LIFE FOR A CHILD

ISPAD
International Society for Pediatric and Adolescent Diabetes

Healthy eating and carbohydrate counting for children and adults with type 1 diabetes

Pakistani Foods – Edition 1, 2024

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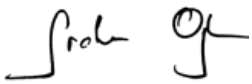
Foreword

Management of type 1 diabetes is a balancing act with three big players – insulin, food and exercise. This is not easy, particularly for children and adolescents, with all the excitement and changes that are happening in their lives. But, when it is done well, young people with diabetes can lead normal and active lives and avoid long-term diabetes complications. Knowing how much carbohydrate is in each meal is a critical part of this. This book will help teach the young person with diabetes and their family about healthy eating and provide tools to work out the carbohydrate amounts in the foods they eat, so they can adjust insulin doses according to the carbohydrates they consume.

In Section 1, this book explains about why carbohydrate counting is important. Section 2 does a magnificent job of covering the great variety of foods across Pakistan, and Section 3 covers common international foods. This is the first version of the resource, and other versions for other countries will follow. The layout of this book makes this easier to do, as, for each new version, Sections 1 and 3 will remain largely unchanged.

Life for a Child (LFAC) and the *International Society for Pediatric and Adolescent Diabetes* (ISPAD) are delighted to endorse this new resource, and thank all the authors and contributors.



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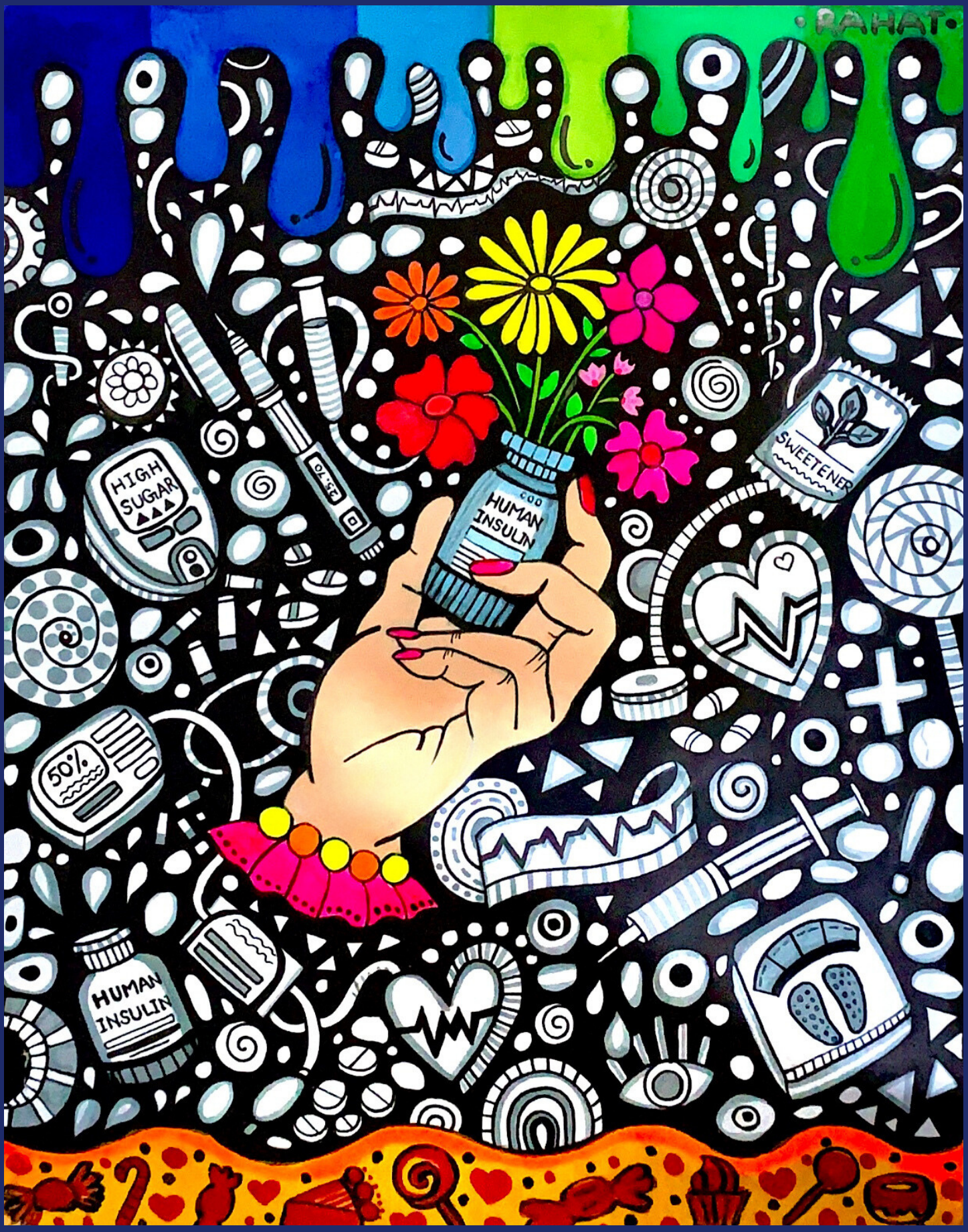

RAHAT
HIGH SUGAR
HUMAN INSULIN
SWEETENER
50%
HUMAN INSULIN

1 Healthy eating and carbohydrate counting

When you or your child is diagnosed with diabetes, one of the first things that might come to mind is that you have to give up your favourite foods. Not true! The good news is that there is no diabetic diet. Children and adults with diabetes can eat the same healthy food as the rest of the family. However, it is important to pay special attention to the amount and type of carbohydrates eaten.

This booklet is for people and their families living with type 1 diabetes. It will teach you how to make healthy food choices and count the carbohydrate in your meals and snacks.

People with type 1 diabetes need to match the short or rapid acting insulin dose to the amount of carbohydrate they eat. This helps to prevent high and low blood glucose levels.

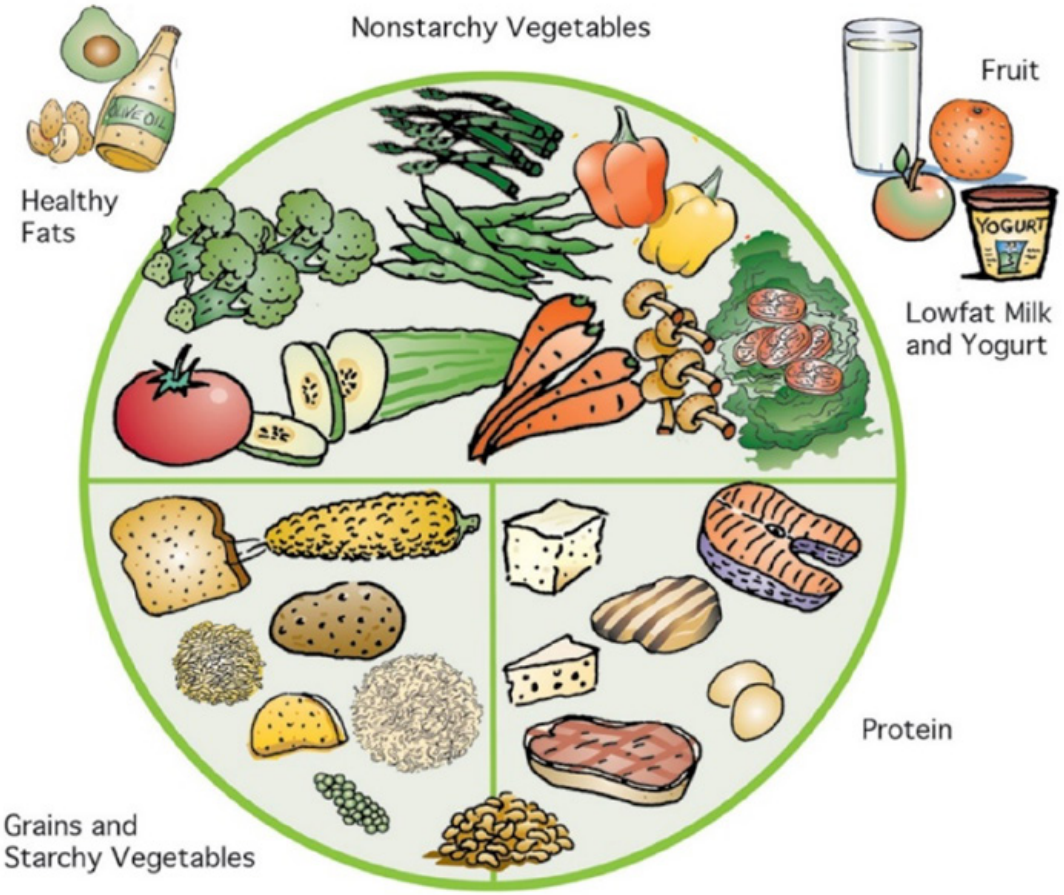
What is healthy eating?

Healthy eating is important for everyone. It involves eating a wide variety of nutritious foods.

It can be helpful to use a plate model to plan your meal.

The plate below shows how much of the foods from the different food groups we should eat.

Children and adults with diabetes can eat the same healthy food as the rest of the family.



Healthy eating guide:

- ✓ Eat a variety of family-based healthy meals. You don't need to eat a special diabetes diet.
- ✓ Include three meals a day and avoid missing meals.
- ✓ If you need to eat snacks, have a small amount of carbohydrate only (e.g. a piece of fruit or a plain yoghurt). Have the snack 2-3 hours before or after your main meals.
- ✓ Eat fibre rich foods such as whole grains-cereals, millets, pulses/legumes, vegetables and small amounts of fruit, nuts and seeds. These make you feel fuller for longer and improve blood glucose levels.

Important healthy eating and insulin injection habits:

- ✓ **Make sure to have short or rapid acting insulin before eating meals that contain carbohydrates!**
- ✓ If you eat a snack that contains less than 10 grams of carbohydrate, no insulin is usually needed.
- ✓ Avoid sugary drinks: keep hydrated with water.
- ✓ Avoid eating in front of screens (e.g. TV, phone, computer). Pay attention to the meals and snacks you eat.
- ✓ Maintain a healthy weight (limit take away foods, pay attention to portion sizes, be active every day).

Healthy foods include

Vegetables (cucumber, tomatoes, carrots, lettuce, etc)

Legumes (chickpeas, lentils, broad beans)

Fruits

Dairy foods

Wholegrain breads and cereals

Lean meat, fish, chicken, nuts and eggs

Foods containing poly- & mono-unsaturated fats (e.g. avocado, olive oil, groundnut oil, mustard oil and rice bran oil)

What are carbohydrate foods?

Carbohydrate foods or 'carbs' are:

- **Starches** such as grains (e.g. bread, cereals), starchy vegetables (e.g. potato, corn), rice, pasta, lentils and other legumes
- **Sugars** such as the natural sugar in fruit and milk and the added sugar in soft drinks, sweets, biscuits, chocolates and many packaged foods.

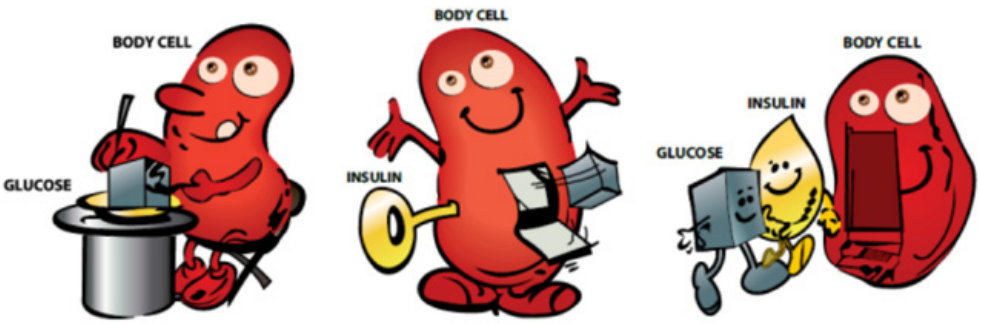
Eating adequate amounts of healthy carbohydrates is essential to maintain good health!

When you have type 1 diabetes you need to inject insulin as your body no longer makes its own.

How do carbohydrates affect your blood glucose levels?

When you eat foods that contain carbohydrates, they are broken down into glucose (a form of sugar). The glucose then ends up in your blood and is used as energy to run your body – like the petrol that runs a car. The amount of glucose in the blood is called blood glucose level (BGL) and is measured in mmol/L or mg/dL. To convert the glucose into energy we need insulin.

Insulin works like a key that unlocks the doors to our body cells. Once the door is unlocked, glucose from the blood can enter and be used as energy by the body.



Blood glucose monitoring

A fingerprick check with a blood glucose meter will tell you what your blood glucose level is (in mmol/L or mg/dl).

Regular blood glucose monitoring is key to keeping your/your child's blood glucose level as close to the target (healthy) range as possible.

Aim for these blood glucose levels

Before a meal	4-7 mmol/L	70-126 mg/dl
2-3 hours after a main meal	5-10 mmol/L	90-180 mg/dl

What is 'Carbohydrate Counting' and why is it important?

Carbohydrate counting – also referred to as carb counting - is a way of estimating the amount of carbohydrate in different foods. It is important to match your/child's meal insulin dose to the amount of carbohydrate food in the meal. This will prevent high or low blood glucose levels.

With the help of this book, your health professional will teach you to accurately count the amount of carbohydrate in the meals and snacks you eat. This will enable you to better match the insulin doses to the amount of carbohydrate food you eat.

Remember!
The more carbs you eat, the more short or rapid acting insulin you will need to inject.

Insulin regimens

The type of insulin and the number of injections per day will determine how you spread your carbohydrate intake throughout the day. There are three common insulin regimens:

1 Two fixed doses per day

Usually consists of intermediate and short acting insulin mixed (like a pre-mixed insulin), given before breakfast and the evening meal. This requires eating the same amounts of carbohydrate food at the same time every day (usually 3 meals and 3 snacks). It does not allow you to adjust insulin doses for extra or less carbohydrate food eaten.

2 Multiple Daily Injections (MDI)

Also called 'Basal bolus regimen'. This generally involves a combination of intermediate or long acting insulin (basal) once or twice a day and short or rapid acting (also called bolus or meal) insulin. Bolus insulin is given three or more times a day before meals and sometimes before snacks.

3 Insulin Pump

This therapy provides a background (basal) dose of insulin that is continuously and automatically given by the pump.

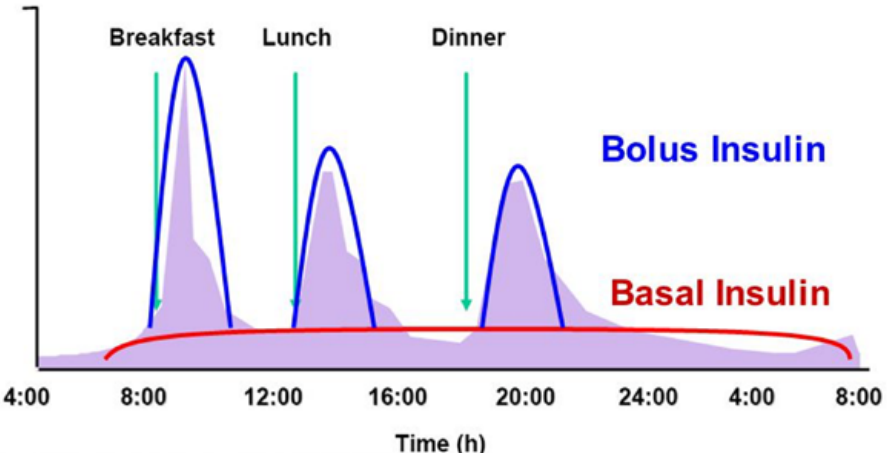
Bolus or meal insulin is given manually by operating the pump each time the person eats a carbohydrate containing food.

An Insulin-to-carbohydrate ratio (ICR) is the amount of carbohydrate (grams) covered by one unit of short/rapid acting insulin (for example: 1 unit of regular or short acting insulin is needed for every 20 grams of carbohydrate eaten).

The ICR will vary depending on body weight, physical activity, how sensitive the body is to insulin and may be different at different times of the day. Your health professional will discuss and work out the ratio with you.

How do I match my insulin dose to the carbohydrate food I eat?

Blood glucose levels (BGLs) begin to rise approximately fifteen minutes after eating carbohydrate containing food. They reach a peak around 1 hour and then slowly fall again. BGLs should be back to a target (healthy) range within 2-3 hours after eating.

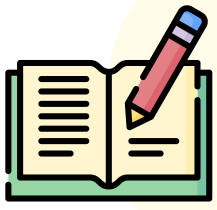


Adapted from White JR, et al. *Postgrad Med.* 2003;113:30-36.

Important!
Do NOT adjust your NPH/long acting insulin dose for your food!

Blood glucose level rise after each meal is shown in purple.

The rise and fall in BGLs depends on how accurately the bolus insulin dose is matched to the amount of carbohydrate you eat. In the graph above the bolus insulin dose is matched perfectly.



Tip!
If you write down your BGLs, carbohydrate foods and insulin doses for a few days, it will help you and your health care team adjust your insulin to carbohydrate ratio (ICR).

Carbohydrate, Protein and Fat

Carbohydrates

Carbohydrates are broken down into glucose immediately and have the most effect on blood glucose levels. Most of the carbohydrates you eat should be healthy choices such as grains, legumes, fruits, starchy vegetables, milk and milk products. Choose carbohydrate foods which have a lower Glycemic Index (GI) (explained later).

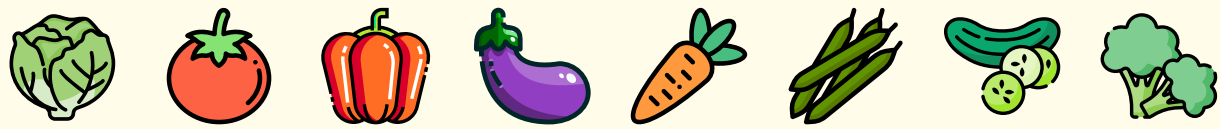
Foods containing Carbohydrate include:

Grains: Includes bread, bread rolls, flat bread, handbreads/chapattis/roti, millets, porridge, breakfast cereal, pasta, rice, noodles, flour, quinoa and barley. Wholegrains are the best choices.

Fruit: Includes all fresh fruit such as apple, orange, pear, banana, watermelon, grapes, dried fruits (such as apricots, dates, raisins, figs) and canned fruit.

Starchy vegetables, legumes and pulses: Includes potato, sweet potato, corn, taro, yam, legumes – baked beans, chickpeas, kidney beans and lentils.

Low Carbohydrate Vegetables: Most non-starchy vegetables are low in carbohydrate and are important for good health. Eat plenty of vegetables including tomato, cucumber, celery, carrots, capsicum, cauliflower, mushrooms, peas, green beans, zucchini, broccoli, lettuce etc. These can be eaten in salad, soup, stir fry or as steamed vegetable. Frozen vegetables are also a healthy choice.



Milk and dairy: Includes milk, yoghurt, lassi, custard, ice cream and dairy desserts.

Packaged, processed snack foods and take away foods: Includes chips, crackers, bars, biscuits, muffins and chocolate. Take away foods include hamburgers, hot chips, and pizza. **These foods are not recommended to be eaten on a regular basis as they can cause high blood glucose levels and lead to unhealthy weight gain.**

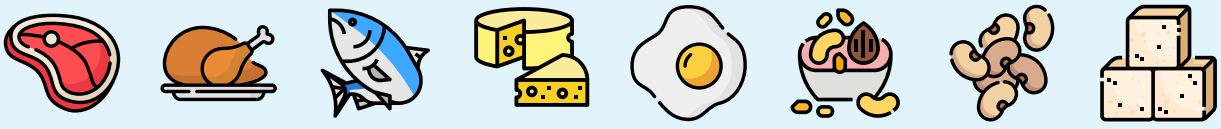
High sugar foods and drinks: Includes regular soft drinks, cordials, juice, lollies, sports drink, jelly and sugar. **These foods are not a good choice. They can cause high blood glucose levels and lead to unhealthy weight gain. However, some of these foods are appropriate to treat low blood glucose levels (hypoglycaemia).**

Proteins

Protein foods help your body to grow, develop and repair body tissue. You need to eat some protein foods each day. **NOTE:** Some protein foods such as legumes (dals and pulses) and dairy (milk and yoghurt) also contain carbohydrate and must be considered when counting carbs. Non vegetarian protein foods such as chicken, seafood/fish, eggs and red meat do not contain carbohydrates.

Foods containing Protein include:

Lean meat, chicken, fish, dairy (cottage cheese/paneer), eggs, nuts (for example almonds, walnuts, pistachios, peanuts) and seeds, tofu, and legumes such as lentils, broad beans, chickpeas. Choose protein foods that are low in saturated fat i.e. lean meat, skinless chicken, eggs and fish.



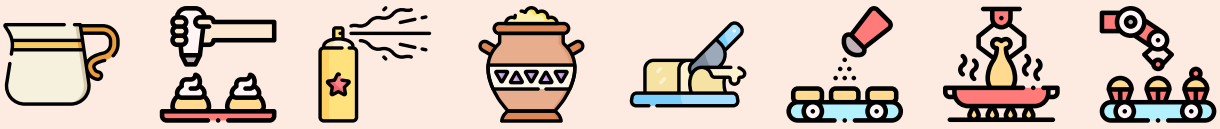
Fats and Oils

Fats are a normal part of a healthy diet and are essential for growth and development. However, use them in small amounts (approximately 4 teaspoons of added oil or fat per day). Too much of any fat or oil can lead to weight gain. Ask your dietitian for advice.

Foods containing Fats and Oils include:

Polyunsaturated and monounsaturated fats include healthy fats such as sunflower oil, safflower oil, olive oil, groundnut oil, rice bran oil, peanut butter, nuts, avocado, sesame seeds, soybean, canola and mustard oil.
Include omega-3 fatty acid rich foods such as fatty fish like mackerel, sardines, tuna and salmon, chia seeds, flaxseeds, walnuts and soybean. These are the best types of fats.

Unhealthy fats: Limit foods high in saturated or trans fats including cream, butter, ghee, cooking margarine and processed foods. Too much saturated fat can raise blood cholesterol levels and increase the risk of heart disease.



GO SLOW!
Cake, chocolates, sweets and take away food are treats which you can eat for special occasions like everyone else. But make sure you count the carbs and give extra short or rapid acting insulin!

Speak to your dietitian or health care professional about appropriate foods and amounts for you.

How to count carbohydrates?

Carbohydrates are measured in grams (g) and may be counted in grams, exchanges or portions. In this book we will only refer to grams.

To count carbohydrates:

1 **Identify the foods containing carbs**

Identify the foods in your meal or snack that contain carbohydrates, for example, in the picture below it is the rice and oranges.

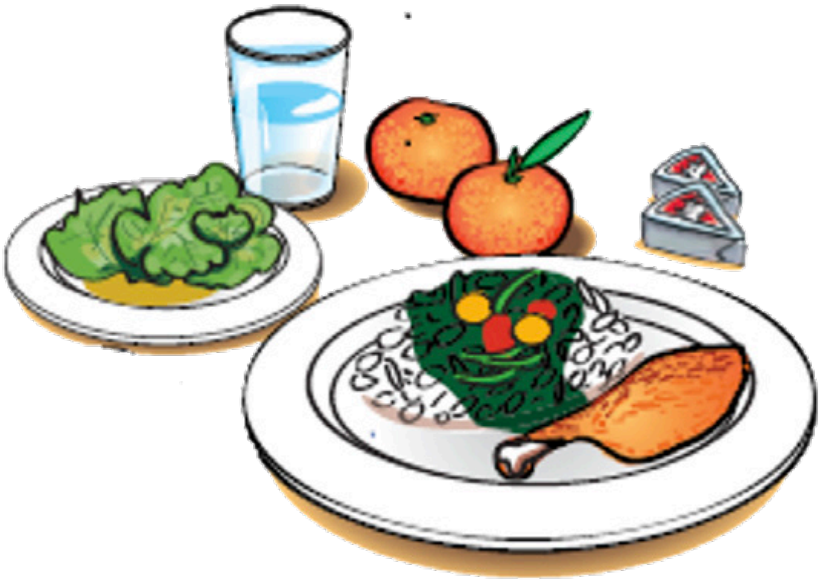
2 **Measure the foods containing carbs**

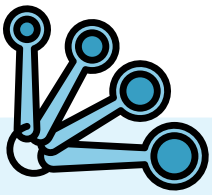
Use measuring cups, spoons or kitchen scales to measure how much of the carbohydrate food you will be eating e.g. 1 cup of rice and 2 oranges.

3 **Calculate the amount of carbohydrates**

Use this book, a list, phone app or food package labels to calculate the amount of carbohydrates you will consume.

Spot the carbohydrate containing foods – rice and oranges





As with every new skill "practice makes perfect". The more attention you pay to carb counting the better you will get at it. It will be worth the effort!

Tools to help you count carbohydrates

- ✓ Websites and mobile apps such as NHS-INC (Indian Nutrient Counter) provide nutrition values of more than 5000 foods, available from Google Play store
- ✓ Measuring cups and spoons, kitchen food weighing scales
- ✓ Images of measuring cups and spoons
- ✓ Your dietitian, or diabetes care team can give you some helpful carbohydrate lists
- ✓ Section 2 and 3 of this booklet provide images of foods and the amount of carbohydrate in grams

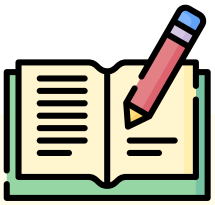
Make sure you check the volume of *your* measuring cups.

Do I have to weigh and measure foods all the time?

It is a good idea to measure your food portions initially to learn what your usual food portions are.

You may choose to keep measuring or weighing your foods all the time.

If you don't, it's a good idea to check your portion sizes regularly, or when you notice your/your child's blood glucose levels are fluctuating more than usual. This can indicate that insulin doses may need to be adjusted.



Tip!
You can keep a diary with the carbohydrate amounts you have calculated for different meals.

Food labels

Reading and understanding food labels on packaged foods can help you make healthy food choices. It can also help to calculate carbohydrate amounts and compare products.

The nutrition information panel provides details of how much carbohydrate, fat, protein and other nutrients is in that food. Not all food labels are the same. We have described one type below.

Serving size

This is the serving size suggested by the manufacturer. It may not be how much you, or your child eats. You need to calculate your own serve.

In this example the **serving size is ⅔ cup**. If you eat 2 servings of this food (2 x ⅔ cups = 1 ⅓ cup or 2 x 55g = 110g) then the total carbohydrate you eat would be 2 x 37g = 74g.

Nutrition Facts

8 servings per container

Serving size	**2/3 cup (55g)**
Amount per serving	
Calories	**230**
	% Daily Value*
Total Fat 8g	**10%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**13%**
Dietary Fiber 4g	**14%**
Total Sugars 12g	
Includes 10g Added Sugars	**20%**
Protein 3g	
Vitamin D 2mog	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 240mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daliy diet. 2,000 calories a day is used for general nutrition advice.

Total carbohydrate

This value includes starches, fiber and sugars in the food.

Use the 'Total Carbohydrate' and subtract the amount of 'Dietary Fiber' to calculate the net amount of carbohydrate you will eat. In this example, if you eat one serving size of this food (⅔ cup or 55g), your net carbohydrate amount would be 33g (i.e. 37g minus 4g of fiber).

Be Careful!
The serving size on the label is NOT always the same as the serving size you will eat. If your serving size is larger, the carbohydrate amount (g) will be more.

Ingredients

All the ingredients used in this product are listed here. They are **listed in order from most to least by weight**. Looking at this list helps determine whether a product is high in fat, sugar or salt.

→ **Ingredients:** Enriched flour (wheat flour, malted barley, niacin, reduced iron, thiamin monitrate, riboflavin, folic acid), sugar, partially hydrogenated cottonseed oil, high fructose corn syrup, whey (milk), eggs, vanilla, natural and artificial flavoring, salt, leavening (sodium acid pyrophosphate, monocalcium phosphate), lecithin (soy), mono- and diglycerides.

Beyond the basics of carbohydrate counting

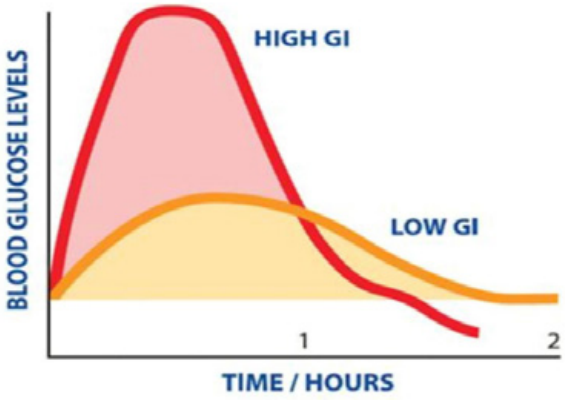
Once you have mastered the basics of carbohydrate counting it is important to learn about the impact of other food components on blood glucose levels.

Glycemic Index

Different carbohydrates will cause your/your child's blood glucose to rise faster or slower. The glycemic index (GI) is a ranking of how quickly your/your child's blood glucose levels rises after eating a carbohydrate food.

Low GI carbs = Slower, lower rise in BGLs
High GI foods = Faster, higher rise in BGLs

It is important to include one low GI carbohydrate food at each meal or **switch** higher GI for lower GI foods.



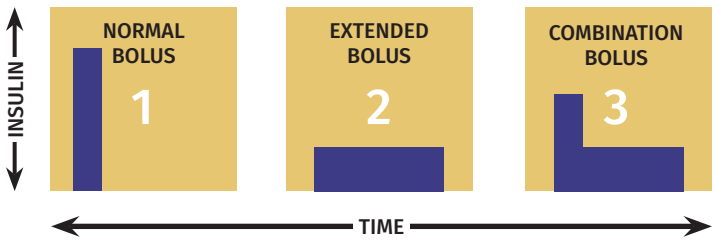
For more information on Glycemic Index go to GI Foundation at www.gisymbol.com

Fats and Protein

Meals that are high in protein and fat may cause high blood glucose levels commencing 3-5 hours after eating the meal. These meals may require extra insulin, in addition to what is needed for the carbohydrate portion of the meal alone.

If you are using an insulin pump, meals high in fat and protein may require a combination/dual-wave bolus (as shown in the picture No. 3 below).

It is best to get advice from your diabetes health care team regarding how to manage these foods.



Important!
Carbohydrates raise blood glucose levels more than protein or fat. It is important to get the carb counting right before you move on to consider fat and protein.

Eating out

Children and adults with diabetes can enjoy eating out with friends and family. Try to 'estimate' the amount of carbohydrate containing foods based on what you would usually eat at home. You may find carbohydrate amounts of foods from books, websites, phone apps, or the restaurant or cafe's website. You could also seek help from your health professional by deciding the menu in advance.

You will not always get it right and that is ok! You can make a note for next time.

Alcohol

This section is ONLY for non-Muslims who may consume alcohol.

- ✓ Do not give insulin for alcohol. Alcohol can cause delayed hypoglycaemia (low blood glucose) and this can be dangerous, particularly overnight.
- ✓ Limit intake to 1-2 standard drinks. If you drink more, your risk of hypoglycaemia increases.
- ✓ You may need to adjust insulin doses or eat more carbs to prevent hypos.
- ✓ Make sure you tell a responsible adult/friend if you are drinking alcohol and always wear a diabetes identification (ID).
- ✓ Too much alcohol can cause weight gain as it contains a lot of calories.
- ✓ Don't drink alcohol until you are of legal age.
- ✓ Don't drink and drive!

Warning!
Alcohol can cause delayed hypoglycaemia. If you have been drinking alcohol it is important to have carbohydrates before going to bed. Particularly if you have been exercising or been active, like dancing. Check your BGL more often, especially before going to bed and overnight!

Sweet alcoholic drinks

Some alcoholic drinks like sodas have lots of added sugar and will cause a temporary rise in BGLs. However, you are at risk of delayed hypoglycaemia even if you have this temporary spike. Be mindful if you are active while drinking alcohol (e.g. dancing). You may need to eat extra carbohydrate containing food. **Talk to your diabetes health care team for advice on how to stay safe when drinking alcohol.**

One standard drink is:

12 fl oz (350mL) of regular beer =

about 5% alcohol

8 fl oz (240mL) of malt liquor
(shown in a 12 oz/ 350mL glass) =

about 7% alcohol

5 fl oz (150mL) of table wine =

about 12% alcohol

1.5 fl oz (45ml) shot of 80-proof spirits
(whiskey, gin, rum, vodka, tequila, etc.)

about 40% alcohol

Physical Activity

It is important to be physically active every day to maintain good health. Exercise can increase your/your child's risk of hypoglycaemia (low blood glucose) during and even many hours after exercising. Although, high intensity exercise such as strength training, skipping or heavy gardening work can temporarily raise blood glucose levels. So, it is important to check your blood glucose levels before, during and after exercise.

Follow these steps to get active safely:

Before

- ✓ Check blood glucose levels, aiming for 5-10 mmol/L (90-180 mg/dL).
- ✓ Have 10-20 grams of carbohydrate if blood glucose is below 5 mmol/L (90 mg/dL) or if you are exercising for more than 45 minutes.
- ✓ Pack your hypo treatment (e.g. glucose powder or tablets, juice, soft lollies, sugar, fruit, plain biscuit).

During

- ✓ Always wear or carry diabetes identification (e.g. a bracelet, necklace, card).
- ✓ Check blood glucose levels often.
- ✓ Drink lots of fluid – water is best.
- ✓ Consider having a drink or snack that contains carbohydrate if exercising for more than one hour or if doing more strenuous exercise (e.g. running, farm work etc).

After

- ✓ Eat a snack containing carbohydrate and protein (e.g. yoghurt, a sandwich with nut butter or a meal with protein source & rice).
- ✓ Check blood glucose levels directly after the exercise, before going to bed and overnight.
- ✓ Do not drink alcohol! It increases the risk of delayed hypoglycaemia (even overnight).

Important

- ✓ Different exercises will affect your blood glucose levels in their own way. For example, high intensity exercise may cause BGL to rise initially and drop later, while swimming usually causes a decrease.
- ✓ Don't do high intensity exercise if your/your child's BGL is above 15mmol/L (270mg/dl). This can raise BGLs even more and be dangerous.
- ✓ Insulin doses can be reduced for planned activity to minimise the amount of additional carbs you/your child need to consume.
- ✓ Everyone is unique – the more you exercise and the more frequently you check your blood glucose levels, the better you'll know your body and how it responds.
- ✓ Always talk to your diabetes team for individualised advice!

Be Aware! Physical activity, stress, illness, and alcohol can also affect your blood glucose levels.

2 Carbohydrate foods commonly eaten in Pakistan

This section gives pictures and the amount of carbohydrates of some of the traditional and most common carbohydrate foods eaten in Pakistan. The carbohydrate values mentioned in this book are estimates only as many factors can affect the amounts, for example the method of preparation etc.

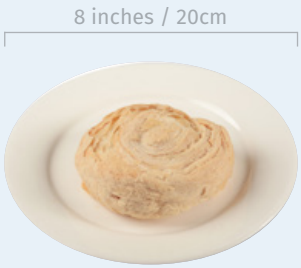
The following images are separated into breakfast and snack items, main courses, breads, rice preparations and desserts.

Pakistan has a rich regional cuisine. Carbohydrates foods commonly eaten in those cuisines are listed in the glossary section at the end of this section (Page 35-40).

Breakfast Items

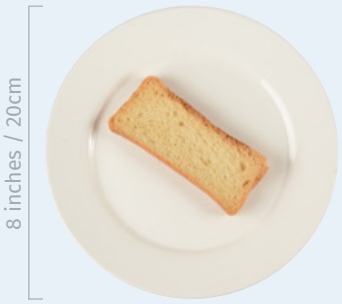
Aloo paratha

1	103g	46g
medium	weight	carbs



Bakarkhani

1	47g	21g
piece	weight	carbs



Rusk

1	10g	6g
piece	weight	carbs

Halwa puri + chanay

1	210g total weight	61g total carbs
serving		

Halwa

1/4	88g	23g
cup	weight	carbs

Puri

1	68g	28g
piece	weight	carbs

Chanay

½	54g	10g
cup	weight	carbs

Main Courses

Bowl = 250ml

Aloo Baingan

½	138g	14g
cup	weight	carbs

Bowl = 250ml

Aloo Gobhi

½	122g	16g
cup	weight	carbs

Bowl = 250ml

Aloo Gosht

1	200g	23g
cup	weight	carbs

Bowl = 250ml

Aloo ki bhujia

½	122g	22g
cup	weight	carbs

Bowl = 250ml

Chanay

½	54g	10g
cup	weight	carbs

Bowl = 250ml

Haleem

1	214g	30g
cup	weight	carbs

Kabab Paratha roll

1	183g	71g
roll	weight	carbs

Bowl = 200ml

Karahi (chicken/mutton/beef)

1	240g	10g
cup	weight	carbs

Bowl = 250ml

Karhi Pakorra

½	110g	18g
bowl	weight	carbs

Bowl = 250ml

Kofta curry

1	200g	8g
cup	weight	carbs

Bowl = 250ml

Loki Ki Sabzi

½	120g	7g
cup	weight	carbs

Bowl = 250ml

Nihari

1	240g	7g
cup	weight	carbs

Bowl = 250ml

Sarson ka Saag

½	116g	6g
cup	weight	carbs

Bowl = 250ml

Rajma

½	90g	20g
cup	weight	carbs

Bowl = 250ml

Moong Masoor ki dal

1	185g	27g
cup	weight	carbs

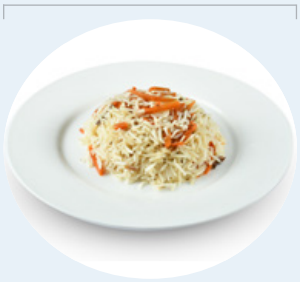
Rice Preparations

10 inches / 25.4cm

White Rice

1	160g	50g
cup	weight	carbs

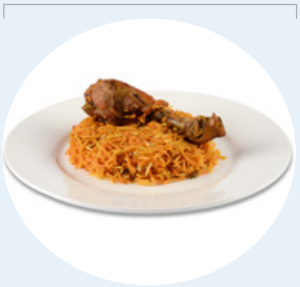
10 inches / 25.4cm



Kabuli Pulao

1	180g	44g
cup	weight	carbs

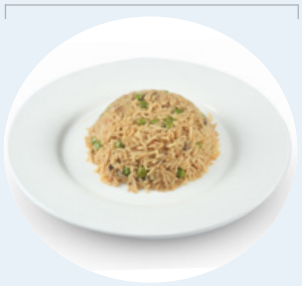
10 inches / 25.4cm



Biryani (Chicken / Mutton / Beef)

1	160g	27g
cup	weight incl. 85g rice	carbs

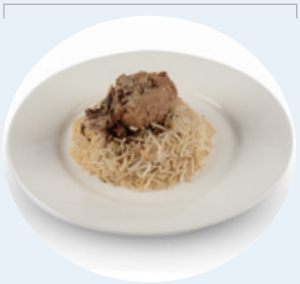
10 inches / 25.4cm



Matar Pulao

1	180g	42g
cup	weight	carbs

10 inches / 25.4cm



Pulao (Chicken/ Mutton/ Beef)

1	160g	29g
cup	weight incl. 120g rice	carbs

Snacks

Aloo Pakora

5-6	60g	15g
pieces	weight	carbs

Aloo Samosa

1	100g	30g
piece	weight	carbs

Bhutta (Corn on cob)

1	195g	22g
number	weight	carbs

Chana Chaat

½	130g	30g
cup	weight	carbs

Chicken Patties

1	60g	13g
number	weight	carbs

Club Sandwich

1	120g	25g
number	weight	carbs

Cream Chat

½	100g	30g
number	weight	carbs

Dahi bhallay

1	220g	35g
cup	weight	carbs

Gol Gappay (with chana filling)

4	32g	19g
pieces	weight	carbs

8 inches / 20cm

Lobia Chaat

1	117g	22g
cup	weight	carbs

8 inches / 20cm

Namak Paray

10	18g	6g
pieces	weight	carbs

8 inches / 20cm

Onion Pakora

4-5	50g	11g
pieces	weight	carbs

8 inches / 20cm

Qeema Kachori

1	126g	33g
piece	weight	carbs

8 inches / 20cm

Qeema Samosa

1	45g	8g
piece	weight	carbs

8 inches / 20cm

Shami Kebab

1	76g	6g
piece	weight	carbs

Hand Breads

10 inches / 25.4cm

Afghani Naan

½	145g	72g
piece	weight	carbs

10 inches / 25.4cm

Chapatti (large)

1	92g	40g
12" inch	weight	carbs

10 inches / 25.4cm

Kulcha Naan

1	202g	100g
kulcha naan	weight	carbs

10 inches / 25.4cm

Naan

1	133g	66g
naan	weight	carbs

10 inches / 25.4cm

Paratha

1	74g	33g
medium	weight	carbs

10 inches / 25.4cm

Puri

1	68g	28g
piece	weight	carbs

10 inches / 25.4cm

Rumali Roti

1	55g	27g
large	weight	carbs

10 inches / 25.4cm

Sheermal

1	257g	167g
large	weight	carbs

10 inches / 25.4cm

Tandoori Roti

1	33g	15g
medium	weight	carbs

Desserts

8 inches / 20cm

Barfi

1	40g	16g
piece	weight	carbs

Bowl = 250ml

Falooda

1	248g	56g
cup	weight	carbs

Bowl = 250ml

Gajar Halwa

½	102g	44g
cup	weight	carbs

8 inches / 20cm

Gulab Jamun

1	36g	15g
number	weight	carbs

8 inches / 20cm

Jalebi (without sheera)

1	41g	23g
piece	weight	carbs

Bowl = 250ml

Kheer

¾	118g	37g
cup	weight	carbs

8 inches / 20cm

Kulfi

1	74g	18g
number	weight	carbs

8 inches / 20cm

Ras malai

1 + ½	117g	16g
pc cup milk syrup	weight	carbs

8 inches / 20cm

Savaiyan (boiled without milk)

½	56g	18g
bowl	weight	carbs

Bowl = 250ml

Sheer Khorma

¾	125g	46g
cup	weight	carbs

8 inches / 20cm

Sohan Halwa

1	50g	20g
piece	weight	carbs

Bowl = 250ml

Suji Halwa

¼	88g	43g
cup	weight	carbs

Drinks and Beverages

Cup= 250ml

Banana Milkshake

1 small banana	60g	25g carbs
1 cup milk	200ml	

Cup= 240ml

Doodh patti

1 cup	230ml volume	10g carbs

Cup= 240ml

Doodh soda

½ cup milk + ½ cup soda	240ml volume	22g carbs

Cup= 250ml

Fruit Juice (fresh)

½ cup	180ml volume	15g carbs

Cup= 250ml

Leemu Pani with 1 teaspoon sugar

1 cup	250ml volume	8g carbs

Cup= 250ml

Mango Milkshake

½ mango	100g	25g carbs
1 cup milk	200ml	

Cup= 250ml

Meethi Lassi (with 2 tsps sugar)

1 cup	235ml volume	24g carbs

Cup= 250ml

Namkeen lassi (Chaas)

1 cup	200ml volume	5g carbs

Cup= 240ml

Rooh Afza in milk

2 tsps + 1 cup milk	209ml volume	25g carbs

Cup=
240ml

Rooh Afza in water

2 + 1	259ml	15g
tsps cup water	volume	carbs

Cup=
250ml

Tea / coffee
with 100ml milk, 1 tsp sugar

1	200ml	10g
cup	volume	carbs

Karachi Cuisine

FOOD	QUANTITY	WEIGHT	CARBOHYDRATES
Flat bread & Paratha & Noodles			
Laal chapati	1 medium	80 grams	28 grams
Qeema naan	1 medium	100 grams	38 grams
Qeema paratha	1 medium	125 grams	46 grams
Cheese paratha	1 medium	85 grams	30 grams
Chicken paratha	1 medium	90 grams	31 grams
Anda paratha	1 medium	125 grams	46 grams
Lacha paratha	1 medium	95 grams	44 grams
Puri paratha	1 large	110 grams	49 grams
Bhatura	1 medium	65 grams	30 grams
Rice dishes			
Daal chawal	1 cup boiled rice + 1 cup daal	159g + 196g = 355 grams	50g + 25g = 75 grams
Aloo Tahiri	1 cup	166 grams	50 grams
Vegetable Fried Rice	1 cup	162 grams	48 grams
Vegetable (Sabzi) Dishes			
Aloo Palak	½ cup	118 grams	17 grams
Desserts			
Firni	¾ cup	158 grams	23 grams
Double ka Meetha/ Shahi Tukrey (with 2 tbsp of milk sauce)	1 piece	88 grams	25 grams
Lab e shireen	1 cup	243 grams	51 grams

Sindhi Cuisine

FOOD	QUANTITY	WEIGHT	CARBOHYDRATES
Flat bread & Paratha & Noodles			
Koki	1 medium	98 grams	28 grams
Rice dishes			
Sai Bhaji Ain Chawar	Sai bhaji ½ cup + 1 cup Chawar	78g + 210g = 288 grams	10g + 66g = 76 grams
Vegetable (Sabzi) Dishes			
Taryal Patata	1 medium-sized potato	178 grams	20 grams
Palli saag	1 cup	104 grams	16 grams
Desserts			
Kheer Kharkoon	½ cup	72 grams	21 grams
Sayun	½ cup	68 grams	42 grams

Punjabi Cuisine

FOOD	QUANTITY	WEIGHT	CARBOHYDRATES
Flat bread & Paratha & Noodles			
Phulka	1 small	35 grams	15 grams
Baajrey Ki Roti	1 medium	55 grams	35 grams
Makkai Ki Roti	1 small	56 grams	35 grams
Baisan Paratha	1 (6" diameter)	85 grams	25 grams
Papar	5 pieces	15 grams	15 grams
Rice dishes			
Chana Pulao	1 cup	188 grams	44 grams
Vegetable (Sabzi) Dishes			
Kaddu Gosht	1 cup	235 grams	12 grams
Qeema Karela	½ cup	124 grams	17 grams
Baingan Bharta	½ cup	118 grams	12 grams
Desserts			
Petha Halwa	½ cup	114 grams	28 grams
Daal Halwa	½ cup	113 grams	33 grams
Malpua	1 piece	46 grams	20 grams
Rabri	½ cup	124 grams	40 grams
Pinni	1 piece	38 grams	15 grams
Kaju Katli	1 piece	9 grams	5 grams
Beverages			
Kashmiri Chai	1 glass	235 ml	26 grams
Sattu Drink	1 tablespoon of sugar and 2 tablespoons sattu powder	32 grams	22 grams

Pashtun Cuisine

FOOD	QUANTITY	WEIGHT	CARBOHYDRATES
Flat bread & Paratha & Noodles			
Bolani	1 medium	128 grams	68 grams
Rice dishes			
Bademjan *(1/2 cup rice and 1/2 cup eggplants)*	1 cup	240 grams	25 grams
Aushak *(vegetable and chive-filled dumplings topped with tomato and yogurt sauces)*	1 dumpling	34 grams	8 grams
Lentils, Beans & Peas			
Shorwa / Shorba	1 cup	245 grams	29 grams
Meat Dishes			
Mantu *(meat dumplings, usually served under a yogurt-based white sauce)*	1 dumpling	36 grams	5 grams

Saraiki Cuisine

FOOD	QUANTITY	WEIGHT	CARBOHYDRATES
Rice dish			
Cholistani-style Pulao *(made from camel meat) (only rice)*	1 cup	164 grams	46 grams

Memon Cuisine

FOOD	QUANTITY	WEIGHT	CARBOHYDRATES
Bread, Rofi & Noodles			
Lasan *(crumbled roti made with millet flour tossed with green garlic forms the basis of this dish. It is served with yogurt and roasted eggplant)*	1 medium bajra rofi + ½ cup eggplant raita	55 + 50 = 105 grams	38 + 8 = 46 grams
Dhokray *(paties made with gram flour are put aside to set until firm and stewed in a tomato curry)*	1 piece	60 grams	16 grams
Bajra Fritters *(pakoras made of Bajra flour)*	3 pieces	36 grams	12 grams
Khow suey *(without chips and papdi)*	1 cup noodles + ½ cup curry	300 grams	34 grams
Gur Papri	4 pieces	76 grams	57 grams
Rice dishes			
Qeema Masoor Pulao *(only rice)*	1 cup	166 grams	38 grams
Chicken Akni *(memon pulao) (only rice)*	1 cup	167 grams	41 grams
Lentils, Beans & Peas			
Daal Gosht	1 cup	212 grams	20 grams
Khati Daal	½ cup	96 grams	13 grams

Bohri Cuisine

FOOD	QUANTITY	WEIGHT	CARBOHYDRATES
Bread & Flour			
Bohra Lasanyo / Chicken Lasagna	1 piece	106 grams	18 grams
Boondi Raita Chaat (4-5 boodi dipped in salty yogurt)	½ cup	122 grams	7 grams
Malida	1 cup	100 grams	36 grams
Rice dishes			
Daal Chawal Palidu	1 ½ cup (1 cup rice and ½ cup palidu	350 grams	78 grams
Bohra Qeema Khichdi	1 cup	246 grams	35 grams
Beverages			
Saffron Milk	1 cup	220 ml	15 grams
Continental			
Pineapple Chicken	1 cup	200 grams	30 grams

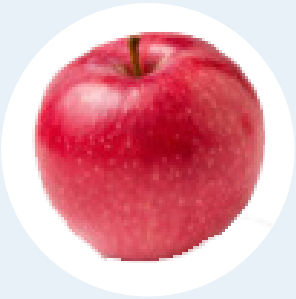
3 Carbohydrates in common international foods

The first part of this section (pages 42 - 47) shows images of common fruit, bread, cereals, grain products, starchy vegetables, legumes and pulses, milk, dairy or dairy alternatives that contain approximately 15g of carbohydrates.

All cup measurements used in this section refer to a **250ml cup**.

The second part (pages 48 - 53) provides examples of common Italian, Asian, Mexican and other common restaurant or take away dishes as well as cakes, snack and bakery foods. The images indicate a serving size with the weight of the food, and the approximate amount of carbohydrates they contain.

Fruits



Apple

1	135g	15g
small	weight	carbs

Banana

1	130g	15g
small	weight	carbs

Pear

1	200g	15g
medium	weight	carbs

Orange

1	205g	15g
medium	weight	carbs

Mandarins

2	98g	15g
small	weight	carbs

Dates / Medjool dates

4/1.5	20g/24g	15g
dates	weight	carbs

Kiwi fruits

2	78g	15g
small	weight	carbs

Dried figs

2	29g	15g
figs	weight	carbs

Lychees

6	120g	15g
lychees	weight	carbs

1 cup = 250ml

Cherries

14	145g	15g
cherries	weight	carbs

Peaches in pear juice, drained

1	210g	15g
cup	weight	carbs

Rockmelon (Muskmelon)

2	300g	15g
cups	weight	carbs

Cup = 250ml

Grapes

20	100g	15g
small	weight	carbs

Cup = 250ml

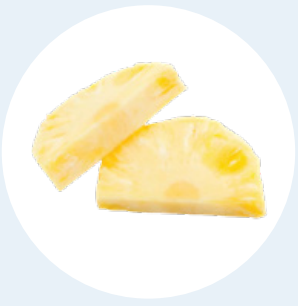
Mango

½	120g	15g
cup	weight	carbs

Cup = 250ml

Strawberries

2	240g	8g
cups	weight	carbs

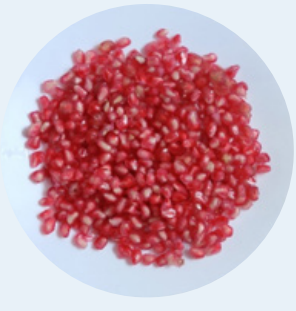


Pineapple

2	180g	15g
slices	weight	carbs

Watermelon

2	220g	15g
slices	weight	carbs



Pomegranate

½	130g	15g
cup	weight	carbs

Bread, Cereals and Grain Products

Slice of bread

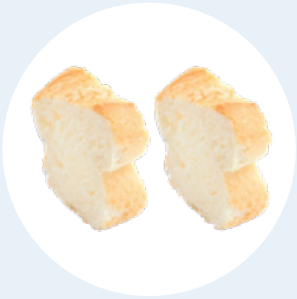
1	34g	15g
slice	weight	carbs

Half Bread Roll

½	32g	15g
roll	weight	carbs

Lebanese Bread

⅓	30g	15g
slice	weight	carbs



French Stick Bread

2	32g	15g
slices	weight	carbs

Pancake

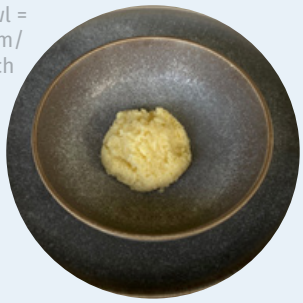
1	43g	15g
pancake	weight	carbs

Spaghetti (cooked)

⅓	55g	15g
cup	weight	carbs

Porridge (cooked with water)

½	130g	15g
cup	weight	carbs



Couscous (cooked)

⅓	50g	15g
cup	weight	carbs

Cooked Noodles (e.g. Egg or Hokkein)

⅓	55g	15g
cup	weight	carbs

Cornflakes

¾	20g	15g
cup	weight	carbs

Muesli (no sugar added)

½	40g	30g
cup	weight	carbs

Check the food label of your muesli!

Starchy vegetables, legumes and pulses

Mashed Potato

½	105g	15g
cup	weight	carbs

Sweet Potato (steamed)

3	110g	15g
pieces	weight	carbs

Pumpkin (steamed)

9	216g	15g
pieces	weight	carbs

Potato Salad

½	90g	15g
cup	weight	carbs

Potato

1 ½	135g	20g
small	weight	carbs

Corn Kernels

½	80g	15g
cup	weight	carbs

Pumpkin Soup

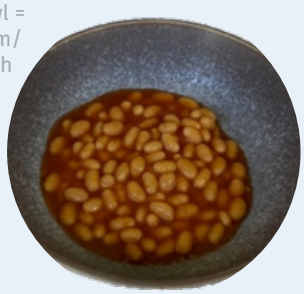
1	200g	15g
cup	weight	carbs

Bowl = 18cm/ 7inch

Brown Lentils (cooked)

½	90g	15g
cup	weight	carbs

Bowl = 18cm/ 7inch



Baked Beans

½	135g	15g
cup	weight	carbs

Milk, Dairy and Dairy Alternative products

Cows Milk

1	250ml	15g
cup	volume	carbs

Flavoured Milk

¾	180ml	15g
cup	volume	carbs

Milk Powder

¼	4	15g
cup	heaped tablespoons	carbs

Bowl = 18cm/ 7inch

Plain Greek Yoghurt

1 ½	400g	15g
cups	weight	carbs

Bowl = 18cm/ 7inch

Flavoured Greek Yoghurt (e.g. strawberry)

⅔	170g	15g
cup	weight	carbs

Bowl = 18cm/ 7inch

Fruit Yoghurt (average of all flavours)

½	130g	15g
cup	weight	carbs

Bowl = 18cm/ 7inch

Plain Natural Yoghurt

1 ⅓	300g	15g
cups	weight	carbs

Italian restaurant or take away dishes

Lasagne
(with 4 pasta layers)

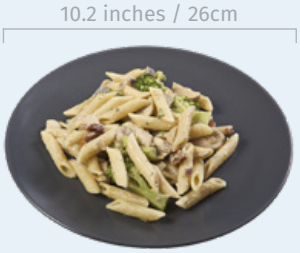
1	350g	39g
serve	weight	carbs

Pizza
(large, thick crust)

1	⅛	190g	39g
slice	large pizza	weight	carbs

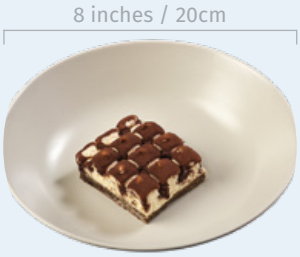
Calzone

1	283g	80g
serve	weight	carbs



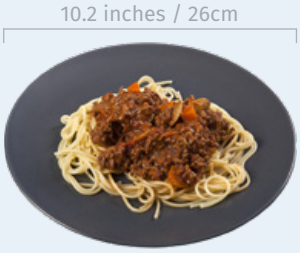
Pasta meal (chicken, broccoli and mascarpone)

1	267g	40g
cup	weight	carbs



Tiramisu

1	90g	24g
small slice	weight	carbs



Spaghetti Bolognese

1 ½	300g	45g
cups	weight	carbs

Asian restaurant or take away dishes

Rice Paper Roll
Chicken or prawn with salad and rice noodles

1	90g	11g
roll	weight	carbs

Sushi Hand Roll

1	115g	26g
roll	weight	carbs

Spring Roll

1	20g	4g
roll	weight	carbs

Sweet and Sour Chicken

1	115g	22g
cup	weight	carbs

Massaman Curry
(including 2 potato pieces)

1	180g	20g
cup	weight	carbs

Green Curry

1	250g	15g
cup	weight	carbs

Fried Rice

1	165g	45g
cup	weight	carbs

Singapore Noodles

1	115g	30g
cup	weight	carbs

8 inches / 20cm

Meat Chow Mein

1	275g	40g
serve	weight	carbs

10.2 inches / 26cm

Chicken, prawn and pineapple rice

1 ½	250g	69g
cups	weight	carbs

10.2 inches / 26cm

Nasi Goreng

1 ⅓	340g	61g
cups	weight	carbs

10.2 inches / 26cm

Prawn Nigiri

1	30g	9g
piece	weight	carbs

10.2 inches / 26cm

Prawn Gyoza

3	48g	15g
pieces	weight	carbs

Mexican restaurant or take away dishes

10.2 inches / 26cm

Bean Burrito

1	200g	60g
quantity	weight	carbs

8 inches / 20cm

Meat Enchilada

1	227g	41g
quantity	weight	carbs

8 inches / 20cm

Chicken Fajita

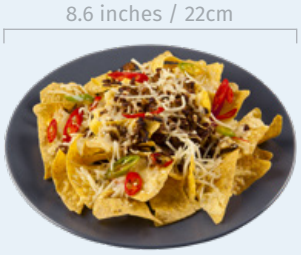
1	160g	27g
quantity	weight	carbs

10.2 inches / 26cm

Meat Taco

1	80g	10g
quantity	weight	carbs

8.6 inches / 22cm



Nachos with cheese

15	150g	21g
corn chips	weight	carbs

Common international eating out or take away

Hot Chips

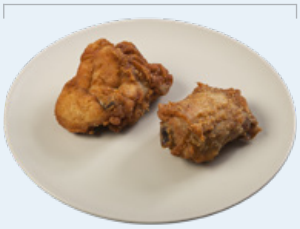
25	110g	35g
chips	weight	carbs

8 inches / 20cm

Battered Fish

1	135g	14g
serving	weight	carbs

8 inches / 20cm



Fried Chicken (battered)

2	225g	12g
pieces	weight	carbs

Falafel Ball

2	90g	12g
quantity	weight	carbs

Chicken Schnitzel

1	130g	14g
quantity	weight	carbs

Garlic Bread

1	30g	13g
slice	weight	carbs

Quiche

(23cm diameter)

⅛	190g	32g
quiche	weight	carbs

Turkish Bread

1	90g	40g
large slice	weight	carbs

Cakes, snacks and bakery foods

Chocolate Cake

1	100g	46g
slice (1/12th cake)	weight	carbs

Doughnut

1	55g	22g
quantity	weight	carbs

Cupcake

1	70g	39g
quantity	weight	carbs

Muffin

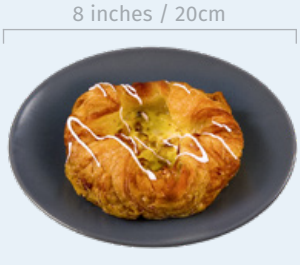
1	130g	63g
quantity	weight	carbs

Ice Cream

2	85g	24g
scoops	weight	carbs

Croissant

1	80g	28g
quantity	weight	carbs



Apple Danish

1	87g	39g
serving	weight	carbs

Potato Chips

1	12	27g	12g
small bag	chips	weight	carbs

Almonds

24	28g	6g
almonds	weight	carbs

8 inches / 20cm

Milk Chocolate

6	33g	18g
squares	weight	carbs

Carrot Cake

1	60g	32g
slice (1/12th cake)	weight	carbs

Fruit Cake

1	50g	30g
small piece	weight	carbs

Artwork acknowledgements

SECTION ONE ARTWORK (page 6)

Rahat Shakeel, Karachi, 22 years old, family member has diabetes

SECTION ONE ARTWORK (page 7)

Fatima Ahmed, Karachi, 23 years old, family member has diabetes

SECTION THREE ARTWORK (page 41)

Marking the steps for my health

My drawing shows what I have learned at the AMD Guerrero Association to maintain my glucose control and continue to take care of myself by applying those steps every day in my life.

Ángel Gabriel Bello Mundo, Mexico

I was born in 2003 and live in Acapulco Guerrero México. I was diagnosed with type 1 diabetes in 2015. It all started when one day at school I fell asleep. The teacher and the students didn't want to wake me up and then my mother took me to the doctor. From then on, I started using insulin. At first it was horrifying because I didn't want to inject myself, but over time I have learned that I have no choice. I keep track of my diet and changed my lifestyle.

Thanks to my family and the Mexican Diabetes Association in the State of Guerrero I have acquired the knowledge for my life condition.

At present I study high school and I continue to take care of myself doing a lot of exercise.

BACK COVER ARTWORK

Life has challenges, not obstacles

I created this drawing to illustrate that diabetes came into my life unexpectedly. I had to overcome many challenges such as getting accustomed to a healthy diet. I chose the brush and canvas to redraw the path that had suddenly changed my life. Overcoming challenges and building my future to achieve my life goals is shown in the drawing.

Gihan Satharasingha, Sri Lanka

My name is Gihan Malshan Satharasingha. I grew up in Horana, Sri Lanka and was educated at Taxila Central College. I entered the University of Moratuwa in 2020 to pursue a higher degree in Architecture and am now a second-year student.

When I was diagnosed with chronic diabetes in 2009, aged 11, it was a turning point in my life. As a child I had a very difficult time, but I slowly adjusted to life with diabetes and started to see it as a challenge. Now I'm moving on towards achieving my goals and objectives in life. I consider having to adjust to a healthy diet as 'a good side effect' of having diabetes.

Having become an artist, I will not stop there but I am moving forward with the goal of becoming a meaningful artistic young architect to the world.

Disclaimer

The information in this booklet is intended and can be used for educational and informational purposes only. It does not replace individual medical advice. If you have any concerns about your health, or further questions, you should contact your health professional.

Life for a Child (LFAC) and the *International Society for Pediatric and Adolescent Diabetes* (ISPAD) takes no responsibility for any adverse consequences that arise as a result of using the content of this resource for clinical purposes. Health professionals need to consider the individual circumstances and needs of children and young adults with diabetes when they are applying the information outlined in this resource in their clinical practice.

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