the GI and the amount of carbohydrate eaten at a time that determines how much your blood glucose will rise after a meal.
- A small amount of foods that have high GI will raise blood glucose levels less than a large amount of medium of low GI foods. This is called the Glycaemic Load.

For example:
A medium amount of mash potato (high GI) will raise blood glucose level less than a large plate of pasta (low GI).

Glycaemic Index Table

High GI	Medium GI	Low GI
Cheerios, Coco Pops, Cornflakes, Rice Krispies, Puffed wheat, millet	Shredded wheat, Sustain, Weetabix, Instant porridge	All Bran, Special K, Oat crunch, Sultana Bran, muesli, porridge
Baguette, white bread, bagels, melba toast, rice cakes, biscuits, scones, pancakes	Pitta bread, wholemal bread, crumpets, Ryvita, digestive biscuits	Granary and multigrain bread, rye bread, chapattis, oatmeal biscuits
Instant mash potatoes, mash potatoes, instant rice, white rice, baked potatoes, chips	New potatoes, boiled potatoes, couscous, brown rice, long grain rice	Sweet potatoes, basmati rice, noodles, spaghetti, macaroni
Water melon, turnips, pumpkin, parsnips	Appricots, mangoes, pineapple, melons,raisins, sultanas, sweetcorn, beetroot	Apples, bananas, grapefruit, grapes, kiwis, oranges, peaches, pears, carrots, green peas
Broad beans	Beans in tomato sauce	Baked beans, butter beans, black beans, kidney beans, lentils, chick peas, soya beans
Tapioca, rice pudding	Fancy, sweetened ice cream	Milk and milk puddings, e.g. custard, yoghurt, plain ice cream

Ask your dietitian to discuss the Glycaemic Index with you further

If your symptoms or condition worsens, or if you are concerned about anything, please call your GP, 111, or 999.

Patient Experience

We know that being admitted to hospital can be a difficult and unsettling time for you and your loved ones. If you have any questions or concerns, please do speak with a member of staff on the ward or in the relevant department who will do their best to answer your questions and reassure you.

Feedback

Feedback is really important and useful to us – it can tell us where we are working well and where improvements can be made. There are lots of ways you can share your experience with us including completing our Friends and Family Test – cards are available and can be posted on all wards, departments and clinics at our hospitals. We value your comments and feedback and thank you for taking the time to share this with us.

Patient Advice and Liaison Service (PALS)

If you have any concerns or questions about your care, we advise you to talk with the nurse in charge or the department manager in the first instance as they are best placed to answer any questions or resolve concerns quickly. If the relevant member of staff is unable to help resolve your concern, you can contact the PALS Team. We offer informal help, advice or support about any aspect of hospital services & experiences.

Our PALS team will liaise with the various departments in our hospitals on your behalf, if you feel unable to do so, to resolve your problems and where appropriate refer to outside help.

If you are still unhappy you can contact the Complaints Department, who can investigate your concerns. You can make a complaint orally, electronically or in writing and we can advise and guide you through the complaints procedure.

How to contact PALS:

Telephone Patient Services: 0300 123 1732 or via email at: wah-tr.PET@nhs.net

Opening times:

The PALS telephone lines are open Monday to Thursday from 8.30am to 4.30pm and Friday: 8.30am to 4.00pm. Please be aware that a voicemail service is in use at busy times, but messages will be returned as quickly as possible.

If you are unable to understand this leaflet, please communicate with a member of staff.