

DIETETIC AND CARBOHYDRATE COUNTING INFORMATION

For Children with Type 1 Diabetes

Patient Information Leaflet



October 2020

FOOD AND DIABETES

A lot of people enjoy eating food and we make a lot of our food choices based on taste. Although this can be good, we also need to remember that we need to eat food to give our body the nutrients that it needs to work well. Some of the nutrients we get are important as they give us energy, these are:

Fat

Protein

Carbohydrate



Carbohydrate directly affects the body's blood sugar (glucose) levels.

These nutrients are important for everyone, but understanding carbohydrate is more important when you have diabetes. This is because

Carbohydrate is the only nutrient to directly affect blood sugars.

CARBOHYDRATE AND BLOOD SUGARS

Once carbohydrate is eaten it usually appears in the blood as glucose within 2 hours. This means that your blood glucose level (blood sugar) will go up.

Insulin allows the glucose to pass from the bloodstream into the cells of the body. This means that the blood glucose level goes down.

By matching the carbohydrate you eat to the amount of insulin it should be possible to move the amount of glucose you get from your food out of the blood and into the cells. We call this **carbohydrate counting**.

You will have your own individual amount of insulin that you need for a set amount of carbohydrate and this can even vary at different times of the day. The diabetes team will tell you more about this.

Where can I find carbohydrate?

Starch (complex carbohydrate)

- Foods rich in **starchy carbohydrate** are generally a good source of fibre, vitamins and mineral. Examples are bread, pasta, rice, potatoes, cereal and pulses. Try to have these at each meal time as you need them for energy.
- Starchy foods that contain fibre help to keep you feeling full for longer than low fibre choices and help to maintain a more steady blood sugar. Examples include wholegrain cereals, brown rice and wholemeal bread. Try to choose these when you can (although be cautious in children aged 2 years and under).
- Limit high fat starchy foods e.g. crisps, chips and pastries as these are linked to raised blood fat levels such as cholesterol and an unhealthy weight gain.

Sugars

Sucrose = simple carbohydrate (also referred to as table sugar)

- Food and drinks that are high in sugar can cause weight gain, tooth decay, cancer and heart disease.
- You don't have to avoid sugar completely but try to limit foods and drinks that are high in sucrose. Examples include sweets, chocolate, cakes and sugary drinks.

Fructose = carbohydrate found in fruit.

- Fruit also contains fibre, vitamins and minerals and is important for good health.
- Aim to eat at least 5 portions of fruit and vegetables per day. See the separate leaflet about serving sizes.

Lactose = carbohydrate found in milk.

- Dairy foods provide energy, protein and calcium and is important for bone strength and growth.
- Try to have 3 portions of milk, cheese and/or yoghurt every day.

Certain foods don't contain any carbohydrate.

Such foods include:

- Many vegetables contain very small quantities of carbohydrate and do not need counting, although there are exceptions (this will be explained more by the Dietitian)
- Plain cuts of meat and fish
- Eggs
- Hard cheeses
- Oils and fats

What can I eat?

The important goals with your eating are:

- ✓ Eat regularly – your Dietitian will work with you to develop an individual plan.
- ✓ Try to eat some food rich in starchy carbohydrates with each meal.
- ✓ Try to reduce the amount of sugar in your food and drinks as this can cause high blood sugar readings and contribute to unhealthy weight gain.
- ✓ Aim for a diet with plenty of high fibre foods and at least five portions of fruit and veg as this will help you to stay healthy and maintain steady blood sugar readings.

See the Eatwell Guide at the back of this leaflet.

HOW DO I CARB COUNT?

There are 3 elements:-

- Carb content of food
- Size of serving
- Insulin to carbohydrate ratio

To find the carb content of your food, you can use:

A carb counting guide eg Carbs and Cals (app or book)

OR

Food labels

OR

Other nutrition apps or websites (eg my fitness pal)

To work out the amount of carbohydrate in your individual serving, there are several methods you can use:

1. **Estimate** using pictures in a carb counting guide
2. **Estimate** using food labels and per serving information
3. **Calculate** using a carb counting guide or other apps or websites - **you will need to know weight or size of serving**
4. **Calculate** using food labels - **you will need to know weight or size of serving**

Methods 3 and 4 are more accurate and we would encourage you to use these as much as possible from diagnosis

Insulin to carbohydrate ratio

Your diabetes nurse or doctors will prescribe your insulin to carbohydrate ratio. The ratio means the amount of insulin you will need for the amount of carbohydrate in your meal.

The calculation is as follows:

Step 1. Amount of carbs in 1 gram = $\frac{\text{amount of carbs per 100 grams}}{100}$

Step 2. Amount of carbs for serving = answer to step 1 x weight of serving

Step 3. Amount of insulin needed = answer to step 2 divided by the carb ratio eg if your ratio is 1 unit of insulin for 15 grams of carbs (1:15grams) you would divide by 15

Example

- A bowl of Rice Krispies cereal.

From the label on the cereal box the carbohydrate per 100 grams is 87grams. Having weighted the Rice Krispies, the portion size is 55grams. Ratio is 1:15 grams

1. Amount of carbs per gram = $\frac{87\text{grams}}{100} = 0.87\text{grams}$,
2. Amount of carbs per serving (55g) = $0.87\text{grams} \times 55\text{g} = 48\text{g}$ of carbohydrate.
3. Amount of insulin needed = $\frac{48}{15} = 3.2$ units (this can be rounded up or down to nearest half or whole unit)

Snacking

Try not to have too many extra snacks, however if you do occasionally want something more, the list below provides ideas which contain little or no carbohydrate and therefore will not affect your blood glucose level directly but protein and fat may indirectly impact on blood sugars as well as on general health:

<ul style="list-style-type: none"> • Raw vegetables e.g. cherry tomatoes, celery, carrot, cucumber and red pepper sticks 	<ul style="list-style-type: none"> • Sugar free ice pops or lollies
<ul style="list-style-type: none"> • Olives 	<ul style="list-style-type: none"> • Cheese, cheese strings and mini cheeses
<ul style="list-style-type: none"> • Nuts and seeds, e.g. sunflower or pumpkin 	<ul style="list-style-type: none"> • Cold meat e.g. chicken, ham and salami
<ul style="list-style-type: none"> • Sugar free jelly 	

Snacking on vegetables counts towards your 5 a day fruit and vegetables!

What about food shopping?

Planning the first food shop with diabetes may seem scary. The following tips are based on comments that other families have made:

- Plan ahead
- Write a list out before you go to the shops -this makes it easier to focus on the things you need
- Remember to buy items for hypo treatment for at home and at school
- Consider asking someone to look after your child/young person so you have time to concentrate and look at labels

Remember don't buy diabetic products

- They can be expensive.
- They are higher in fat to make up for the reduced sugar
- They can even cause a laxative effect.

Sport and Exercise

Please see exercise leaflet for more information

What can i expect from the dietitians?

In hospital (at diagnosis)

- Where possible, the Dietitian and/or Dietetic Assistant will come and meet you and answer any questions during your hospital admission.
- We will provide simple diabetes related nutrition advice based on your individual needs, and aim to put your mind at ease about eating, activity and the effect on blood glucose.
- We will also start you on carbohydrate counting during your admission.

Back home:

We will offer

- The Dietitian and Dietetic Assistant to help support you as you settle in and start thinking about your normal diet.
- Every 3 months the Paediatric Diabetes Team will offer you a review appointment, at Tameside Hospital Paediatric Out-Patients with the Consultant, Specialist Nurse, Psychologist and Dietitian.
- Once a year we will offer you an additional appointment with the Dietitian at Tameside Hospital Paediatric Out-Patients Department, as part of your annual diabetes review.
- If you need extra support, we can arrange this also, usually at home, at school/nursery, in clinic or over the telephone.

Eatwell Guide



Who to contact for advice

Paediatric Diabetes Nurse Specialists during office hours 08.30- 16.30

- **Office:** 0161 922 5262 (Mon-Wed)
- **Karen Wright** 0161 922 4844 (Mon-Thur)
- **Jenny Butterworth** 0161 922 5433 (Tues-Fri)
- **Paediatric Dietitian** 0161 331 5165 (Wed-Thurs)

Mobile: 07760991621(Karen), 07775032136 (Jenny)

Out of hours: 0161 922 6000 - hospital switchboard and ask for on-call paediatric registrar

Other Useful Contacts or Information

NHS Direct

Patient Information Centre

Diabetes UK

Source of Good Practice

Hanas, Ragnar (2004) Type 1 Diabetes in children, adolescents and young adults: How to become an expert on your own diabetes. Class Publishing, London.

References accessed:

<http://www.ndr-uk.org/Diabetes/Diabetes-Explained.html>

Clinical Paediatric Dietetics, 4th Edition, Vanessa Shaw/

If you have any questions you want to ask, you can use this space below to remind you

If you have a visual impairment this leaflet can be made available in bigger print or on audiotape. If you require either of these options please contact the Patient Information Centre on 0161 922 5332

If you require an interpreter, please ask an appropriate person to contact our central booking office between Monday to Friday 8am to 5pm on 0161 922 6991 to arrange this for you.

語言翻譯及病者支持服務 (LIPS):

如果閣下需要翻譯員在您的預約當日幫助您的話 請找一名合適的家庭成員 **0161 922 6991** 聯絡本中央預約辦事處來您您安排 我們的辦公時間是星期一至星期五 上午 8 時至下午 5 時

Językowo Tłumaczeniowa Usługa Pomocy dla Pacjenta (Language, Interpretation and Patient Support Service LIPS):

Jeśli potrzebujesz pomocy tłumacza w trakcie swojej wizyty, proszę poprosić odpowiedniego członka rodziny o skontaktowanie się z Centralnym Biurem Zamówień (Central Booking Office), w celu zorganizowania tłumacza pomiędzy poniedziałkiem a piątkiem w godzinach od 08:00 - 17:00 pod numerem 0161 922 6991.

لینگوئج، انٹرپریٹیشن اینڈ پیسٹنٹ سپورٹ سروس (Lips)

اگر آپ کو اپنی اپائنٹمنٹ کے لئے مترجم کی مدد کی ضرورت ہو تو براہ مہربانی اپنے خاندان کے کسی موزوں فرد سے کہیں کہ وہ ہمارے سنٹرل بنگ آفس سے پیر سے جمعہ 8.00 بجے صبح سے 5.00 بجے شام کے دوران 0161 922 6991 پر فون کر کے اس کا بندوبست کریں۔

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Division/Department: Paediatric Diabetes Team
Date Created: July 2016
Date reviewed: October 2020
Reference Number:
Version: 2.0