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

Indian Foods – Edition 1, 2021
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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 India, 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.

Dr. Graham Ogle  
General Manager  
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Dr. Carine de Beaufort  
President  
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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).**

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**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!

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.

<table>
<thead>
<tr>
<th>Aim for these blood glucose levels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before a meal</strong></td>
</tr>
<tr>
<td><strong>2-3 hours after a main meal</strong></td>
</tr>
</tbody>
</table>
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.

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.

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.
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.

**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.
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!
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.

**Tools to help you count carbohydrates**

- Websites and mobile apps such as NHS-IN (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 = ⅓ cup or 2 x 55g = 110g) then the total carbohydrate you eat would be 2 x 37g = 74g.

Nutrition Facts

<table>
<thead>
<tr>
<th>Amount per serving</th>
<th>Calories 230</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Daily Value*</td>
</tr>
<tr>
<td>Total Fat</td>
<td>8g</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>1g</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>0mg</td>
</tr>
<tr>
<td>Sodium</td>
<td>160mg</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>37g</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>4g</td>
</tr>
<tr>
<td>Total Sugars</td>
<td>12g</td>
</tr>
<tr>
<td>Includes 10g Added Sugars</td>
<td>20%</td>
</tr>
<tr>
<td>Protein</td>
<td>3g</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>2mg</td>
</tr>
<tr>
<td>Calcium</td>
<td>260mg</td>
</tr>
<tr>
<td>Iron</td>
<td>8mg</td>
</tr>
<tr>
<td>Potassium</td>
<td>240mg</td>
</tr>
</tbody>
</table>

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily 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 (⅓ 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 mononitrate, 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

✓ 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 = 8 fl oz (240mL) of malt liquor (shown in a 12 oz/350mL glass) = 5 fl oz (150mL) of table wine = 1.5 fl oz (45ml) shot of 80-proof spirits (whiskey, gin, rum, vodka, tequila, etc.)

about 5% alcohol
about 7% alcohol
about 12% alcohol
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!
Carbohydrate foods commonly eaten in India

This section gives pictures and the amount of carbohydrates of some of the traditional and most common carbohydrate foods eaten in India. 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.

All bowl measurements used in this section refer to a 200ml bowl.
## Breakfast and Snack Items

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Weight</th>
<th>Carbs</th>
<th>Size</th>
</tr>
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<tr>
<td><strong>Neer Dosa</strong></td>
<td>2</td>
<td>150g</td>
<td>36g</td>
<td>8 inches / 20cm</td>
</tr>
<tr>
<td><strong>Appam</strong></td>
<td>1</td>
<td>70g</td>
<td>20g</td>
<td>8 inches / 20cm</td>
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<tr>
<td><strong>Homemade Dosa</strong></td>
<td>1</td>
<td>50g</td>
<td>15g</td>
<td>8 inches / 20cm</td>
</tr>
<tr>
<td><strong>Pesarattu</strong></td>
<td>1</td>
<td>40g</td>
<td>8g</td>
<td>8 inches / 20cm</td>
</tr>
<tr>
<td><strong>Dosa with Sambhar</strong></td>
<td>2 number</td>
<td>120g+</td>
<td>50g</td>
<td>8 inches / 20cm</td>
</tr>
<tr>
<td><strong>Sada Dosa with ½ bowl chutney &amp; ½ bowl sambhar</strong></td>
<td>1 serving</td>
<td>150g+</td>
<td>65g</td>
<td>8 inches / 20cm</td>
</tr>
<tr>
<td><strong>Masala Dosa with ½ bowl chutney &amp; ½ bowl sambhar</strong></td>
<td>1 serving</td>
<td>270g+</td>
<td>80g</td>
<td>12.5 inches / 20cm</td>
</tr>
<tr>
<td><strong>Uttapam with ½ bowl chutney &amp; ½ bowl sambhar</strong></td>
<td>1 serving</td>
<td>240g+</td>
<td>90g</td>
<td>12.5 inches / 20cm</td>
</tr>
<tr>
<td><strong>Rava Dosa with ½ bowl chutney &amp; ½ bowl sambhar</strong></td>
<td>1 serving</td>
<td>150g+</td>
<td>65g</td>
<td>12.5 inches / 20cm</td>
</tr>
</tbody>
</table>
Home made Idli
2 number
80g weight
15g carbs

Restaurant Idli
2 number
120g weight
22g carbs

Idli with Sambhar
4 number
120g + 1 bowl
40g total carbs

Homemade Medu Vada
4 number
50g weight
15g carbs

Restaurant Medu Vada with Sambhar
4 number
120g + ½ bowl
65g total carbs

Addu, Ponganalu, Kuzhi Paniyaram
3 number
60g weight
20g carbs

Rice Puttu
1 serving
220g weight
80g carbs

Ragi Puttu
1 serving
220g weight
80g carbs

Ragi Puttu
1 number
40g weight
15g carbs
<table>
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<th>Dish</th>
<th>Serving/Size</th>
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<th>Carbs</th>
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<tr>
<td><strong>Rice Puttu with Kadala</strong></td>
<td>80g + 1 bowl</td>
<td>45g</td>
<td></td>
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<tr>
<td><strong>Poha</strong></td>
<td>80g bowl</td>
<td>30g</td>
<td></td>
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<tr>
<td><strong>Homemade Sabudana/Sago Wada</strong></td>
<td>40g number</td>
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<td>100g bowl</td>
<td>25g</td>
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<td><strong>Upma</strong></td>
<td>100g bowl</td>
<td>30g</td>
<td></td>
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<tr>
<td><strong>Restaurant Sabudana Wada/Sago Wada with sweet curd</strong></td>
<td>240g + ¾ bowl</td>
<td>105g</td>
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<tr>
<td><strong>Pongal</strong></td>
<td>200g bowl</td>
<td>30g</td>
<td></td>
</tr>
<tr>
<td><strong>Sabudana/Sago Khichdi</strong></td>
<td>120g bowl</td>
<td>60g</td>
<td></td>
</tr>
<tr>
<td><strong>String Hoppers/Idiyappam</strong></td>
<td>50g number</td>
<td>15g</td>
<td></td>
</tr>
</tbody>
</table>
Chillies/Dal (pulse) dosas
2 bowls
90g
15g

Moong dal vadas
5 bowls
40g
15g

Chole (1 bowl) with 2 Bhatura
1 bowl
270g
160g

Onion Pakodas/Bhajias
1 serving
120g
20g

Bhel (with 2 tsp sweet chutney)
1 serving
160g
60g

Sev Puri (with potato and sweet chutney)
6 puris
120g
90g

Pani Puri/Gol Gappa
(unsweetened, no potato, pulse only)
1 serving
6 pieces
45g

Batata Vada
1 number
80g
30g

Punjabi Samosa
1 number
80g
30g
Khaman Dhokla (unsweetened)
2 pieces 70g weight 15g carbs

Patra/Alu vadi (unsweetened)
4 pieces 120g weight 15g carbs

White Dhokla
4 pieces 60g weight 15g carbs

Muthias
7 small pieces 34g weight 15g carbs

Ghugni/Ragda
1 bowl 220g weight 15g carbs

Missal Pav (1 ½ bowls) with 2 Pav
1 ½ bowls 370g weight 15g carbs
2 pav 70g weight 30g Farsan

Pav Bhaji
1 bowl 300g weight 55g total carbs
2 pav 70g weight

Dal Baati Churma
1 bowl 200g weight 105g total carbs
4 baatis 80g weight 20g Churma

Khandvi
12 pieces 175g weight 15g carbs

Pav Bhaji
Bowl = 200ml 8 inches / 20cm

Missal Pav (1 ½ bowls) with 2 Pav
Bowl = 200ml 8 inches / 20cm

Dal Baati Churma
Bowl = 200ml 8 inches / 20cm

Ghugni/Ragda
Bowl = 200ml 8 inches / 20cm

White Dhokla
Bowl = 200ml 8 inches / 20cm

Khandvi
Bowl = 200ml 8 inches / 20cm

Pav Bhaji
Bowl = 200ml 12.5 inches / 32 cm

Missal Pav (1 ½ bowls) with 2 Pav
Bowl = 200ml 12.5 inches / 32 cm

Dal Baati Churma
Bowl = 200ml 12.5 inches / 32 cm
**Litti Chokha**

1 bowl
- weight: 200g
- 4 litti
  - weight: 160g
Total:
- Carbs: 95g

**Kolkata Egg Roll**

1
- number: 1
- weight: 100g
- Carbs: 15g

**Momos**

6 pieces
- weight: 180g
- Carbs: 45g

**Roasted Chana**

1/3 bowl
- weight: 30g
- Carbs: 15g

**Roasted Khakra**

2
- number: 2
- weight: 20g
- Carbs: 20g

**Gathiya**

1 serving
- weight: 40g
- Carbs: 15g

**Sev**

3/4 bowl
- weight: 50g
- Carbs: 15g

**Farsan**

1 cup
- weight: 40g
- Carbs: 15g

**Kurmura (Puffed rice)**

1 bowl
- weight: 23g
- Carbs: 15g
Makhana (Fox nut)

1 bowl
23g weight
15g carbs

Handvo

4 pieces
84g weight
15g carbs

Sukha bhel/Jhalmuri

1 bowl
100g weight
20g carbs
Main Courses - Sprouts, Lentils, Curries, Chutneys & Kebabs

- **Sprouts**
  - ½ bowl
  - 60g weight
  - 15g carbs

- **Dal**
  - ½ bowl
  - 100g weight
  - 15g carbs

- **Rasam**
  - 1 bowl
  - 200g weight
  - 5g carbs

- **Chole**
  - 1 bowl
  - 200g weight
  - 30g carbs

- **Rajma Curry**
  - 1 bowl
  - 280g weight
  - 30g carbs

- **Kadala/Chana Masala/Ussal**
  - 1 bowl
  - 200g weight
  - 15g carbs

- **Home Made Sambhar with vegetables**
  - 1 bowl
  - 200g weight
  - 15g carbs

- **Restaurant Sambhar (with sugar/jaggery)**
  - ½ bowl
  - 100g weight
  - 15g carbs

- **Tomato Saar**
  - 1 bowl
  - 200g weight
  - 5g carbs
Carrot and Beans Poriyal

\[ \frac{3}{4} \text{ bowl} \quad 200g \quad 15g \text{ carbs} \]

Oondiyo / Undhiyu

\[ 1 \text{ bowl} \quad 100g \quad 20g \text{ carbs} \]

Sev Tamatar Vegetable

\[ \frac{3}{4} \text{ bowl} \quad 200g \quad 20g \text{ carbs} \]

Chokha (with potato)

\[ 1 \text{ bowl} \quad 200g \quad 15g \text{ carbs} \]

Bowl = 200ml

Potato Veg

\[ 1 \text{ bowl} \quad 160g \quad 30g \text{ carbs} \]

Bowl = 200ml

Fish Curry

\[ 1 \text{ bowl} \quad 200g \quad 5g \text{ carbs} \]

Bowl = 200ml

Chicken Handi

\[ 1 \text{ bowl} \quad 200g \quad 5g \text{ carbs} \]

Bowl = 200ml

Chicken/Mutton/Meat Curry

\[ \frac{3}{4} \text{ bowl} \quad 200g \quad 5g \text{ carbs} \]

Bowl = 200ml

Chicken/Mutton/Meat Mince Kheema

\[ \frac{3}{4} \text{ bowl} \quad 200g \quad 5g \text{ carbs} \]

Bowl = 200ml
If you add any sugar, honey or jaggery to the food you cook, you will need to add it to your carb count.
Hand Breads and Breads

- **Chapati**
  - Number: 1
  - Weight: 40g
  - Carbs: 15g

- **Millet Bhakri/Roti**
  - Number: 1
  - Weight: 50g
  - Carbs: 20g

- **Rice Bhakri**
  - Number: 1
  - Weight: 50g
  - Carbs: 20g

- **Puris**
  - Number: 2
  - Weight: 30g
  - Carbs: 15g

- **Bhatura**
  - Number: 1
  - Weight: 100g
  - Carbs: 60g

- **Kulcha**
  - Number: 1
  - Weight: 60g
  - Carbs: 30g

- **Naan**
  - Number: 1
  - Weight: 100g
  - Carbs: 50g

- **Thalipeeth**
  - Number: 1
  - Weight: 50g
  - Carbs: 15g

- **Thepla**
  - Number: 1
  - Weight: 25g
  - Carbs: 15g
<table>
<thead>
<tr>
<th>Bread Type</th>
<th>Number</th>
<th>Weight</th>
<th>Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Koki</td>
<td>1</td>
<td>50g</td>
<td>15g</td>
</tr>
<tr>
<td>Luchi</td>
<td>1</td>
<td>27g</td>
<td>15g</td>
</tr>
<tr>
<td>Ragi Mudde</td>
<td>1</td>
<td>50g</td>
<td>20g</td>
</tr>
<tr>
<td>Plain Paratha</td>
<td>1</td>
<td>40g</td>
<td>15g</td>
</tr>
<tr>
<td>Veg Paratha</td>
<td>1</td>
<td>70g</td>
<td>15g</td>
</tr>
<tr>
<td>Aloo Paratha</td>
<td>1</td>
<td>80g</td>
<td>30g</td>
</tr>
<tr>
<td>Dal/Sattu Paratha</td>
<td>1</td>
<td>50g</td>
<td>20g</td>
</tr>
<tr>
<td>Goan Bread - Poee</td>
<td>1</td>
<td>75g</td>
<td>30g</td>
</tr>
<tr>
<td>Pav</td>
<td>1</td>
<td>35g</td>
<td>15g</td>
</tr>
</tbody>
</table>
Litti

1 number
20g weight
13g carbs

Baati

1 number
20g weight
13g carbs

8 inches / 20cm
## Rice Preparations

<table>
<thead>
<tr>
<th>Dish</th>
<th>Serving</th>
<th>Weight</th>
<th>Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain Steamed Rice</td>
<td>1 bowl</td>
<td>110g</td>
<td>30g</td>
</tr>
<tr>
<td>Khichdi</td>
<td>1 bowl</td>
<td>280g</td>
<td>35g</td>
</tr>
<tr>
<td>¾ bowl Bisi bele bath</td>
<td>¾ bowl</td>
<td>200g</td>
<td>25g</td>
</tr>
<tr>
<td>Curd rice</td>
<td>1 bowl</td>
<td>260g</td>
<td>30g</td>
</tr>
<tr>
<td>Pakhala/Panta Bhaat</td>
<td>1 bowl</td>
<td>200g</td>
<td>20g</td>
</tr>
<tr>
<td>Egg/Chicken Biryani</td>
<td>1 ½ bowls</td>
<td>170g</td>
<td>30g</td>
</tr>
<tr>
<td>Pulao</td>
<td>1 bowl</td>
<td>170g</td>
<td>30g</td>
</tr>
</tbody>
</table>
Desserts

<table>
<thead>
<tr>
<th>Dessert</th>
<th>Number</th>
<th>Weight</th>
<th>Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modak</td>
<td>1</td>
<td>40g</td>
<td>20g</td>
</tr>
<tr>
<td>Puran Poli</td>
<td>1</td>
<td>50g</td>
<td>40g</td>
</tr>
<tr>
<td>Peda</td>
<td>1</td>
<td>20g</td>
<td>13g</td>
</tr>
<tr>
<td>Kaju Katli</td>
<td>1</td>
<td>10g</td>
<td>6g</td>
</tr>
<tr>
<td>Motichoor Ladoo</td>
<td>1</td>
<td>40g</td>
<td>24g</td>
</tr>
<tr>
<td>Besan Ladoo</td>
<td>1</td>
<td>40g</td>
<td>31g</td>
</tr>
<tr>
<td>Gulab Jamun (without sugar syrup)</td>
<td>1</td>
<td>60g</td>
<td>20g</td>
</tr>
<tr>
<td>Sandesh</td>
<td>1</td>
<td>80g</td>
<td>15g</td>
</tr>
<tr>
<td>Rasgulla (without sugar syrup)</td>
<td>1</td>
<td>40g</td>
<td>15g</td>
</tr>
</tbody>
</table>
### Milk and Milk Products

<table>
<thead>
<tr>
<th>Food</th>
<th>Quantity</th>
<th>Weight</th>
<th>Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Milk</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalo Milk</td>
<td>120ml</td>
<td>10g</td>
<td></td>
</tr>
<tr>
<td>Cows Milk</td>
<td>200ml</td>
<td>10g</td>
<td></td>
</tr>
<tr>
<td><strong>Cottage Cheese/Paneer</strong></td>
<td>1 piece</td>
<td>85g</td>
<td>10g</td>
</tr>
<tr>
<td>Curd</td>
<td>1 bowl</td>
<td>250g</td>
<td>10g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Food</th>
<th>Quantity</th>
<th>Weight</th>
<th>Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sweets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mishti Doi</td>
<td>½ cup</td>
<td>80g</td>
<td>15g</td>
</tr>
<tr>
<td>Jalebi</td>
<td>4 number</td>
<td>40g</td>
<td>22g</td>
</tr>
<tr>
<td>Shrikand</td>
<td>½ cup</td>
<td>100g</td>
<td>16g</td>
</tr>
</tbody>
</table>

**Notes:**
- Milk and milk products are rich in protein.
- Curd is a high-protein, low-carb food.
- Choose milk and milk products based on your dietary needs.
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

1 Apple
1 small
135g weight
15g carbs

1 Banana
1 small
130g weight
15g carbs

1 Pear
1 medium
200g weight
15g carbs

1 Orange
1 medium
205g weight
15g carbs

2 Mandarins
2 small
98g weight
15g carbs

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

2 Kiwi fruits
2 small
78g weight
15g carbs

2 Dried figs
2 figs
29g weight
15g carbs

6 Lychees
6 lychees
120g weight
15g carbs
1 cup = 250ml

Cherries
14 cherries 145g weight 15g carbs

Peaches in pear juice, drained
1 cup 210g weight 15g carbs

Rockmelon (Muskmelon)
2 cups 300g weight 15g carbs

Grapes
20 small 100g weight 15g carbs

Mango
½ cup 120g weight 15g carbs

Strawberries
2 cups 240g weight 8g carbs

Pineapple
2 slices 180g weight 15g carbs

Watermelon
2 slices 220g weight 15g carbs

Pomegranate
½ cup 130g weight 15g carbs
### Bread, Cereals and Grain Products

<table>
<thead>
<tr>
<th>Item</th>
<th>Portion</th>
<th>Weight</th>
<th>Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slice of bread</td>
<td>1 slice</td>
<td>34g</td>
<td>15g</td>
</tr>
<tr>
<td>Half Bread Roll</td>
<td>1/2 roll</td>
<td>32g</td>
<td>15g</td>
</tr>
<tr>
<td>Chapatti</td>
<td>1 chappati</td>
<td>40g</td>
<td>15g</td>
</tr>
<tr>
<td>Lebanese Bread</td>
<td>1/3 slice</td>
<td>30g</td>
<td>15g</td>
</tr>
<tr>
<td>French Stick Bread</td>
<td>2 slices</td>
<td>32g</td>
<td>15g</td>
</tr>
<tr>
<td>Rice (cooked)</td>
<td>1/3 cup</td>
<td>55g</td>
<td>15g</td>
</tr>
<tr>
<td>Pancake</td>
<td>1 pancake</td>
<td>43g</td>
<td>15g</td>
</tr>
<tr>
<td>Spaghetti (cooked)</td>
<td>1/3 cup</td>
<td>55g</td>
<td>15g</td>
</tr>
<tr>
<td>Porridge (cooked)</td>
<td>1/2 cup</td>
<td>130g</td>
<td>15g</td>
</tr>
</tbody>
</table>
Starchy vegetables, legumes and pulses

- **Corn cob**
  - 1 small
  - 143g
  - 15g carbs

- **Mashed Potato**
  - ½ cup
  - 105g
  - 15g carbs

- **Sweet Potato (steamed)**
  - 3 pieces
  - 110g
  - 15g carbs
**Pumpkin (steamed)**
- 9 pieces
- 216g weight
- 15g carbs

**Potato Salad**
- ½ cup
- 90g weight
- 15g carbs

**Potato**
- 1 ½ small
- 135g weight
- 20g carbs

**Corn Kernels**
- ½ cup
- 80g weight
- 15g carbs

**Pumpkin Soup**
- 1 cup
- 200g weight
- 15g carbs

**Brown Lentils (cooked)**
- ½ cup
- 90g weight
- 15g carbs

**Baked Beans**
- ½ cup
- 135g weight
- 15g carbs
# Milk, Dairy and Dairy Alternative products

<table>
<thead>
<tr>
<th>Product</th>
<th>Amount</th>
<th>Weight</th>
<th>Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cows Milk</td>
<td>1 cup</td>
<td>250ml</td>
<td>15g</td>
</tr>
<tr>
<td>Flavoured Milk</td>
<td>¾ cup</td>
<td>180ml</td>
<td>15g</td>
</tr>
<tr>
<td>Milk Powder</td>
<td>¼ cup</td>
<td>4 heaped tablespoons</td>
<td>15g</td>
</tr>
<tr>
<td>Plain Greek Yoghurt</td>
<td>1 ½ cups</td>
<td>400g</td>
<td>15g</td>
</tr>
<tr>
<td>Flavoured Greek Yoghurt (e.g. strawberry)</td>
<td>⅔ cup</td>
<td>170g</td>
<td>15g</td>
</tr>
<tr>
<td>Fruit Yoghurt (average of all flavours)</td>
<td>½ cup</td>
<td>130g</td>
<td>15g</td>
</tr>
<tr>
<td>Plain Natural Yoghurt</td>
<td>1 ⅓ cups</td>
<td>300g</td>
<td>15g</td>
</tr>
</tbody>
</table>

Bowl = 18cm/7inch
Italian restaurant or take away dishes

Lasagne (with 4 pasta layers)
1 serve 350g 39g carbs

Pizza (large, thick crust)
1 slice 1/8 190g 39g carbs

Calzone
1 serve 283g 80g carbs

Pasta meal (chicken, broccoli and mascarpone)
1 cup 267g 40g carbs

Tiramisu
1 small slice 90g 24g carbs

Spaghetti Bolognese
1 1/2 cups 300g 45g carbs

Asian restaurant or take away dishes

Rice Paper Roll
Chicken or prawn with salad and rice noodles
1 roll 90g 11g carbs

Sushi Hand Roll
1 roll 115g 26g carbs

Spring Roll
1 roll 20g 4g carbs
Sweet and Sour Pork
1 cup 115g 22g carbs

Massaman Curry (including 2 potato pieces)
1 cup 180g 20g carbs

Green Curry
1 cup 250g 15g carbs

Fried Rice
1 cup 165g 45g carbs

Singapore Noodles
1 cup 115g 30g carbs

Meat Chow Mein
1 serve 275g 40g carbs

Chicken, prawn and pineapple rice
1 ½ cups 250g 69g carbs

Nasi Goreng
1 ½ cups 340g 61g carbs

Prawn Nigiri
1 piece 30g 9g carbs
Mexican restaurant or take away dishes

- **Bean Burrito**
  - Quantity: 1
  - Weight: 200g
  - Carbs: 60g

- **Meat Enchilada**
  - Quantity: 1
  - Weight: 227g
  - Carbs: 41g

- **Chicken Fajita**
  - Quantity: 1
  - Weight: 160g
  - Carbs: 27g

- **Meat Taco**
  - Quantity: 1
  - Weight: 80g
  - Carbs: 10g

- **Nachos with cheese**
  - Quantity: 15
  - Weight: 150g
  - Carbs: 21g

- **Pork Gyoza**
  - Pieces: 3
  - Weight: 48g
  - Carbs: 15g
## Common international eating out or take away

<table>
<thead>
<tr>
<th>Dish</th>
<th>Quantity</th>
<th>Weight</th>
<th>Carbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot Chips</td>
<td>25 chips</td>
<td>110g</td>
<td>35g</td>
</tr>
<tr>
<td>Battered Fish</td>
<td>1 serving</td>
<td>135g</td>
<td>14g</td>
</tr>
<tr>
<td>Fried Chicken (battered)</td>
<td>2 pieces</td>
<td>225g</td>
<td>12g</td>
</tr>
<tr>
<td>Falafel Ball</td>
<td>2</td>
<td>90g</td>
<td>12g</td>
</tr>
<tr>
<td>Chicken Schnitzel</td>
<td>1</td>
<td>130g</td>
<td>14g</td>
</tr>
<tr>
<td>Garlic Bread</td>
<td>1</td>
<td>30g</td>
<td>13g</td>
</tr>
<tr>
<td>Quiche (23cm diameter)</td>
<td>1/8 quiche</td>
<td>190g</td>
<td>32g</td>
</tr>
<tr>
<td>Turkish Bread</td>
<td>1</td>
<td>90g</td>
<td>40g</td>
</tr>
</tbody>
</table>
Cakes, snacks and bakery foods

- **Chocolate Cake**
  - 1 slice (1/12th cake)
  - 100g weight
  - 46g carbs

- **Doughnut**
  - 1 quantity
  - 55g weight
  - 22g carbs

- **Cupcake**
  - 1 quantity
  - 70g weight
  - 39g carbs

- **Muffin**
  - 1 quantity
  - 130g weight
  - 63g carbs

- **Ice Cream**
  - 2 scoops
  - 85g weight
  - 24g carbs

- **Croissant**
  - 1 quantity
  - 80g weight
  - 28g carbs

- **Apple Danish**
  - 1 serving
  - 87g weight
  - 39g carbs

- **Potato Chips**
  - 1 small bag
  - 12 chips
  - 27g weight
  - 12g carbs

- **Almonds**
  - 24 almonds
  - 28g weight
  - 6g carbs
Milk Chocolate
6 squares | 33g weight | 18g carbs

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

Fruit Cake
1 small piece | 50g weight | 30g carbs
**SECTION ONE ARTWORK (page 7)**

**Tips on living a regular lifestyle to control type 1 diabetes**

Self-care is our responsibility – 1) Taking insulin, 2) Frequent blood sugar monitoring, 3) Eating healthy food, and 4) Exercise regularly and maintaining a healthy weight.

*Anam Azim Shaikh, India*

I am 13 years old and live in India. I was diagnosed with diabetes when I was just 8 years old. I live with my father, my mother, and my younger brother. I am currently in grade 9. My father works as a football coach for small children and my mother is a housewife. My father lost his job due to the ongoing covid-19 crisis and now works as a part-time delivery boy.

I have a regular daily routine: I get up early in the morning to do exercise/yoga with my mother and have a healthy breakfast with dry fruits and a lot of water to keep hydrated. I also have a well-balanced dinner at night. I always try to maintain my blood sugar. Whenever I get hypo or hyper blood sugar levels, I start shaking, sweating, get dizzy, anxious, hungry, have fast heartbeat, weakness, headache and irritation which affects my health.

---

**SECTION TWO ARTWORK (page 23)**

**Life Balance**

The painting consists of three elements: the person, the rope and the blue circle. The person with their unique life experiences - joys, sorrows, abilities, imperfections, talents, and with the heart at the centre. The tightrope represents life challenges and instabilities that need enthusiasm and courage to keep going like the constant balance (diet, physical activity) that a person with diabetes must maintain to stay healthy. The blue circle represents the symbol of world diabetes day, the blue colour emulating the sky under which we are all live, representing unity.

*Mychel Fernandez Montenegro, Bolivia*

I was born in Cochabamba, Bolivia in 1994 as the youngest of 4 children. After finishing school I studied architecture at the University Mayor de San Simón and graduated in 2020.

I was diagnosed with Type 1 diabetes aged 18, following poorly treated tonsillitis that lead to a diabetic coma. After I recovered, my family and I had to make some lifestyle changes that in a certain way helped us all, especially in terms of healthy eating.

At first it was hard to face this new reality, mainly due to the lack of knowledge about diabetes until through a friend I became part of the 'Living with Diabetes’ Center Youth program where they gave us a lot of emotional and educational support and supplies to control the disease. They become a second family to which we will always be very grateful.
**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.

**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.

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