

Practical Guide for Type 1 Diabetes Management in Adults

Have you been diagnosed with
type 1 diabetes or LADA?
Here are answers
to your questions

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Did you know?

Cases of type 1 diabetes continue to rise. Currently, 8.8¹ million people live with diabetes worldwide. Type 1 diabetes used to be called juvenile diabetes, but the age of the people diagnosed with this disease has been rising over the years. More than 50%² of people with type 1 diabetes were diagnosed after the age of 18.

When a diagnosis is made, the shock and amount of information to take in make it hard to adjust.

The health professionals at Diabetes Québec have created this practical tool to help people newly diagnosed with type 1 or LADA*. This guide contains applicable, basic information on many aspects of type 1 diabetes that we hope will help inform your discussions with your treatment team, who will monitor your progress to help you better manage your diabetes.



Sylvie Lauzon,
CEO, Diabetes Québec

**For simplicity purposes, the authors refer primarily to type 1 diabetes. However, if you have LADA, this guide also applies to you.*

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This guide should not be construed as a substitute for the advice of a health care professional. It should be used to complement the follow-up by your treatment team, composed ideally of a nurse, a dietitian and a doctor. These teams work in family medicine groups (FMGs), CLSCs, or diabetes clinics.

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Dealing with a new reality

You may feel a host of emotions after being diagnosed with type 1 diabetes: shock, denial, confusion, indifference, a sense of injustice, etc. **All these emotions are normal.** Generally, what follows are various more or less conscious and organized stages before you come to terms with this new reality.

Type 1 diabetes means you will have to mourn the way you used to see yourself, your body and your health. You will have to adopt new habits, acquire a great deal of knowledge and learn to live with all the elements of disease management.

You might feel overwhelmed by all the information you receive. You might feel powerless, incompetent, out of control, unable to understand or retain all this information.

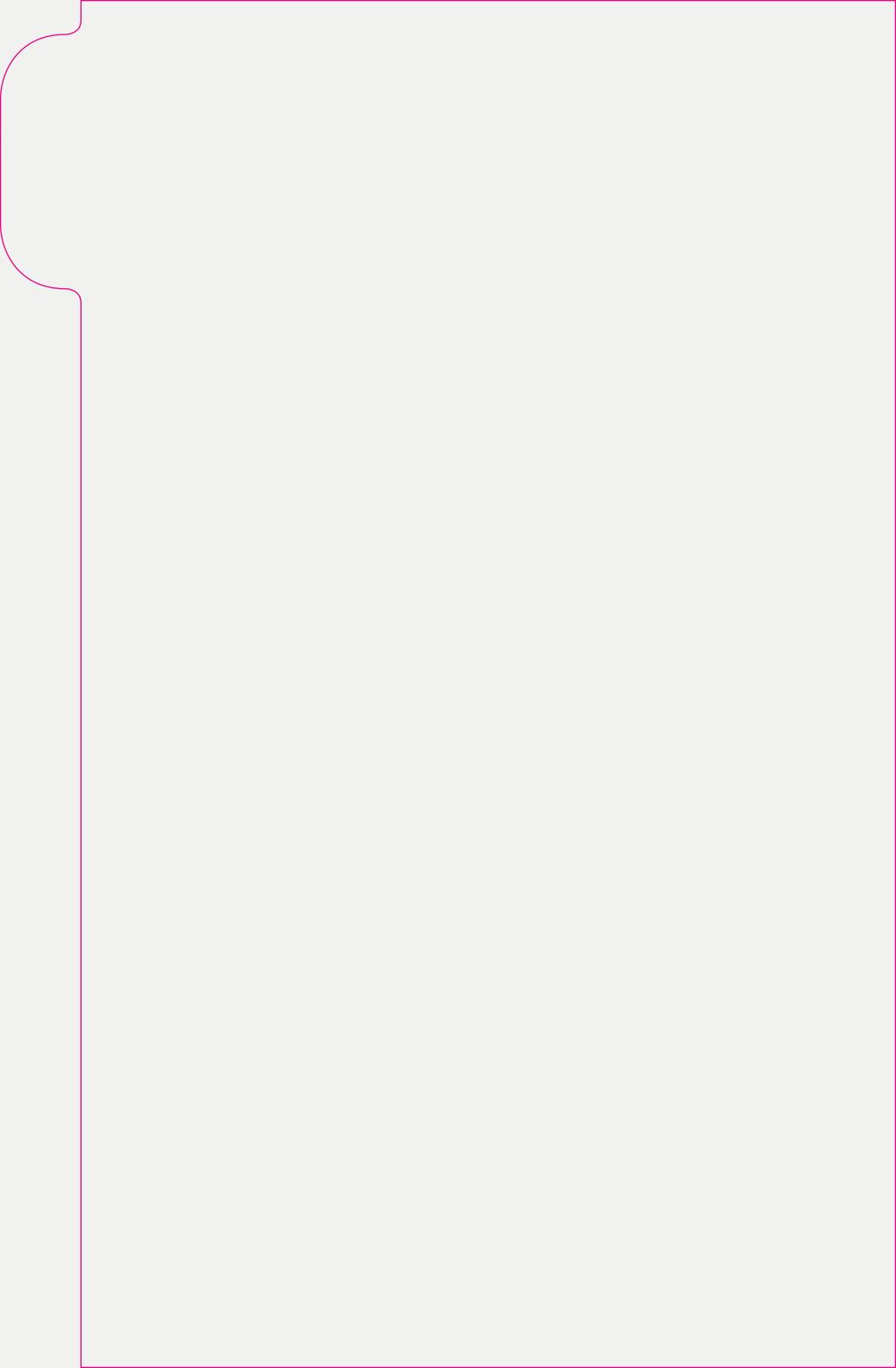
Give yourself time. Know that it is possible to live a normal life despite type 1 diabetes. Your family or significant other can be of great help by listening and providing support. Don't hesitate to talk to a health professional who can guide you to the appropriate resources, if needed.

For more information, consult the **Mental Health** section on page 67.



Section 1

Type 1 Diabetes

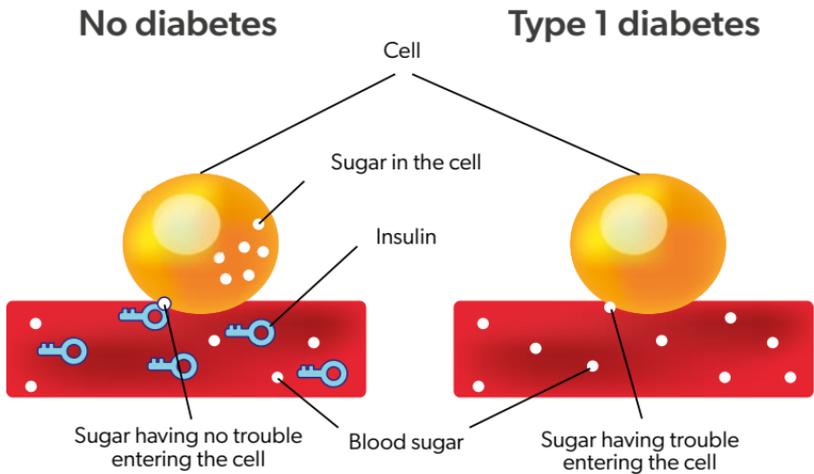


Type 1 Diabetes

Type 1 diabetes is a **chronic disease with no cure, but it can be managed**. It is characterized by glycemia – a blood sugar (blood glucose) level — above normal values.

Usually, blood sugar is kept within normal values by insulin. Insulin is a hormone produced by the beta cells in the pancreas. Insulin acts as a key, allowing the sugar in the blood to enter the body's cells to be used as a source of energy.

In type 1 diabetes, there is an absence of insulin production due to the destruction of the beta cells of the pancreas. Without insulin, sugar builds up in the blood, causing blood sugar to rise above normal levels. People with type 1 diabetes therefore depend on daily insulin injections or an insulin pump to live.



Following a diagnosis of type 1 diabetes, it is strongly recommended that you wear or carry a medical identifier (e.g., bracelet, necklace, card) so that appropriate measures can be taken if you lose consciousness.

What causes type 1 diabetes?

The causes of the onset of type 1 diabetes are unknown. In the majority of cases, **the beta cells of the pancreas that produce insulin are destroyed by the immune system, mainly by anti-GAD antibodies.** Destruction usually occurs over several years and begins before the first symptoms of the disease appear.

It is not known what triggers this destruction. Some researchers believe that a genetic predisposition or environmental factors, such as a recent viral infection, may be involved.

What is LADA?

Latent autoimmune diabetes in adults (LADA), also known as type 1.5 diabetes, usually appears in people between the ages of 30 and 50. As in type 1 diabetes, antibodies destroy the beta cells of the pancreas.

LADA differs from type 1 diabetes because of its much slower progression toward complete destruction of the beta cells.

Insulin treatment is usually started between six months and six years after diagnosis.

Type 1 diabetes and LADA are autoimmune diseases. However, people with either type of diabetes are not immunosuppressed, meaning that their immune system is not weakened.

How is the diagnosis made?

The presence of above-normal blood sugar levels, symptoms of hyperglycemia, and anti-GAD antibodies in the blood can be used to make a diagnosis of type 1 diabetes or LADA.

At this time, it is impossible to prevent the onset of type 1 diabetes or LADA.

How does type 2 diabetes differ from type 1?

	Type 2 diabetes	Type 1 diabetes	LADA
Age of diagnosis	Usually after age 40	Usually during childhood, adolescence or early adulthood	Generally between 30 and 50 years of age
Phenomena	Resistance of the body to insulin and decreased insulin production by pancreatic beta cells	Destruction of the pancreatic beta cells by the immune system	Slow destruction of the pancreatic beta cells by the immune system
Treatment	Healthy lifestyle habits, oral or injectable medications, or insulin injections	Insulin injections multiple times a day, or use of an insulin pump	Insulin injections multiple times a day, or use of an insulin pump
Causes	Multiple (e.g., genetics, lifestyle, age)	Unknown	Unknown
Possible to prevent in some cases	Yes	No	No

The honeymoon phase

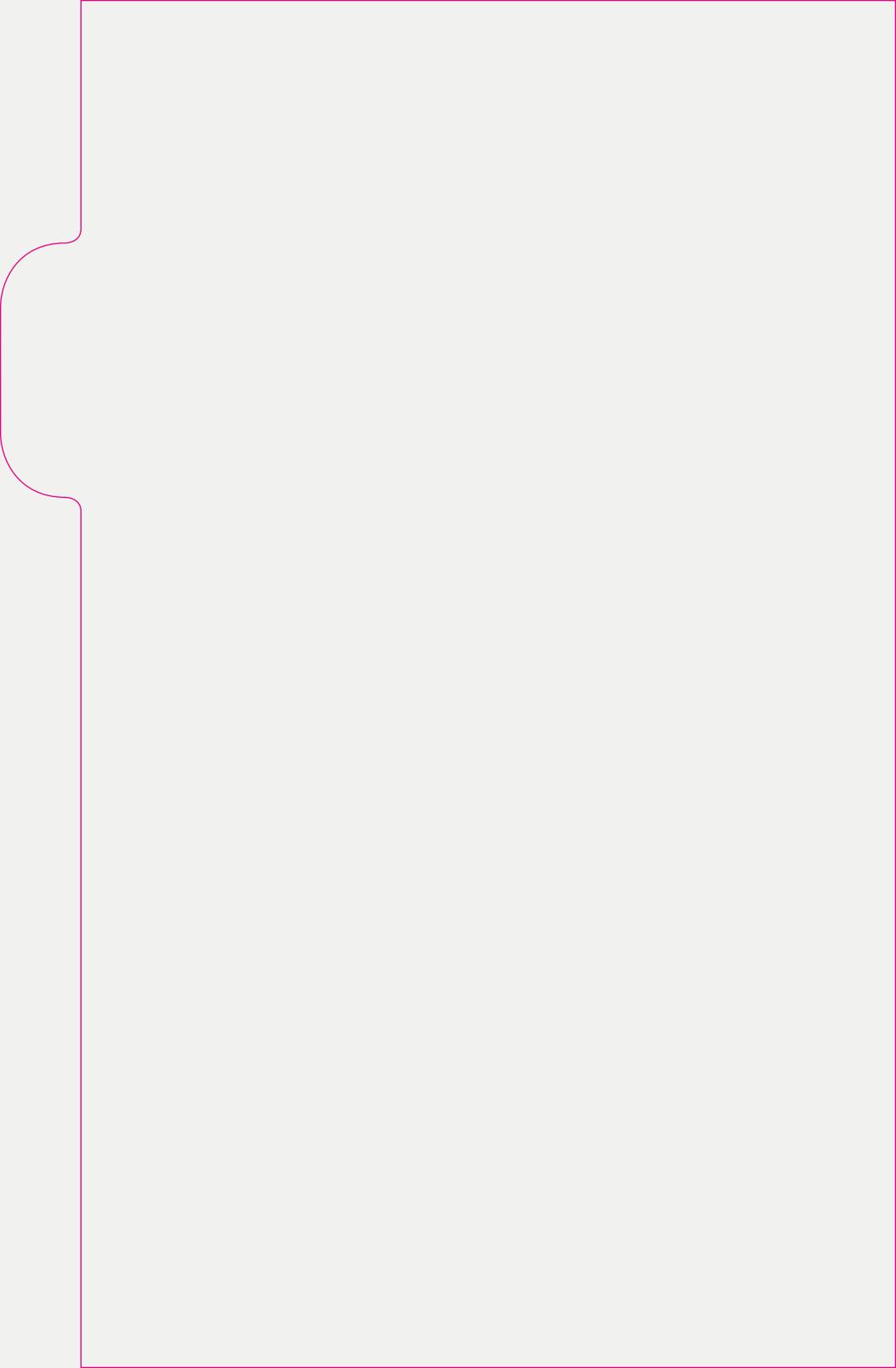
After being diagnosed with type 1 diabetes, some people will experience what is known as the “honeymoon” phase. During this period, some beta cells in the pancreas are still able to produce insulin, so blood sugar may be more stable and the insulin doses needed will be lower. The honeymoon phase lasts an average of six to nine months, but can last up to two years.

Eventually, the immune system completely destroys the beta cells. Without insulin production, blood sugar values will rise and insulin doses will have to be increased.



Section 2

Diabetes Complications



Diabetes Complications

High blood sugar over a long period can cause **serious and irreversible damage** to both the small and large blood vessels.

The small blood vessels that can be affected are primarily those that feed the:

- **Eyes** (retinopathy)

Retinopathy can lead to blindness. Diabetes also increases the risk of developing cataracts and glaucoma.



Normal vision



Retinopathy



Cataracts



Glaucoma

- **Kidneys** (nephropathy)

Nephropathy can lead to dialysis (replacement treatment for the kidneys) and kidney transplantation.

- **Nerves** (neuropathy)

Neuropathy can lead to numbness, pain or loss of sensitivity, especially in the legs and feet. One of the dangers is injuring yourself without realizing it and having a wound become infected to the point of gangrene and amputation.

Neuropathy can also affect other organs and lead to **sexual dysfunction** and **gastrointestinal problems** (e.g., gastroparesis, constipation, diarrhea, nausea).

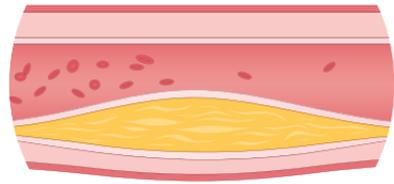
Larger blood vessels can also be affected by sustained high blood sugar, which contributes to the development of **atherosclerosis**.

Atherosclerosis is a buildup of fat in the form of plaque in the arteries, causing hardening and narrowing of the arteries. The flow of blood in damaged arteries is slowed and may even become blocked. A clot can also break away from the plaque and block other blood vessels.

Blood vessel
without atherosclerosis



Blood vessel
with atherosclerosis



People with diabetes are two to four times more likely to develop a cardiovascular disease (e.g., angina, heart attack, stroke).

Having high blood sugar is also associated with other health problems, such as **periodontitis** and **rheumatological disorders** (e.g., capsulitis, Dupuytren's disease), in addition to increasing the **risk of infection**.

For more information on the complications associated with diabetes, [consult](#) our various pamphlets:



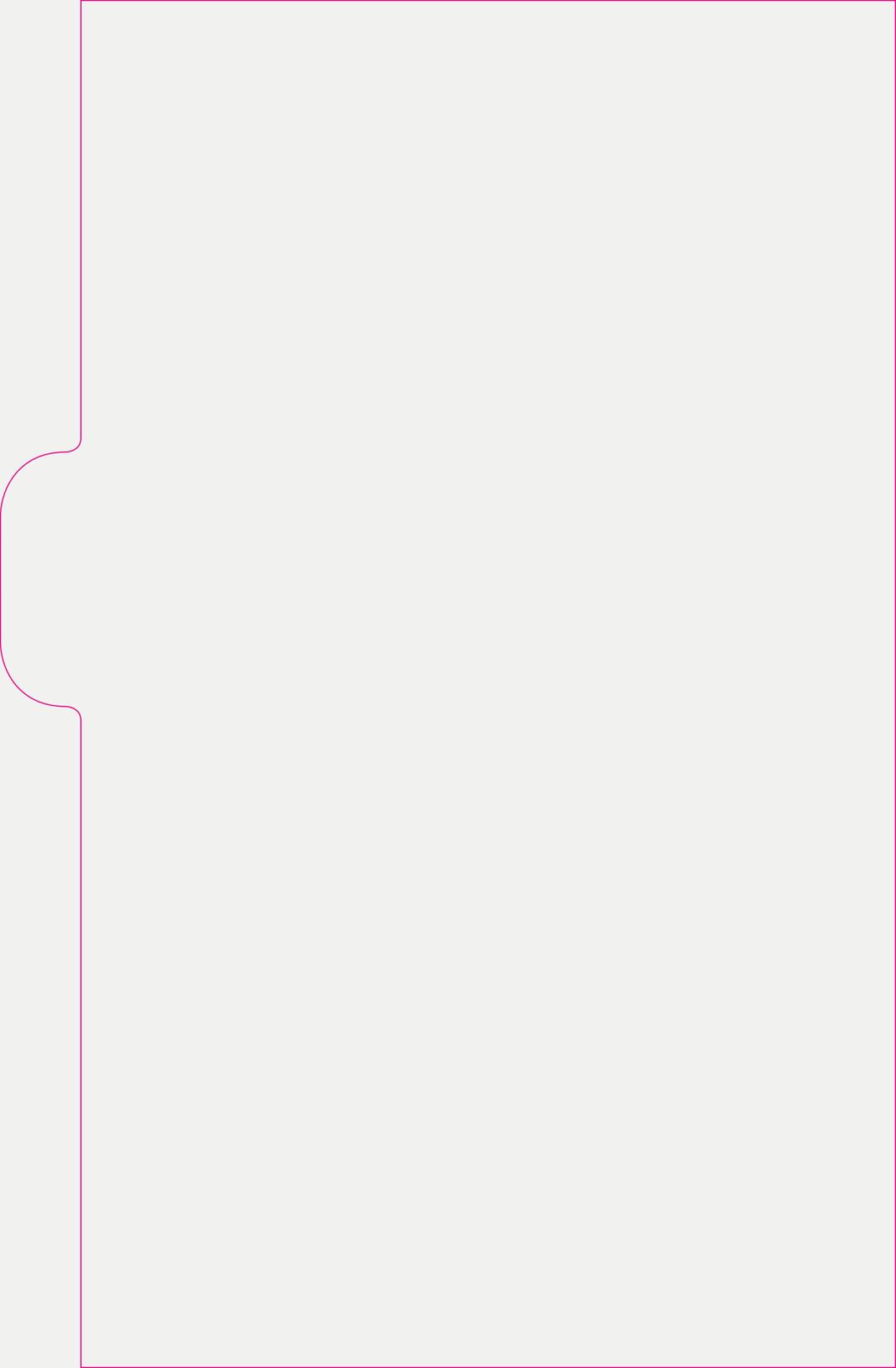
It is possible to reduce the risk of developing diabetes-associated complications or delay their onset by managing your diabetes properly and by adopting healthy lifestyle habits.



Self-Monitoring
of Blood Sugar

Section 3

Self-Monitoring of Blood Sugar



Self-Monitoring of Blood Sugar

Following your diagnosis of type 1 diabetes, you will be asked to measure your blood sugar (glucose) several times a day. For this, you will be prescribed a blood sugar meter, commonly called a glucometer, or a continuous glucose monitoring system.

Why do you need to measure your blood sugar?

Depending on the readings obtained, measuring your blood sugar helps you:

- Understand the effect of your treatment on your blood sugar and adjust it accordingly with your treatment team;
- Identify the different factors that affect your blood sugar and how they work;
- Identify states of hyperglycemia (high blood sugar) and hypoglycemia (low blood sugar) that require your intervention (see the **High Blood Sugar** section on page 23 and the **Low Blood Sugar** section on page 29).

What should your blood sugar values be?

Blood sugar targets are:

Fasting (on awakening or more than four hours after eating)	Between 4.0 and 7.0 mmol/L
Two hours after the start of the meal	Between 5.0 and 10.0 mmol/L

Your treatment team may give you different target values.

Devices to measure your blood sugar

Blood sugar meter

This device measures your blood sugar on the tip of your finger using a drop of blood from a capillary (a very tiny blood vessel).



How to use your blood sugar meter:

- 1 Wash your hands in warm water with a mild, unscented soap and dry them thoroughly.
- 2 Insert a test strip into the opening of the blood sugar meter and close the container of strips.
- 3 Insert a lancet into the lancing device.
- 4 Prick the side of your fingertip with the lancing device.
- 5 Place the test strip in contact with the droplet of blood that has formed.
- 6 If necessary, write down the reading in a log and any other information that can help you better understand the result.
- 7 Dispose of the used test strip and lancet in a biohazard waste container.

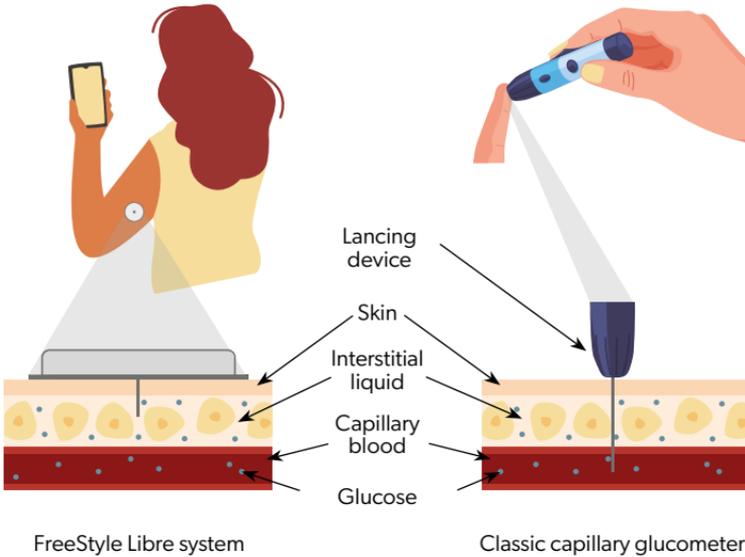
Ask your treatment team for more information or consult le Répertoire des produits pour la gestion du diabète de Diabète Québec (in french only) for more details on the different devices to help you choose the ones that meet your needs.

Continuous glucose monitoring systems

Continuous glucose monitoring (CGM) systems consist of a sensor equipped with a small wire that fits under the skin. The sensor measures your glucose levels; i.e., the level of sugar at regular intervals in the interstitial fluid. Interstitial fluid is the fluid that occupies the space between the blood vessels and the cells. This measurement of the glucose levels in the interstitial fluid reflects your glycemic (blood sugar) values. **You may still need to check your blood sugar using a blood sugar meter to validate the values obtained with your continuous glucose monitoring system.**

There are two types of continuous glucose monitoring systems:

1. **Intermittent scanning (also called flash):** the immediate glucose level and the levels in the last eight hours are displayed by swiping a reader or smart device in front of the sensor;
2. **Real time:** glucose levels are automatically transmitted wirelessly from the transmitter (installed on the sensor) to a receiver or smart device.



When should you measure your blood sugar?

It is recommended that you measure your blood sugar **at least four times a day**, before meals and at bedtime.

Blood sugar should also be measured in the following circumstances:

- In any situation presenting a risk of hypoglycemia (e.g., doing a physical activity, drinking alcohol);
- If you feel any symptoms of hypoglycemia or hyperglycemia;
- Before taking insulin;
- Before getting behind the wheel of a vehicle.

It may also be useful to measure your blood sugar two hours after the start of a meal. Some situations (e.g., sick days) require you to measure your blood sugar more often.

Time in range

If you use a continuous glucose monitoring system, your treatment team may talk to you about the “time in range.” This corresponds to the percentage of time that your glucose levels have been within the target range, i.e., between 4 and 10 mmol/L.

We generally aim for a time in range of at least 70%. Reaching this threshold makes it possible to have a glycated hemoglobin of nearly 7%. Your treatment team may give you other recommendations depending on your situation.

Self-monitoring of blood sugar is essential for the management of type 1 diabetes.

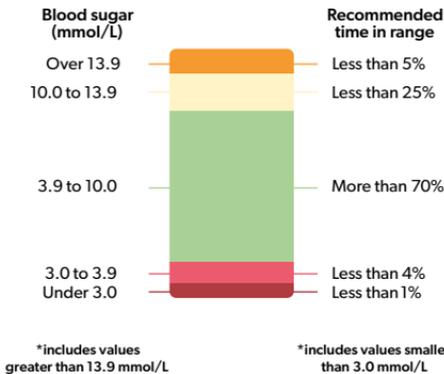
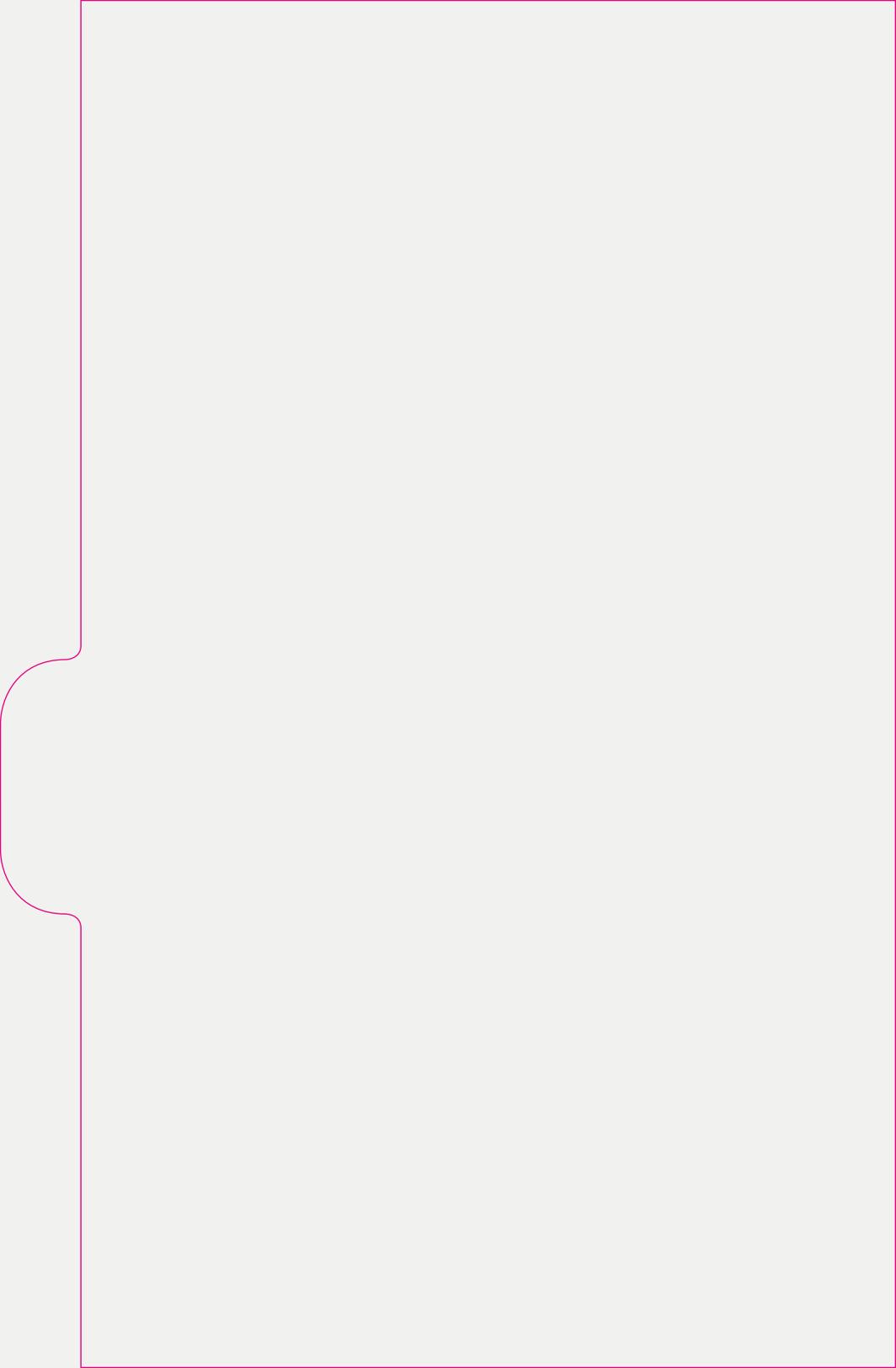


Image taken from the Support Platform, Type 1 BETTER Project



Section 4

High Blood Sugar



High Blood Sugar

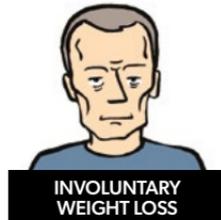
High blood sugar, also known as hyperglycemia, is a **rise in blood sugar above target values**, which are:

- **Above 7.0 mmol/L**, fasting (when you awaken or more than four hours after eating);
- **Above 10.0 mmol/L**, two hours after starting a meal.

The most common symptoms of high blood sugar are:



If your blood sugar levels have been high for several weeks or months, other symptoms may occur:



These symptoms usually disappear when blood sugar levels return to normal.

What should you do if you have high blood sugar?

- Drink water to prevent dehydration.
- Cut back on the excessive intake of foods containing carbohydrates (sugars).
- If possible, do some light exercise, such as walking.
- Take a correction bolus based on the protocol established with your treatment team.
- Measure your blood sugar more often.
- Try to determine the cause of the hyperglycemia and take appropriate steps to reduce the risk of it happening again.

If your blood sugar is above 14 mmol/L:

- Check for ketones in your blood to assess the risk of diabetic ketoacidosis.



Ketones

Without enough insulin, the sugar circulating in the bloodstream cannot be used by the cells. The body then tries to compensate for this lack of sugar in the cells by transforming its fat reserves into sugar. This transformation produces ketones.

The buildup of ketones is toxic. Above a certain threshold, it is called diabetic ketoacidosis. Diabetic ketoacidosis is an **emergency** requiring prompt medical attention.

Make sure you have what you need to measure ketones. Ask your treatment team or consult Répertoire des produits pour la gestion du diabète by Diabète Québec (in french only) for more details

Seek prompt medical attention if any of these situations occur:

- The level of ketones in your blood is **above 1.5 mmol/L along with symptoms of diabetic ketoacidosis**, such as nausea, vomiting, fruity breath or, abdominal cramps;
- The level of ketones in the blood is **above 3.0 mmol/L**, with or without symptoms;
- Blood sugar stays higher than 20 mmol/L despite a correction bolus.

Ask your treatment team what to do if ketones are present.

Correction boluses

In hyperglycemia, it may be possible to take an extra dose of rapid-acting insulin to lower your blood sugar. This dose is called a **correction bolus**.

To do this, your treatment team must determine your **insulin sensitivity factor**. The insulin sensitivity factor is a value specific to each person. It predicts how many mmol/L your blood sugar levels will drop following the administration of one unit of insulin.

Depending on your comfort level and motivation, your treatment team will determine the right time to discuss your insulin sensitivity factor and correction boluses.



What can raise your blood sugar?

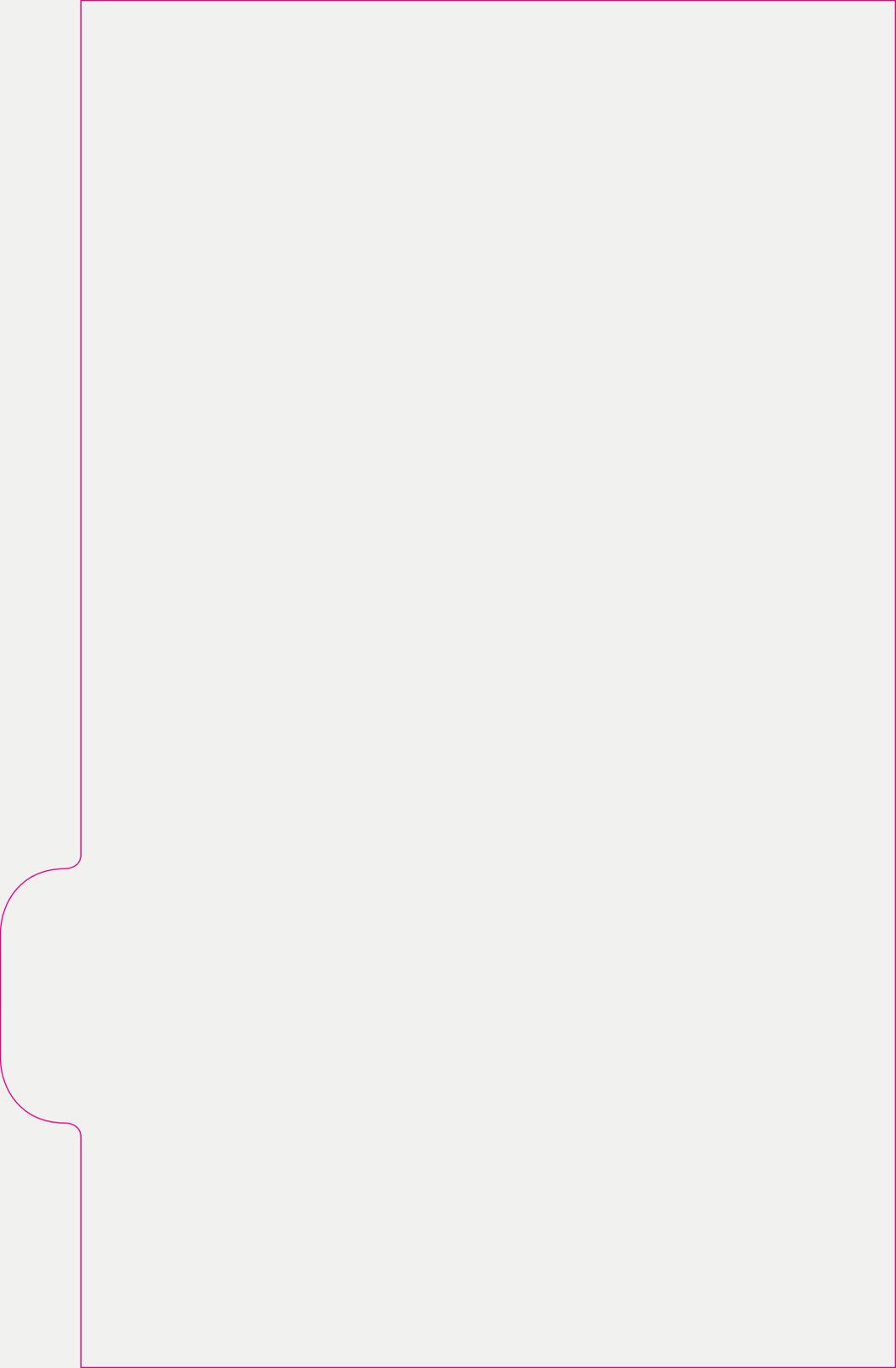
Food	<ul style="list-style-type: none">— Eating more carbohydrates (sugars) than usual— Misjudging the amount of carbohydrates consumed— Eating a meal that does not follow the principles of the balanced plate— Eating too much sugar to treat an episode of hypoglycemia
Medication	<ul style="list-style-type: none">— Not taking enough rapid-acting insulin for the amount of carbohydrates consumed— Missing or skipping a dose of insulin— Needing to adjust your treatment— Having trouble administering your insulin (e.g., injecting into an area with lipodystrophy, clogged pump tubing)— Using expired or improperly stored insulin
Physical activity	<ul style="list-style-type: none">— Getting less exercise than usual— Doing brief and intense muscle workouts (e.g., boxing, weight training) or cardiovascular exercises (e.g., sprinting, crossfit)
Health	<ul style="list-style-type: none">— Being sick*— Feeling physically or psychologically stressed*— Taking medications that raise your blood sugar (e.g., cortisone)— Hormonal fluctuations (e.g., menstrual cycle, menopause, pregnancy)*— Rebound hyperglycemia following an episode of hypoglycemia during the night

*The effect of these situations on blood sugar can vary from person to person.



Section 5

Low Blood Sugar



Low Blood Sugar

Low Blood Sugar, also known as hypoglycemia, is a **drop in glycemia (blood glucose) below target values, namely, less than 4.0 mmol/L.**

The most common symptoms of low blood sugar are:



Low blood sugar can occur during the night. The most common symptoms of **nocturnal hypoglycemia** are:

- Sweating;
- Nightmares;
- Restless sleep;
- Headache on awakening.

How do you treat low blood sugar?

1

Measure your blood sugar.

If you are using a continuous glucose monitoring system (CGM) and the reading does not match your symptoms, verify the result with a blood sugar meter.

2

Take fast-absorbing carbohydrates right away.

Reading between 2.8 and 3.9 mmol/L	Reading of less than 2.8 mmol/L
15 g carbohydrates <ul style="list-style-type: none">— 4 Dex4® tablets;— 15 ml (1 tbsp) corn syrup, honey or maple syrup;— 15 ml (1 tbsp or 4 packets) sugar dissolved in water;— 150 ml (2/3 cup) regular soft drink, fruit drink or fruit juice.	20 g carbohydrates <ul style="list-style-type: none">— 5 Dex4® tablets;— 20 ml (4 tsp) corn syrup, honey or maple syrup;— 20 ml (4 tsp or 5 packets) sugar dissolved in water;— 200 ml (3/4 cup) regular soft drink, fruit drink or juice.

3

Wait 15 minutes while resting.

4

Measure your blood sugar again.

If the reading is less than 4 mmol/L	If the reading is more than 4 mmol/L
Treat again by following steps 2 to 4.	If your meal is scheduled for more than an hour later, eat a snack with 15 g of carbohydrates and a source of protein (e.g., 1 slice of bread and 30 g [1 oz.] of cheese).

5

Identify the cause of your low blood sugar levels and take steps to reduce the risk of a recurrence.

Wait 40 minutes after treating the hypoglycemia before driving (see the Living with Diabetes section on page 75).

You might end up eating more than 15 or 20 g of carbohydrates or be unable to wait 15 minutes before eating again. **Don't blame yourself if that happens.**

If treating your hypoglycemia causes rebound hyperglycemia, see the **High Blood Sugar** section on page 23.

Always have sources of fast-absorbing carbohydrates on hand.

If you are unconscious and need help from another person. This person must:

1. Lay you on your side and avoid making you eat or drink;
2. Turn off your insulin pump if you are wearing one;
3. Give you glucagon (nasal spray or by injection);
4. Call 911;
5. Check your blood sugar 15 minutes after giving you glucagon.

If you regain consciousness, eat 15 g of fast-absorbing carbohydrates. If you can tolerate these carbohydrates, eat a snack with 30 g of carbohydrates and a source of protein (e.g., a bowl of cereal with milk).

If you do not regain consciousness and you can't tolerate taking 15g of fast-absorbing carbohydrates, you are confused or you are having seizures, you need care at home from emergency services or to be rushed to hospital.

If you need someone else's help to treat a low blood sugar episode, this is called **severe hypoglycemia**.

Anyone with type 1 diabetes should carry glucagon with them and teach the people around them (e.g., spouse, friends, colleagues) how to administer it.

Discuss this with your treatment team.

Having repeated episodes of hypoglycemia or an episode of severe hypoglycemia with loss of consciousness can impair your perception of hypoglycemia symptoms. It can also decrease the threshold at which symptoms occur, and therefore increase the risk of hypoglycemia.



What can make your blood sugar drop?

Food	<ul style="list-style-type: none">— Skipping or delaying a meal or snack— Eating fewer carbohydrates (less sugar) than usual— Misjudging the amount of carbohydrates consumed— Eating a meal that does not follow the principles of the balanced plate— Drinking alcohol
Medication	<ul style="list-style-type: none">— Taking too much rapid-acting insulin for the amount of carbohydrates consumed— Taking a correction bolus that is too high— Taking two doses of insulin too close together— Having problems with insulin administration (e.g., injecting into a muscle)
Physical activity	<ul style="list-style-type: none">— Doing an intense physical activity or doing physical activity over a prolonged period of time without eating or adjusting your treatment— Doing an unexpected physical activity
Health	<ul style="list-style-type: none">— Being sick*— Feeling psychologically stressed*— Having a digestive disorder (e.g., gastroparesis)*— Hormonal fluctuations (e.g., menstrual cycle, menopause, pregnancy)*

*The effect of these situations on blood sugar can vary from person to person.

Fear of hypoglycemia

Low blood sugar can occur unexpectedly. When an episode of hypoglycemia happens, it forces the person to stop whatever they are doing. The associated symptoms can also be a source of anxiety and embarrassment.

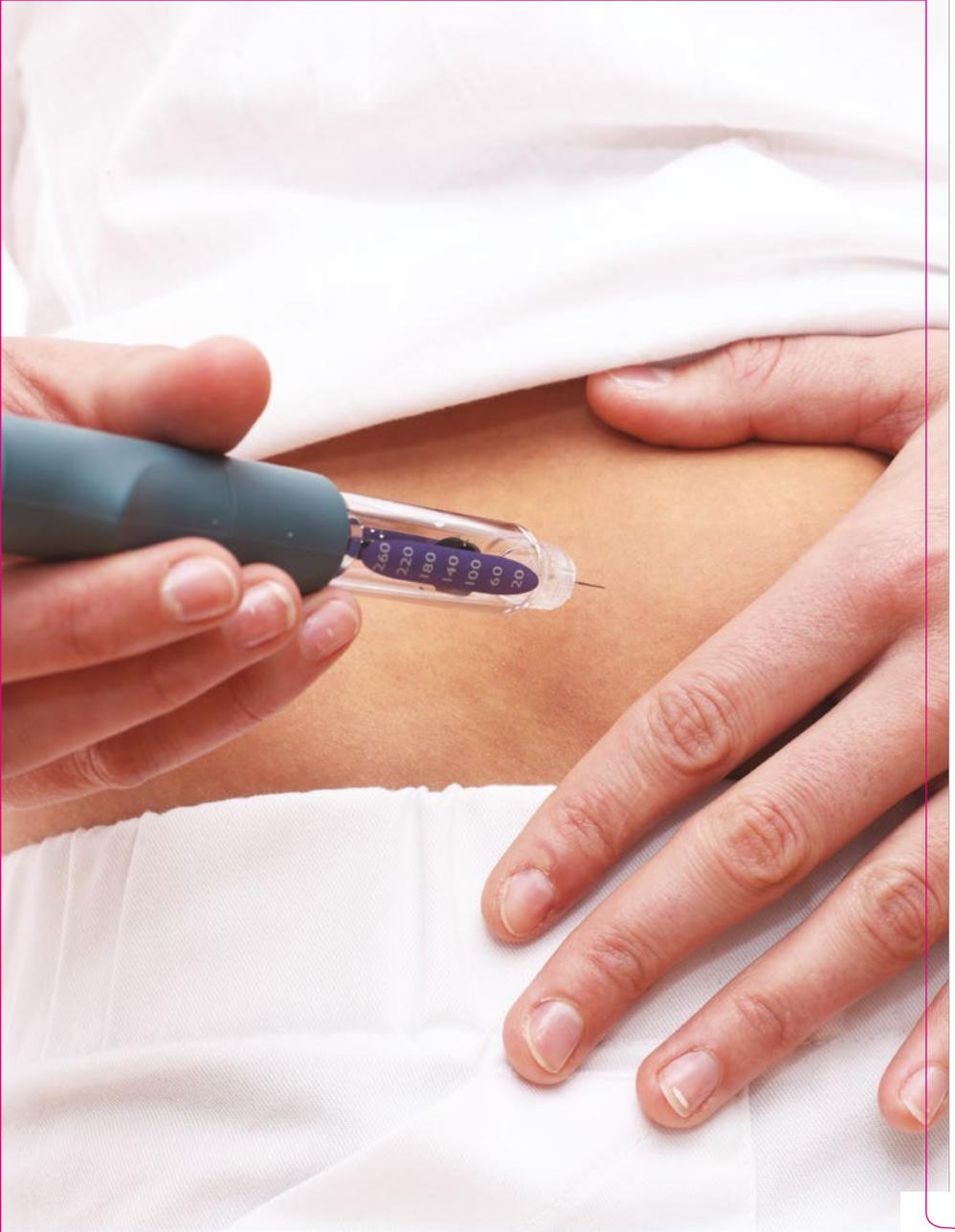
Consequently, some people tend to keep their blood sugar at a higher level to avoid hypoglycemia. In the long run, this is not a desirable strategy because high blood sugar often leads to many complications (see the **Diabetes Complications** section on page 13). If this is your case, talk to your treatment team about the ways to prevent episodes of hypoglycemia. See also the **Mental Health** section on page 67.

If you are afraid of hypoglycemia, don't hesitate to talk to your treatment team.

False hypoglycemia

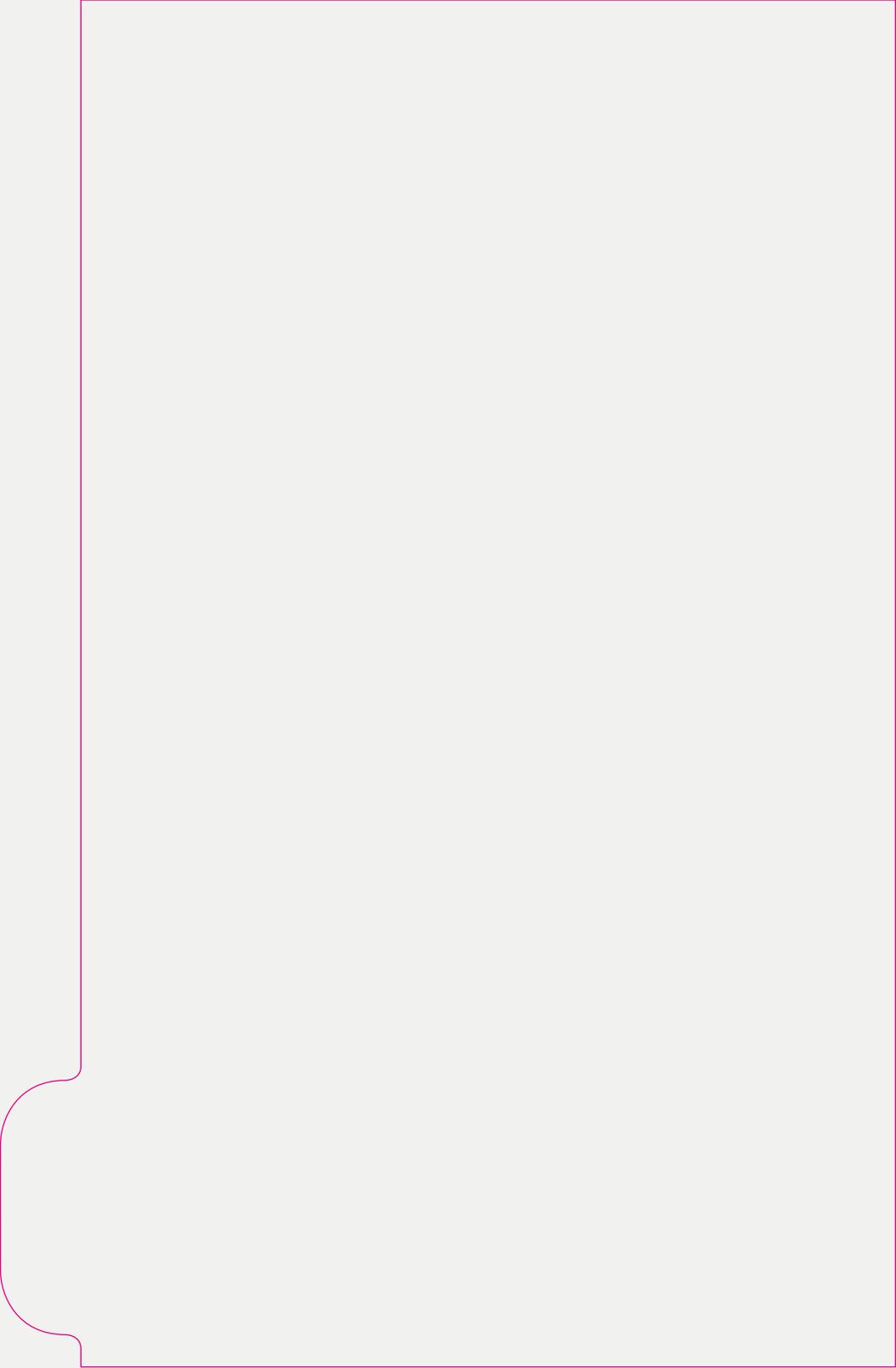
False hypoglycemia is experiencing symptoms of low blood sugar when your blood sugar is above 4.0 mmol/L.

False hypoglycemia occurs when the body has become accustomed to being hyperglycemic. This phenomenon is therefore particularly common following diagnosis.



Section 6

Insulin



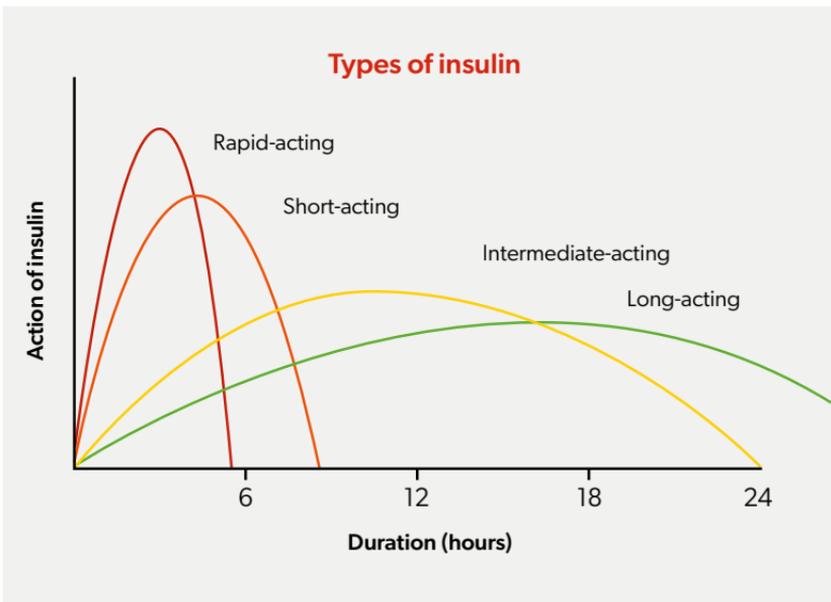
Insulin

In type 1 diabetes, taking insulin is essential for survival (see the **Type 1 Diabetes** section on page 7). Insulin helps the sugar in the blood enter the cells to be used as a source of energy.

Types of insulin

There are different types of insulin. They are distinguished by their **onset** of their action (when the insulin begins to act), their **peak action** (the time when insulin action has the greatest effect), and their **duration of action** (the total time when the insulin is active).

Here is a diagram that approximates the action of each type of insulin over a 24-hour period.



Action of insulin

Type of insulin	Trade name	Onset	Peak action	Duration of action	When to inject
Rapid-acting	(Fiasp®)	4 min	30 min to 1.5 h	3–4 h	0–2 min before the meal
	(Admelog®, Apidra®, Humalog®, Kirsty®, NovoRapid®, Trurapi®)	10–20 min	1–3 h	3–5 h	0–15 min before the meal
Short-acting	(Humulin® R, Novolin® ge Toronto)	30 min	2–3 h	6–8 h	30 min before the meal
Intermediate-acting	(Humulin® N, Novolin® ge NPH)	1–3 h	5–8 h	Up to 24 h	Morning and/or evening
Long-acting	(Basaglar®, Lantus®, Semglee®)	1–1.5 h	None	24 h	Morning and/or evening
	(Toujeo®)	Up to 6 h		36 h	Once a day, at the same time
	(Tresiba®)	1 h		42 h	Once a day, at any time

*This table is for illustrative purposes only.

Refer to your treatment team for the action and particularities of your insulins.

Insulin treatment

At the time of diagnosis, you will be prescribed **two types of insulin**.

1. Long-acting insulin (also called basal insulin):

It mainly allows your body to manage blood sugar while fasting. The dose is adjusted based on your fasting blood sugar values. When the appropriate dose is found, it usually remains fixed.

2. Rapid-acting insulin (also called fast-acting or prandial insulin):

It allows your body to make use of the carbohydrates from the food you eat. Doses are preferably based on an **insulin-to-carbohydrate ratio**, meaning, they must be calculated based on the amount of carbohydrates in the meal.

Rapid-acting insulin can also be taken in fixed doses, with or without a correction dose, meaning, the dose is predetermined for each meal, and an extra amount of insulin can be added depending on the blood sugar reading obtained before the meal.

The terms used to define your insulin treatment may vary depending on your treatment team.

Your insulin doses and dosing schedule may also vary depending on various factors, such as your weight, age, lifestyle.

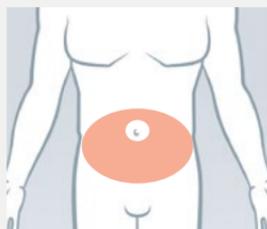


Before making any adjustments to your insulin doses or changes to your treatment, consult your treatment team or pharmacist.

Where to inject your insulin?

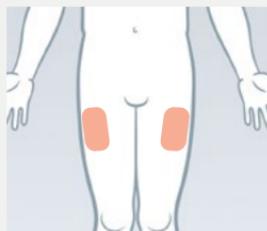
You can inject your insulin into several **injection areas**, also called **injection sites**:

Abdomen



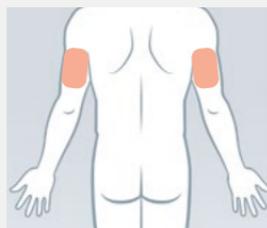
- Inject at least 2–3 cm from the navel.
- Inject at least 1 cm below the lowest rib.
- Absorption rate: rapid

Upper thighs



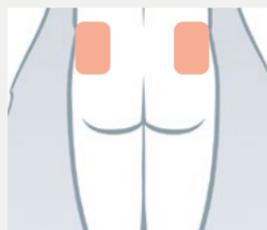
- Divide the thigh into three equal parts.
- Inject into the highest part, slightly on the outer edge of the thigh.
- Absorption rate: medium

Back of upper arms



- Not recommended for injection without help.
- Absorption rate: medium

Upper buttocks



- Inject at the top of the buttock, slightly on the outer edge.
- Absorption rate: slow

For your comfort, avoid injecting insulin into scars, stretch marks or moles.

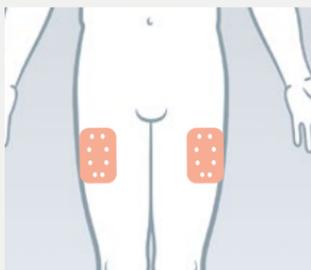
Site rotation

It is essential to alternate your injection sites. If you always inject insulin into the same spots, **lipodystrophy** may develop.

Lipodystrophy is characterized by the presence of bumps under the skin, which may or may not be visible, or pits at the injection sites. **An injection into an area with lipodystrophy can affect the absorption and effectiveness of the insulin and cause low blood sugar or high blood sugar.**

Here are some tips to avoid lipodystrophy:

- Make a site rotation plan.
- Check injection sites feeling for any bumps under the skin.
- Inspect injection sites for pits on the skin.
- Space the injection sites 2 to 3 cm apart if you use the same site in the same day (see example on the image opposite).



If you are afraid of injections, don't hesitate to talk to your treatment team. There are strategies that can help you deal with them.

How to inject your insulin

- 1 Wash your hands with soapy water, rinse and dry well.
- 2 Choose the injection site and clean it as needed.
- 3 Remove the cap from your pen.
- 4 Screw the device containing the needle onto the tip of your pen.
- 5 Remove the cap from the device containing the needle and the needle protector.
- 6 Remove any air (following the manufacturer's instructions).
- 7 Adjust the dose of insulin to be injected.
- 8 Insert the needle into the skin at a 90-degree angle (or as directed by your treatment team).
- 9 Press the button on the end of the pen without putting any added pressure on the skin.
- 10 Check that the dose has been fully injected (counter at zero).
- 11 Wait 10 seconds, leaving the needle inserted in the injection site, and then remove the needle from your skin.
- 12 Unscrew the needle from your pen and dispose of the needle in a biohazard waste container.
- 13 Put the cap back on the pen.

It is essential to use a new needle for each injection.

Using the same needle for more than one injection increases the risk of infection at the injection site, needle breakage in the skin, a blockage during injection, or injection of an incorrect dose.

Injection supplies

Tip of the pen where you insert and screw in the device containing the needle.

STEP 4

Device containing the needle.

STEP 4



Pen cap.

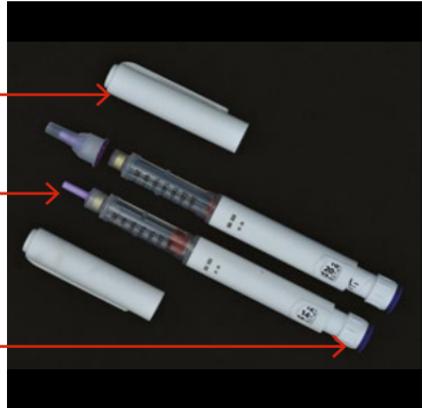
STEP 3

Needle protector.

STEP 5

Button for removing air and injecting insulin.

STEP 6 AND 9



Window that indicates the number of insulin units to be injected.

STEP 7



How to store your insulin

Your insulin may be less effective if not properly stored.

Here are a few tips to make sure it remains effective:

- Unopened cartridges, pens and vials of insulin should be stored in a refrigerator (4–7 °C).
- Insulin in use should be stored at room temperature (20–25 °C) for 28 to 45 days after opening.
- Insulin should not be used after the expiration date, or if it has been frozen or exposed to extreme heat.
- The cap of your insulin pen should be put back on after each use.

Warning! Insulin left in your car during periods of extreme cold or heat should not be used. If in doubt, consult your pharmacist.

Insulin pumps

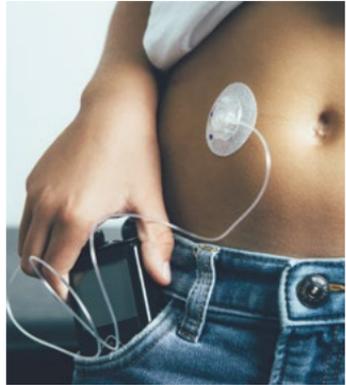
Insulin pumps are small, portable devices that continuously deliver rapid-acting insulin. They also allow additional doses of insulin to be administered on demand at mealtimes, or to correct hyperglycemia.

There are several models of pumps. Some have tubing connecting the pump's reservoir to the insertion site.

Other pumps do not have tubing and instead have a reservoir attached directly to the insertion site.

For more information on pump pricing and operation, read our *Répertoire des produits pour la gestion du diabète* (in french only) or talk to your treatment team.

Insulin pump costs are not reimbursed by the RAMQ in Québec for people diagnosed after the age of 18.





Section 7
Diet



Diet

Carbohydrates

In type 1 diabetes, the body cannot use the energy that circulates in the form of sugar in the blood (see the **Type 1 Diabetes** section on page 7). Blood sugar comes mostly from the **carbohydrates** you eat. It is therefore important to know how to **identify and count the carbohydrates in your diet**.



Most people need 45 to 75 grams (g) of carbohydrates per meal and 15 to 30 g of carbohydrates per snack, if necessary.

Carbohydrates in food are present in different forms:

- **Sugars:** Sugars make food taste sweet. They can occur naturally, as in fruit and milk, or they can be added, as in desserts, sugary drinks and some processed foods. **Sugars raise your blood sugar.**
- **Starches:** Starches do not make food taste sweet. Starch is present in grains (e.g., rice, barley), grain products (e.g., bread, pasta), beans and pulses (e.g., lentils, chickpeas, navy beans), and starchy vegetables (e.g., peas, potatoes). **Starches raise your blood sugar.**
- **Fibre:** Fibre is found in whole grains, whole grain products, fruits and vegetables, beans, nuts and seeds. Fibre is not digested and **therefore does not raise blood sugar.** On the contrary, fibre **helps to reduce the rise in blood sugar levels after meals.** Priority should be given to foods that are high in fibre.

No food is prohibited for people living with type 1 diabetes. Over time, you will learn how to count the carbohydrates in your diet, how your body reacts to different foods, and how to adjust your treatment accordingly.

**A dietitian can help you customize
your diet to your personal needs.**

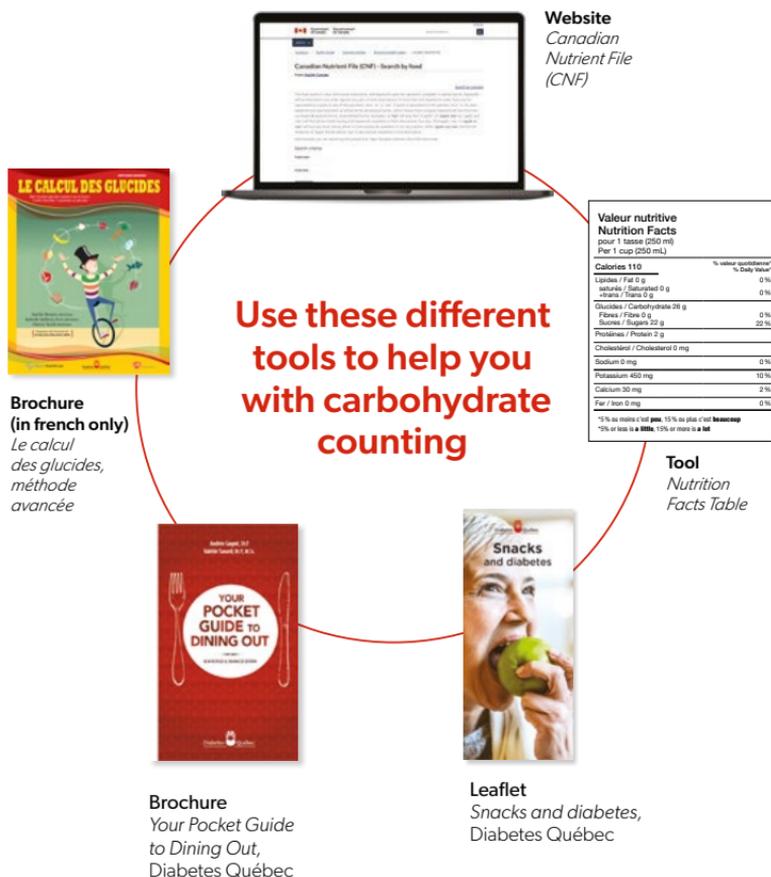
Counting carbohydrates

There are two ways to count carbohydrates:

- **The simplified method:** an approximate count of the number of carbohydrates consumed, normally by eating servings that provide about 15 g of carbohydrates;
- **The advanced method:** an accurate count of the carbohydrates consumed, in order to adjust insulin doses accordingly.

Your treatment team will work with you to determine which type of carbohydrate counting works best for you.

Tools for counting carbohydrates



Understanding the Nutrition Facts table

The reference portion

The reference serving size represents the amount used to calculate the values in the table. It does not necessarily represent the recommended serving size or the amount you will actually eat.

Carbohydrates

This number includes all types of carbohydrates: sugars, starches and fibre. Starches are not usually listed on the table.

Valeur nutritive Nutrition Facts	
pour 1 tasse (250 ml) Per 1 cup (250 mL)	
Calories 110	% valeur quotidienne* % Daily Value*
Lipides / Fat 0 g	0 %
saturés / Saturated 0 g +trans / Trans 0 g	0 %
Glucides / Carbohydate 26 g	
Fibres / Fibre 0 g	0 %
Sucres / Sugars 22 g	22 %
Protéines / Protein 2 g	
Cholestérol / Cholesterol 0 mg	
Sodium 0 mg	0 %
Potassium 450 mg	10 %
Calcium 30 mg	2 %
Fer / Iron 0 mg	0 %

*5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**
*5% or less is **a little**, 15% or more is **a lot**

Fibre

To figure out the number of carbohydrates that will affect your blood sugar, subtract the fibre from the total number of carbohydrates.

**For example,
35 g carbohydrates – 3 g fibre = 32
g of carbohydrates that affect your
blood sugar.**

Sugars

The amount of sugar includes sugars both naturally present in foods, such as those found in milk or fruit, and any added sugars. To find out where the sugars come from, you have to check the list of ingredients.

What do the Daily Value percentages mean?

The percentages indicate the daily needs met by the reference serving size. They let you quickly see if a food contains a low or high amount of a nutrient. Under 5% is considered low and above 15%, high.

The list of ingredients

The ingredient list includes all the ingredients in the food. The ingredients are listed in descending order by weight. The ingredient used in the largest amount appears at the start of the list, and the ingredient used in the smallest amount appears at the end of the list

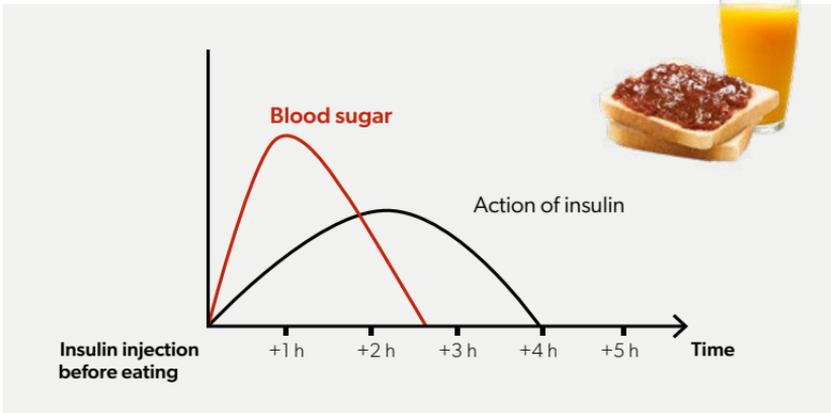


Opt for products with a short list of ingredients that you are familiar with.

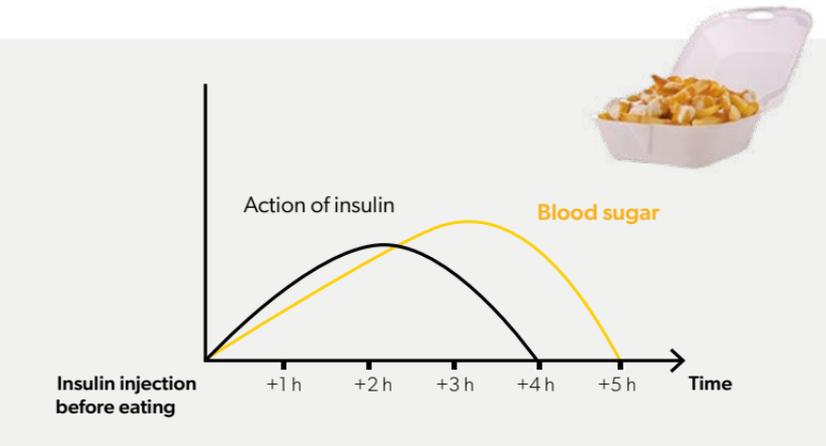
Influence of other nutrients on blood sugar

Some nutrients such as **fibre, protein and fat** can alter the effect of carbohydrates on blood sugar.

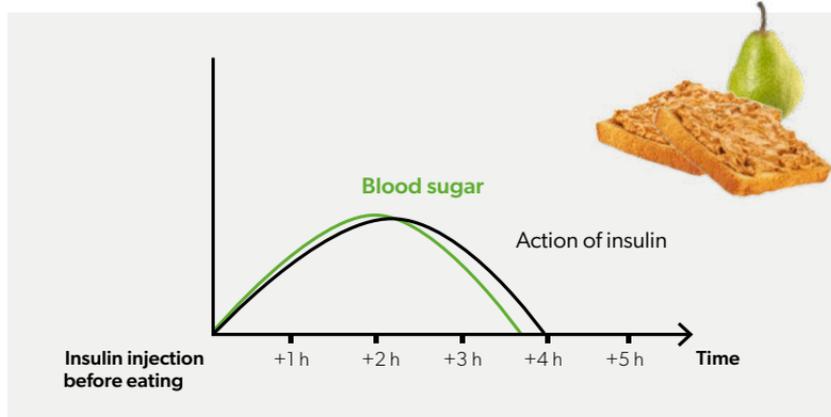
A meal consisting mainly of carbohydrates (for example, two pieces of white-bread toast with jam and a glass of orange juice) leads to a **rapid and significant increase in blood sugar**. This type of meal can cause **hyperglycemia after the meal** since the carbohydrates will be digested before the insulin's peak action.



A meal containing carbohydrates and lots of fat (for example, poutine) leads to a **significant, but belated, rise in blood sugar**. This is because the fat slows down digestion. This type of meal can cause **hypoglycemia at the time of the insulin's peak action, followed by hyperglycemia** when the carbohydrates are absorbed and the effect of the insulin is decreasing.



A meal that follows the principles of the balanced plate, which contains carbohydrates, fibre, protein and fat (for example, two slices of whole wheat toast with peanut butter and a whole fruit) results in a **slower and smaller rise in blood sugar**. This type of meal is more **likely to keep blood sugar stable after the meal** since the timing of the carbohydrates' digestion and the insulin's peak action will be more synchronized.



By following the principles of the balanced plate, you will make sure that different nutrients are distributed properly, which will promote better blood sugar management after meals.

Be sure to discuss strategies for adjusting your insulin treatment for different types of meals with your treatment team.

What is the balanced plate?

Half of your plate should be vegetables.

Be sure to eat a variety of vegetables.

A quarter of your plate should be starches.

Starches include starchy vegetables (e.g., potatoes, peas), as well as grains and grain products (e.g., bread, pasta, rice, quinoa). Choose whole grains and whole grain products, which have more fibre.

A quarter of your plate should be protein foods.

Opt for plant-based protein foods (for example, tofu, legumes) and fish. Choose milk and yogurt with 2% milk fat (m.f.) or less and cheese with 20% m.f. or less. When eating meat, choose lean cuts.

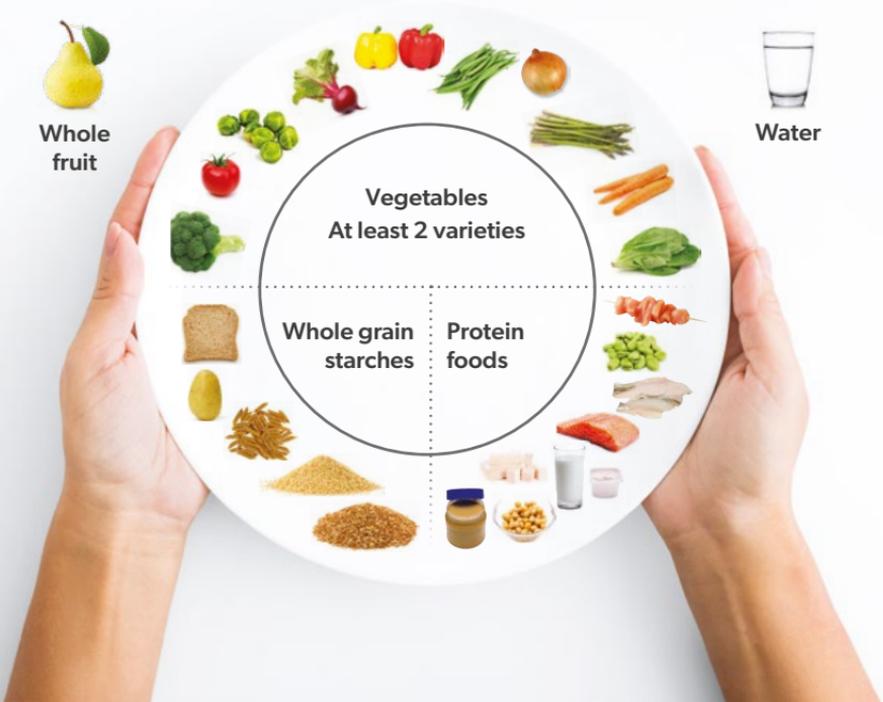
Fruit can be eaten as a dessert or a snack.

Eat the whole fruit with the peel.

Water is the ideal drink for hydration.

Carbonated water, homemade flavoured waters, herbal teas, and unsweetened teas and coffee are also good choices.

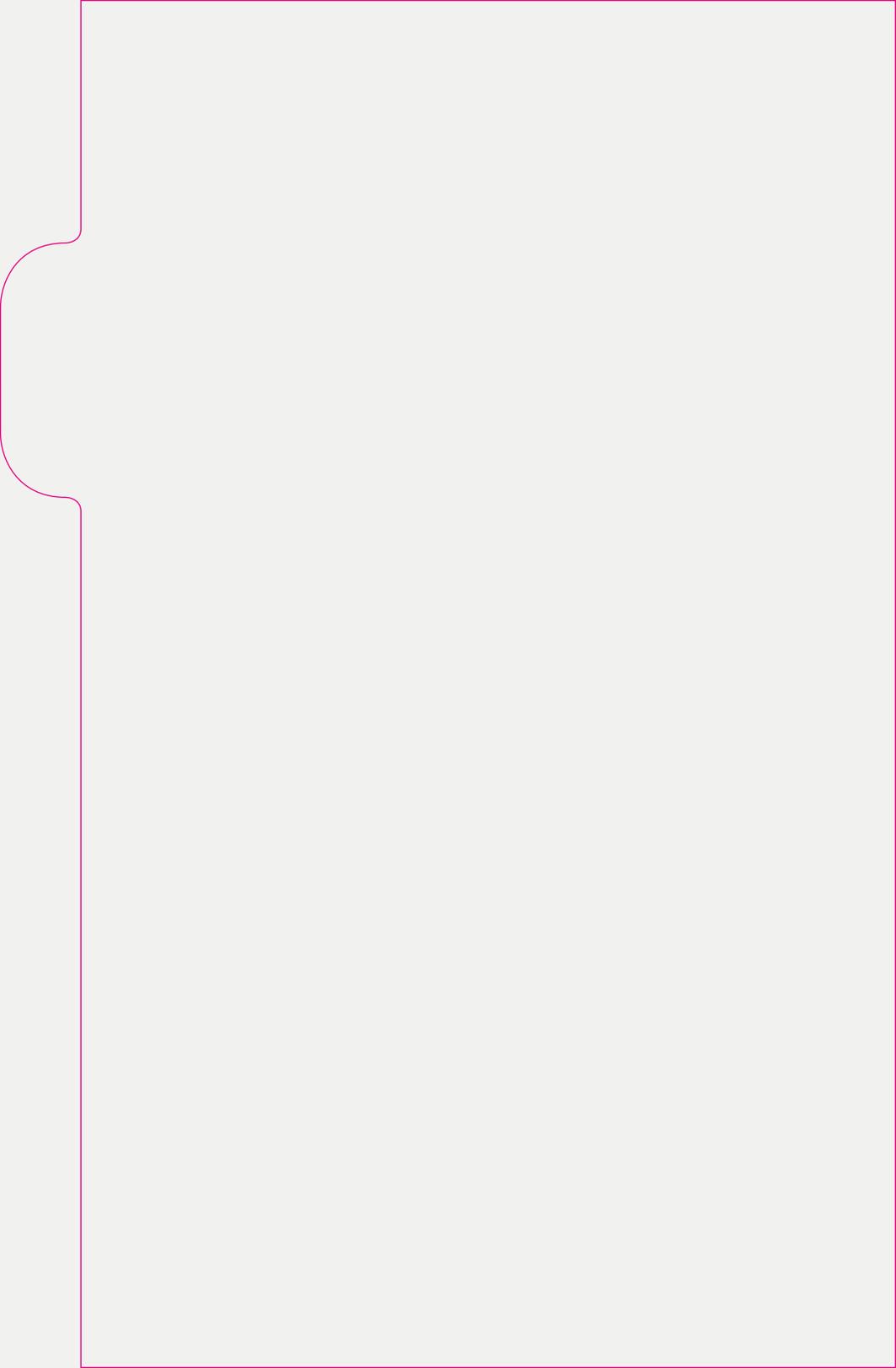
Choose monounsaturated and polyunsaturated fats, which are good for heart health, such as olive oil, canola oil, nuts and seeds, fatty fish and avocados.





Section 8

Physical Activity



Physical Activity

Exercise has many health benefits:

- Improved insulin sensitivity;
- A reduced risk of osteoporosis, arthritis, cardiovascular disease and neuropathy;
- Reduced stress;
- Higher self-esteem, a greater sense of well-being and a better quality of life;
- Better sleep quality;
- Increased energy levels and better physical fitness;
- Better weight management.

It is recommended that you do **two and a half hours of cardiovascular activity per week**, spread over at least three days, without remaining inactive for more than two days in a row.

Adding **two to three sessions of strength training per week** is also recommended.

Physical activity recommendations are the same for people who have diabetes and for those who don't.

**Before starting a training program,
consult your treatment team.**

The impact of exercise on blood sugar



In general, **cardiovascular activities** (for example, cycling, walking, swimming, running) lower blood sugar.



Intense and brief muscle strengthening exercises (e.g., boxing, weight training) or intense cardiovascular **exercise** (e.g., sprinting, crossfit) raise blood sugar levels in the **short term**.



Activities where **muscle strengthening and cardiovascular exercises are combined** alternately (e.g., hockey, basketball) and **interval training** can decrease or increase blood sugar. It is also possible that your blood sugar will stay stable throughout the activity.

Your blood sugar can also fluctuate while doing daily chores and activities, such as:

- Shoveling, gardening, mowing the lawn;
- Having sex;
- Running errands or doing housework;
- Playing with your children, grandchildren or pets.

It is only by doing these activities that you will learn how they affect your blood sugar. This will help you establish strategies for managing changes in your blood sugar.

After your diagnosis, start with short-duration, low-intensity physical activities. It will be easier to adapt your diabetes management by increasing the duration and intensity gradually.

How to reduce the risk of exercise-related hypoglycemia?

Here are some tips to help you manage your blood sugar during physical activity:

Before the activity:

- Measure your blood sugar.
- If your blood sugar levels are above 15 mmol/L before starting a physical activity, measure the ketones in your blood or urine:
 - If the blood ketone level is 1.5 mmol/L or higher, treat the hyperglycemia (see the **High Blood Sugar** section on page 23) and postpone the activity.
 - If ketone levels are normal and you feel fine, do your activity as planned.
- Tell someone around you about your diabetes.
- Reduce your dose of rapid-acting insulin taken at the meal before the physical activity, as recommended by your treatment team.
- Avoid injecting rapid-acting insulin to an injection site that will be activated during the activity, for example:
 - Your arm if you are going to play tennis;
 - Your thigh if you are going running.
- If you are using an insulin pump, adjust your basal flow before, during and after physical activity, as recommended by your treatment team.
- Try to get your blood sugar level between 7 and 10 mmol/L before starting a cardiovascular exercise.
- If your blood sugar is less than 7 mmol/L, eat some carbohydrates, as recommended by your treatment team.
- Start your physical activity session with intense muscle or cardiovascular exercises that raise blood sugar.
- Keep fast-absorbing sources of carbohydrates nearby, especially for prolonged cardiovascular activity.

Exercise is not recommended within 24 hours of severe hypoglycemia, meaning, an episode that required the help of another person to treat.

During physical activity:

- Consume carbohydrates as needed;
- Measure your blood sugar in the middle of the activity if it lasts longer than 60 minutes.

After physical activity:

- Measure your blood sugar.
- If you have hypoglycemia, eat some carbohydrates (see the **Low Blood sugar** section on page 29).
- If you have hyperglycemia, you may take a bolus correction as directed by your treatment team (also see the **High Blood Sugar** section on page 23).

The body remains more sensitive to insulin for up to 48 hours after physical activity. The risk of hypoglycemia is therefore higher during this period. Exercising late in the day also increases the risk of hypoglycemia during the night.

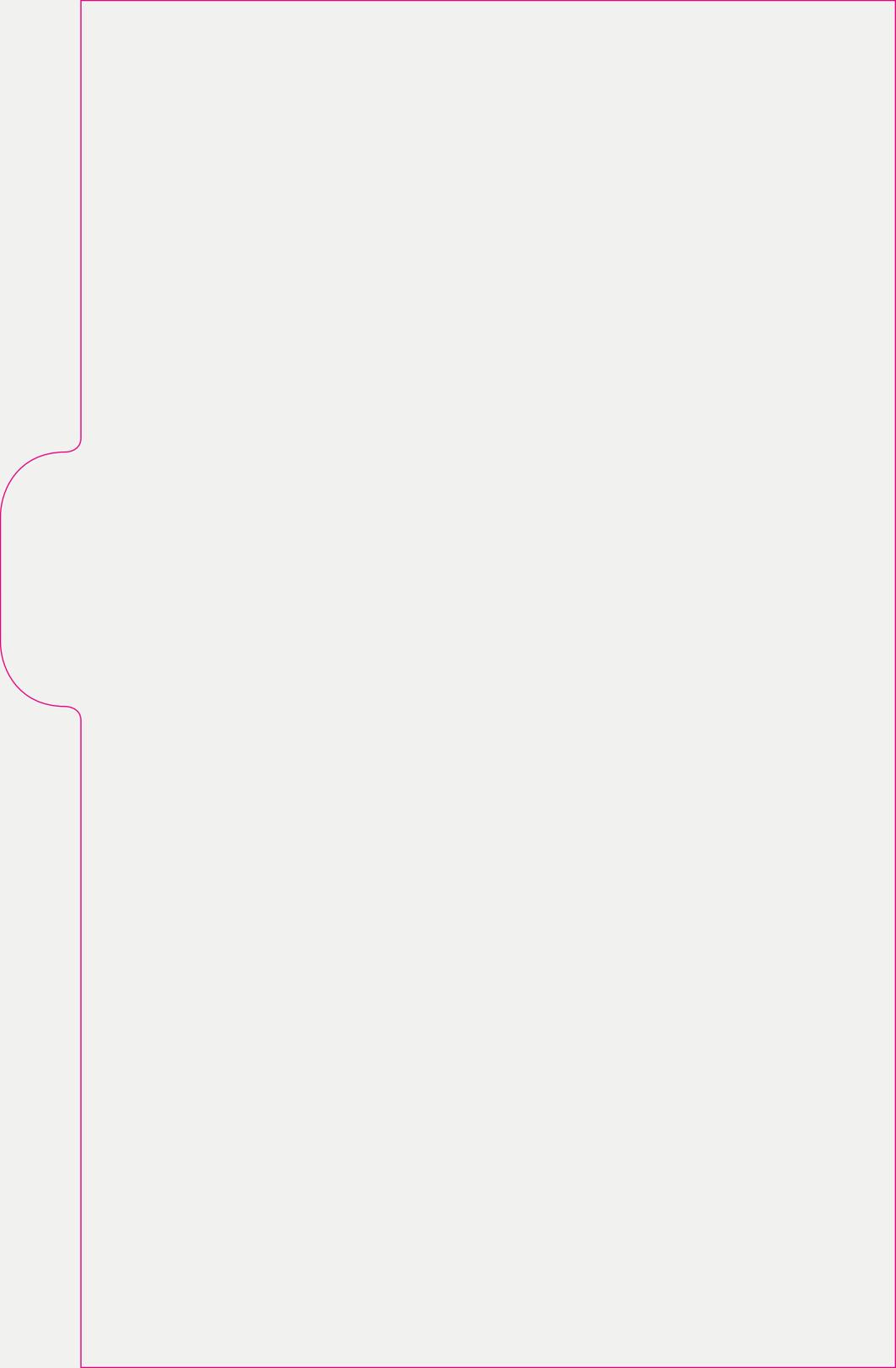


For strategies adapted to your specific case, talk to your treatment team.



Section 9

Sick Days



Sick Days

Most acute illnesses, such as colds or flu, are stressful for the body and therefore lead to an increase in blood sugar. Some infections and their treatment (for example, cortisone) can increase insulin requirements. Vomiting and diarrhea can also increase the risk of hypoglycemia. The effects of different diseases can be difficult to predict and vary from person to person.

Be prepared with the following strategies:

1. Measure your blood sugar more often

It is recommended that you measure your blood sugar more often, **at least every two to four hours**, when you are sick.

The readings of a continuous glucose monitoring system may be less accurate due to dehydration (e.g., vomiting, diarrhea, high fever) or medication (e.g., acetaminophen, vitamin C supplements).

2. Measure the presence of ketones

If your blood sugar is above 14 mmol/L or if you are nauseous or vomiting, it is recommended that you measure ketones **every two to four hours** (see the **Hyperglycemia** section on page 23).

3. Continue to eat and hydrate

It is important to **continue to eat as normally as possible and eat carbohydrates**. If you don't have much of an appetite, choose easy-to-digest carbohydrates (e.g., fruit purees, white rice, soda crackers, juice, smoothies, fruit-flavoured jello [Jell-O®], pudding) to maintain your carbohydrate intake. It is also important to keep drinking to avoid dehydration. Aim to drink **250 ml (1 cup) of water every hour**.

4. Continue to take your insulin

It is important to continue to take your insulin, even if you are not eating much or are vomiting or have diarrhea, to prevent the risk of ketoacidosis.

5. Seek prompt medical attention if:

- The level of ketones in the blood **is above 1.5 mmol/L with the presence of diabetic ketoacidosis symptoms**, such as nausea, vomiting, fruity breath, or abdominal cramps.
- The level of ketones in the blood **is above 3.0 mmol/L**.
- Blood sugar remains above 20 mmol/L despite a correction bolus.
- You have been vomiting or had diarrhea for more than six hours.
- You have not been able to tolerate fluids for more than four hours due to vomiting.
- There is a change in your conscious state, such as confusion, agitation, lack of reaction to stimulation, hallucinations or unusual behavior.
- There are signs of dehydration, such as dry mouth, hollow eyes, less skin elasticity, dizziness, etc.
- Body temperature has been above 38.5 °C for more than 48 hours.

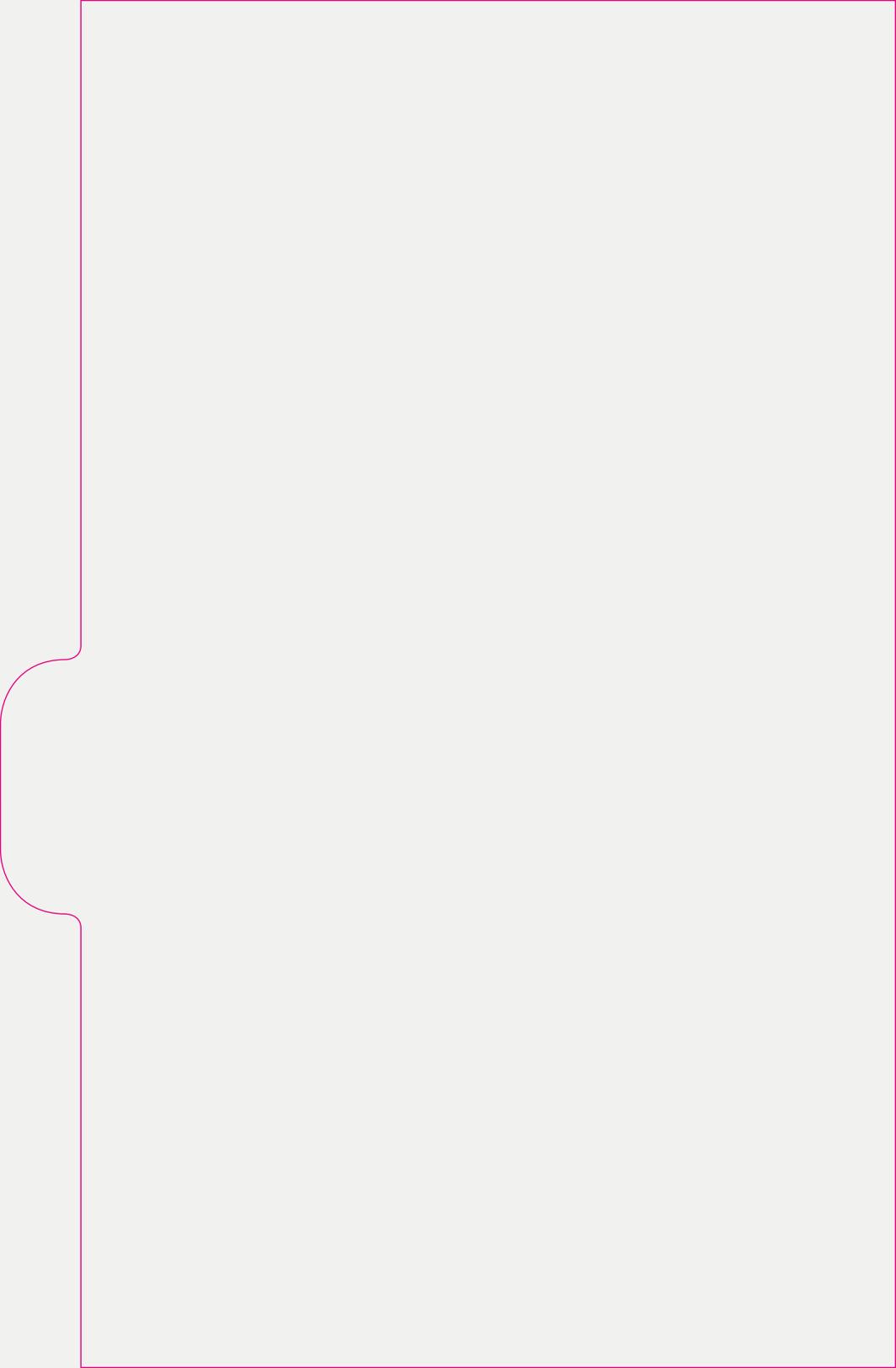
Talk to your pharmacist before taking any over-the-counter medications or natural health products.

Be prepared! Talk to your treatment team to create a clear management plan for treatment adjustments on sick days. When you are sick and unsure how to proceed, don't hesitate to contact your treatment team or pharmacist.



Section 10

Mental Health



Mental Health

In managing your disease, you may experience difficulties, such as diabetes-related distress and diabetes-related exhaustion.

These difficulties can occur at any time, even several years after diagnosis. Don't hesitate to discuss them with your treatment team.

Diabetes distress

Diabetes distress is defined as discouragement and agitation specifically related to living with the disease and managing it on a daily basis. This includes, but is not limited to, **the emotional burden of the disease** (page 70), **the distress related to diabetes management** (page 69), **and social stress** (page 72).

It is normal to feel negative emotions and have difficulty adopting certain behaviours.

But watch out for these red flags:

- Feeling overwhelmed by the management of your diabetes;
- Feeling that diabetes controls your life;
- Having an excessive fear of long-term complications;
- Feeling sad, angry or depressed when thinking about your diabetes;
- Doubting your ability to manage your diabetes;
- Having an excessive fear of the impact of food on your blood sugar;
- Feeling stressed about checking your blood sugar;
- Keeping your blood sugar high for fear of hypoglycemia;
- Keeping your blood sugar low for fear of hyperglycemia;
- Constantly checking your blood sugar;
- Having trouble accepting that medical devices are visible on your body;
- Reacting strongly to the trend arrows from your continuous glucose monitoring system.

Emotional burden of diabetes

The emotional burden is the negative emotions related to diabetes and its management, **such as anger, sadness, guilt, etc.** These emotions can change in intensity from one moment to the next. You may feel them more strongly when:

- Events or activities affect your routine (for example, holidays, unexpected physical activity).
- Managing your diabetes is not working out as planned despite your best efforts.
- You are going through a significant transition in your life (for example, changing jobs, arrival of a new baby).

In these particular moments, checking your blood sugar can be a source of negative emotions.

Your blood sugar reading is not your enemy. It is data that can explain the symptoms you are feeling and let you know if you need to take action.

You are not a good or a bad patient. You are simply doing the best you can with the information you have.

Distress related to diabetes management

Managing type 1 diabetes needs to be incorporated into your daily life, and you will need to take it into account for most of your activities and life events.

Since diabetes can be unpredictable, some strategies may work more or less well initially without your understanding why. You are not a failure. **You are simply learning strategies to help you manage your diabetes.**



The more you manage your diabetes,



**the more you will learn to manage it
and incorporate it into your life,**



**the more you will understand your diabetes
and become more confident in your abilities.**

More than 40 factors can influence your blood sugar. Some of them are impossible to control (for example, hormonal fluctuations, sick days). It is therefore difficult to consider them all.

Over time, you will find a balance between managing your diabetes and your ability to live a full and healthy life.

Social stress

Diabetes and its management can also affect your social life. When you manage your diabetes in public, you may feel that others are looking at you and judging you. You may also have to explain to those around you what type 1 diabetes is and what it entails.

While it can be hard to talk about your illness, your loved ones can be a valuable support. However, they may not know how to help you.

There is no shame in having type 1 diabetes.

Here are some tips to prepare you for asking for help, if you would like to

- Think about what would help you or make you feel better, for example:
 - Help with technology;
 - Talking to someone about the problems you are encountering;
 - Help counting carbohydrates;
 - Help with injections;
 - Financial assistance.
- Think about the people around you and the kind of support they could provide.

You may need time before you are able to talk about your diagnosis.

Go at your own pace.

After you have been diagnosed, your loved ones may also react by:

- Seeking a culprit or feeling guilty about your disease;
- Judging your food choices and lifestyle habits;
- Not understanding what you're going through or how long it takes to manage type 1 diabetes;
- Believing falsehoods about type 1 diabetes.

Here are some tips to help you talk about your diabetes with others:

- Explain that your lifestyle did not cause the disease and that there is no way to prevent type 1 diabetes.
- Explain how you feel and how diabetes is changing your daily life.
- Give them resources so that they can learn at their own pace (see the **Resources** section on page 87).
- If possible, involve your loved ones in your follow-ups.
- Give them time to get used to your new reality.

When your loved ones suggest an activity, **don't hesitate to make suggestions that accommodate you.**

For example, you could:

- Ask whether the time of the activity could be changed;
- Ask whether you could choose the location of the activity (e.g., the restaurant);
- Suggest an alternative activity.

Diabetes burnout

Due to the demands of the disease, you may feel discouraged or overwhelmed at times. While this is normal, these emotions may progress and become worrisome.

Diabetes burnout is a feeling of helplessness and intense mental and physical fatigue. People feel completely overwhelmed by their diabetes and disconnect from their disease, its management, its consequences and the professionals around them.

Diabetes burnout can manifest in several ways.

Here are some red flags:

- No longer showing up to medical appointments;
- No longer counting carbohydrates;
- No longer monitoring or measuring your blood sugar;
- No longer taking your insulin;
- Feeling frustrated and unmotivated;
- Believing that there is no point in taking care of your diabetes;
- Isolating yourself.



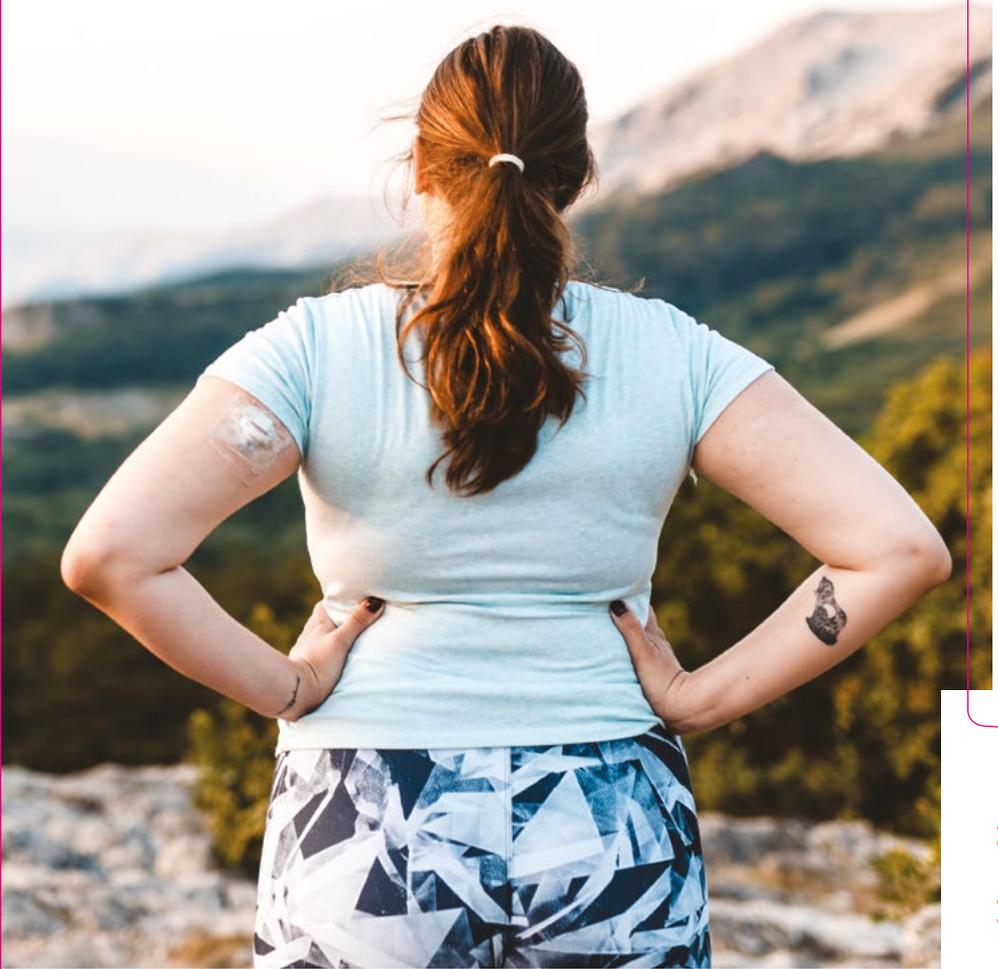
Looking after your mental health

- Recognize and name the emotions that you are experiencing.
- Believe in your abilities.
- Make use of your strengths.
- Set realistic and achievable goals.
- Be kind to yourself.
- Write down what causes you stress and the advice you would give to someone in a situation like yours.
- Join a community of people with type 1 diabetes to connect with likeminded individuals (see the **Resources** section on page 87).
- Take the time to do activities that you enjoy.
- Praise yourself for the effort you make, regardless of your blood sugar reading.
- Don't feel guilty when things don't go as well as you want them to.
- Talk to another person with type 1 diabetes.
- Learn about the technologies that could help you.

For more information on mental health and diabetes, consult our various pamphlets:

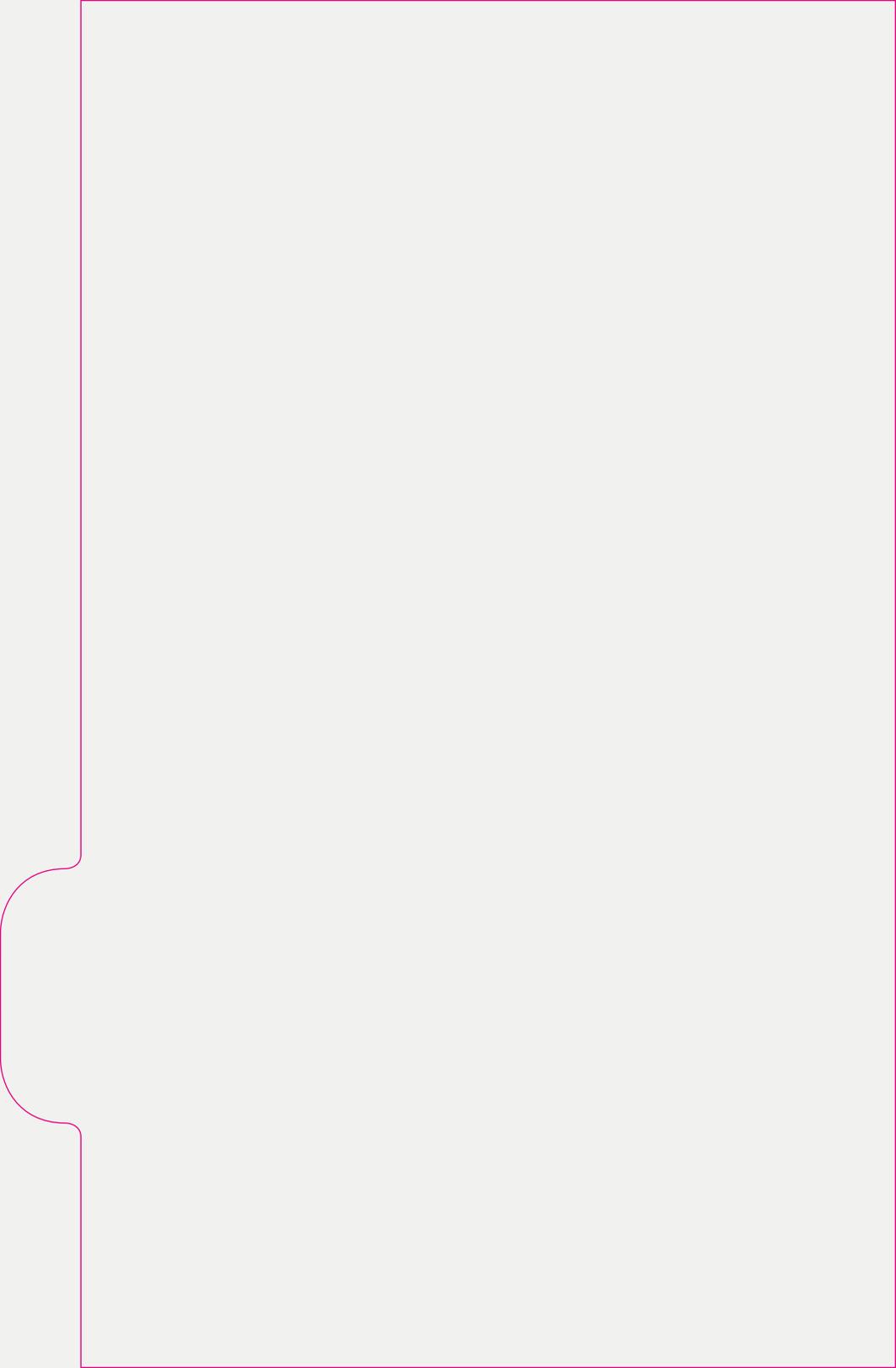


To learn more about the various aid organizations, see the Resources section on page 87.



Section 11

Living with Diabetes



Living with Diabetes

The following topics will be covered in this section:

- Driving
- Work and professional life
- School
- Alcohol
- Travel
- Pregnancy
- Sexuality

Driving

In Québec, driving is a privilege, not a right. **All drivers must meet health and vision requirements.**

Type 1 diabetes is one of the situations that may be incompatible with driving, mainly because of the risk of hypoglycemia and other complications that can affect the ability to drive (for example, retinopathy, nephropathy).



Therefore, you must meet the requirements and take certain precautions to reduce the risks.

- Report the state of your health to the Société de l'assurance automobile du Québec (SAAQ) within 30 days of your diagnosis.
- Pass a medical exam at least every two years.
- Use a blood sugar meter or a continuous glucose monitoring system, and keep a source of fast-absorbing carbohydrates on hand at all times while driving.
- Measure your blood sugar before driving and at least every four hours on the road, or wear a continuous glucose monitoring system:
 - **If the reading is less than 4.0 mmol/L:** stop the vehicle and treat the hypoglycemia (see the **Low Blood Sugar** section on page 29). It is suggested that you wait 40 minutes before getting behind the wheel after your blood sugar has risen above 5.0 mmol/L. This is the time it usually takes to return to a normal state of alertness.
 - **If the reading indicates hyperglycemia** and you are experiencing symptoms that could affect your ability to drive (for example, drowsiness, blurred vision, trouble concentrating): stop the vehicle and take steps to make sure your driving is safe (see the **High Blood Sugar** section on page 23).
- Expect to measure your blood sugar more often when there are factors that could increase your risk of hypoglycemia (e.g., recent physical activity, delayed or skipped meals).
- If you have had an episode of **severe hypoglycemia that required the help of another person to treat or that caused you to lose consciousness**, notify the SAAQ and your doctor within 30 days of the episode.

Certain situations (for example, driving a commercial vehicle) may change the above recommendations.



For more details about your specific case, take the interactive test on the Diabetes Québec website using this [QR code](#).

Work and professional life

It's up to you whether or not to tell your employer that you have type 1 diabetes. In some cases, for your personal safety, it may be better to inform your employer. This may make it easier for your colleagues to help you in case of hypoglycemia. Also, some measures can be put in place to accommodate you.

In the past, certain types of jobs were off-limits to people with type 1 diabetes. Changing mindsets and technologies now allow people with type 1 diabetes to work in most fields of employment. However, depending on your job, you may have to meet special conditions to allow you to perform your duties safely.

By law, your employer cannot fire you because of your diabetes.

School

At CEGEP and university, you may be entitled to certain accommodations to help you manage your diabetes.

Here are a few examples of what may be offered:

- More time to write an exam;
- The right to carry snacks with you at all times;
- The right to have your phone with you at all times;
- Access to professional services.

Meet with the support team for students with disabilities. They will assess your needs in order to offer you adapted services.



Alcohol

Alcohol can cause hyperglycemia in the short term if the drink consumed contains a lot of carbohydrates (for example, a sweet cocktail).

However, **the main risk of drinking alcohol is hypoglycemia**. The liver is responsible for releasing sugar into the blood when your blood sugar drops. It is also responsible for metabolizing alcohol. Since the body reacts to alcohol as a toxic substance, it gives priority to metabolizing the alcohol over the release of sugar. Several other risks are associated with drinking alcohol, such as:

- Not feeling your hypoglycemia;
- Forgetting to take your insulin;
- Confusing hypoglycemia with being drunk;
- Having a severe hypoglycemic episode;
- Having diabetic ketoacidosis.

Here are some strategies to reduce the risk of hypoglycemia associated with drinking alcohol:

- Eat when you are drinking alcohol.
- Do not factor carbohydrates from the alcoholic beverages into your carbohydrate calculation.
- Keep snacks on hand that contain carbohydrates.
- Measure your blood sugar more often and before bed.
- Adjust your insulin doses, as recommended by your treatment team.
- Eat a snack containing carbohydrates and protein before bed, if needed.
- Adjust the alarms on your continuous glucose monitoring system to detect hypoglycemia before it occurs.
- Wake up at your usual time to check your blood sugar and eat as needed.

Your risk of hypoglycemia can stay elevated for up to 24 hours after drinking alcohol.

Alcohol greatly reduces the effectiveness of glucagon administered in cases of severe hypoglycemia.

Travel

Here are some pre-travel tips to help you manage your diabetes:

- Make an appointment to see your doctor 4 to 6 weeks before your departure date.
- Talk to your treatment team or pharmacist about adjustments to your treatment in case of jet lag.
- Get a letter from your doctor or nurse allowing you to clear customs with your medical supplies.
- Ask your pharmacy for a complete list of your medications.
- Notify your insurance company and inquire about the terms of your coverage abroad.
- Bring enough supplies and medication, ideally for twice the duration of your trip.
- Make sure you can transport your insulin safely. For example, by getting an ice pack.

While travelling, your routine is often different than at home: different meal times, different food, restaurant meals, changes in physical activity, etc. These are all things to consider as they can affect the management of your diabetes. Consequently, it is recommended that you measure your blood sugar more often.



Pregnancy

It is entirely possible for women with type 1 diabetes to get pregnant and have healthy children. Whenever possible, a pregnancy should be planned to reduce the risk of developing complications. It is recommended that your glycated hemoglobin (HbA1c) be 7% or less before becoming pregnant.

Also, during pregnancy, blood sugar targets are lower to ensure the proper development of the baby.

Pregnant women with type 1 diabetes usually continue treatment because insulin is safe for the baby. Insulin needs can fluctuate greatly during pregnancy, and treatment will be adjusted with your treatment team.

Pregnant women with type 1 diabetes are monitored by a GARE (high-risk pregnancy) clinic.

For more information, [consult](#) our pamphlet on the subject



Sexuality

Some people living with type 1 diabetes may feel uncomfortable having sex because of the devices on their bodies (for example, a continuous glucose monitoring system) or the risk of hypoglycemia. Here are some tips:

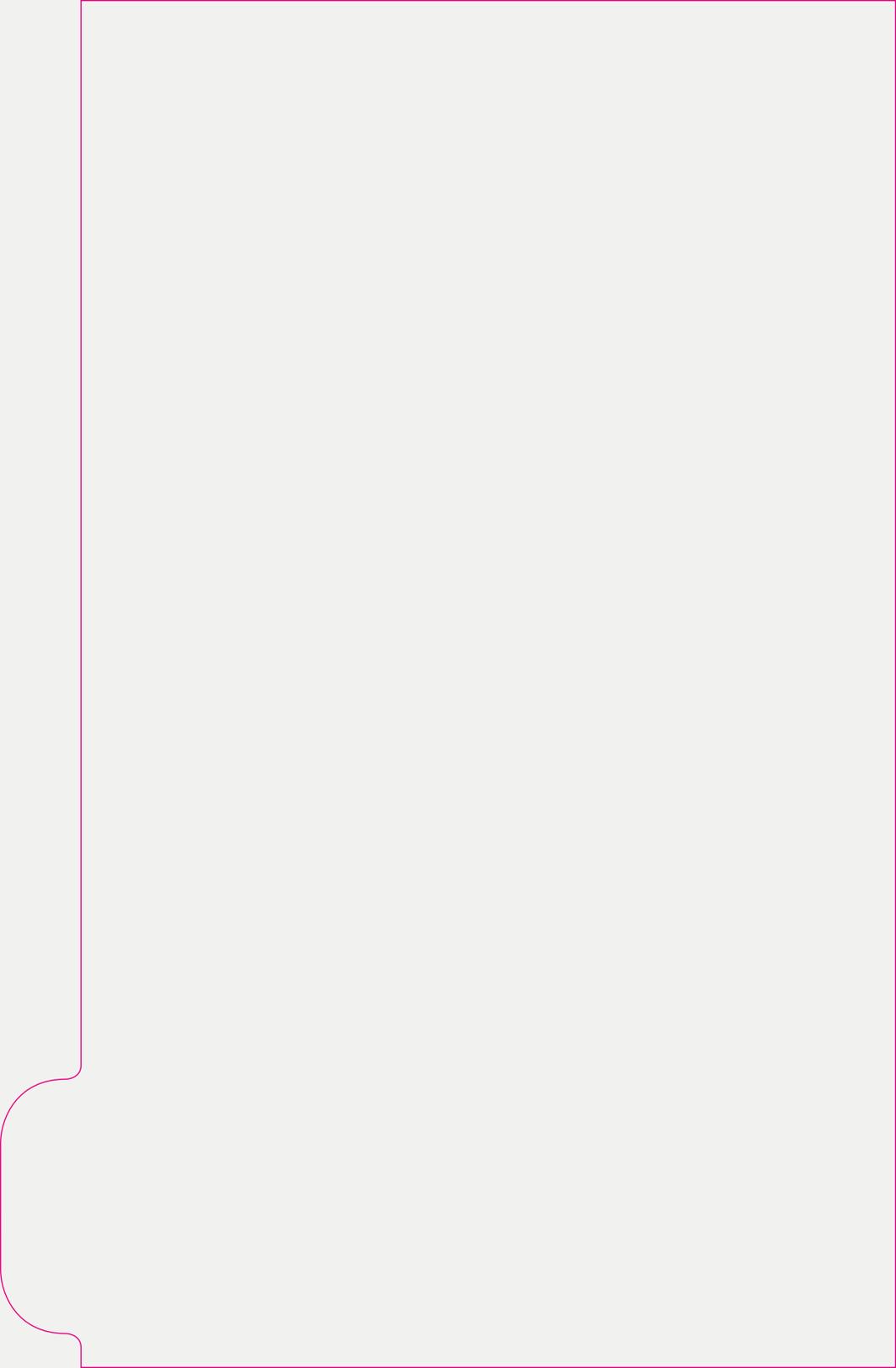
- Discuss any insecurities with your partner.
- Talk to your partner about the risk of hypoglycemia.
- Measure your blood sugar before and after having sex.
- Take the time to treat your hypoglycemia, if it occurs.
- Keep fast-absorbing carbohydrates close by.
- If you use an insulin pump, you can unplug it before having sex and reconnect it afterwards.

Diabetes can cause sexual complications, such as vaginal dryness, decreased libido, and erectile dysfunction. Don't hesitate to discuss this with your treatment team.



Section 12

Follow-up examinations



Follow-up examinations

In order to assess how you are managing of your diabetes and check if adjustments to your treatment are necessary, you will need to have regular blood tests. Your fasting blood glucose or glycated hemoglobin will be measured. **Fasting blood glucose** is the level of sugar in the blood after an eight-hour fast. **Glycated hemoglobin** reflects the average blood glucose values over the last two to three months.

Generally, glycated hemoglobin is measured every three months. However, your treatment team might recommend a different frequency for blood tests depending on the state of your health. If you are using a continuous glucose monitoring system, your treatment team might also check your time in range (see the **Self-Monitoring of Blood Sugar** section on page 17).

Your doctor will also assess your cardiovascular health. To do this, the level of **LDL cholesterol** in your blood will be measured, usually with an annual blood test, and your blood pressure will be taken during medical appointments.

Test	Target values
Fasting blood glucose	Between 4.0 and 7.0 mmol/L*
Glycated hemoglobin (HbA1C)	7% or less*
LDL cholesterol levels	2.0 mmol/L or less
Blood pressure	130/80 mm Hg or lower

*Your treatment team may set other target values depending on the state of your health.



Some other tests must also be done, usually annually, to assess you are experiencing complications associated with diabetes. They detect whether the following have been damaged:

- **Nerves (neuropathy) and feet:** a monofilament test and a foot exam must be done by a doctor, podiatrist, nurse, or foot-care nurse;
- **Kidneys (nephropathy):** a urinalysis and a blood test should be done;
- **Eyes (retinopathy):** an eye exam should be done by an optometrist or ophthalmologist;
- **Teeth and gums (periodontitis):** a complete examination of the mouth and teeth should be done by a dentist or dental hygienist.



Your doctor may recommend these tests more frequently or other tests, if needed.

Don't hesitate to discuss your questions or any new symptoms with your treatment team.

Resources

For information about diabetes

- Diabetes Québec's website: diabete.qc.ca
- InfoDiabetes Service: 514-259-3422 | 1-800-361-3504, ext. 1 or infodiabete@diabete.qc.ca
- BETTER project: type1better.com
- Diabetes Toolbox by Steve Chalifoux, Nurse Clinician specializing in diabetes: schalifouxdiabete.com

For diabetes education

- Universi-D: universi-d.com
- BETTER project: type1better.com

To consult a dietitian

- Public sector, with a physician's referral (free): FMG/GFM, CLSC or diabetes clinic in your area
- Private sector (fee-based):
Ordre des diététistes-nutritionnistes du Québec:
odnq.org (514-393-3733 | 1-888-393-8528)

For your mental health

- Psychosocial services from your CLSC
- ANEB – Anorexie et boulimie Québec (anorexia and bulimia): anebquebec.com/en
- Hotlines (centres d'écoute) by region: lignedecoute.ca (services in english may vary)
- EquiLibre (body image): equilibre.ca (available in French only)
- Social information: 811, option 2
- Mental health access point in your area with a referral from your doctor
- Ordre des psychologues (fee-based):
www.ordrepsy.qc.ca/english
(514-738-1223 | 1-800-561-1223)

For peer support

- “Rencontres du premier type” event organized by Diabetes Québec: diabete.qc.ca
- Facebook groups
- Juvenile Diabetes Research Foundation: jdrf.ca

To consult a footcare professional (fee-based)

- Association des infirmières et infirmiers en soins podologiques du Québec (AllSPQ): aiispq.org (1-800-771-9664)
- Ordre des podiatres du Québec: ordredespodiatres.qc.ca
(514-288-0019 | 1-888-514-7433)

To quit smoking

- Conseil québécois sur le tabac et la santé: cqts.qc.ca
- Free services: Tobacco-Free Quebec I QUIT NOW: www.tobaccofreequebec.ca/iqitnow
(1 866-527-7383)
- Quit to Win! Challenge: quitchallenge.ca/

For information about alcohol consumption

- Éduc’alcool: www.educalcool.qc.ca/en/

For information about financial assistance

- Diabetes Québec website: diabete.qc.ca

Other Resources

- Ordre des optométristes du Québec: www.ooq.org/en
- Association québécoise de la douleur chronique (chronic pain): aqdc.info
- Centre for Studies on Human Stress (CSHS): humanstress.ca
- Kidney Foundation of Canada: kidney.ca/
- Heart & Stroke: www.heartandstroke.ca/
- Ordre des dentistes du Québec: www.maboucheensante.com/en/

Become a member of Diabetes Québec

Join online today at **diabete.qc.ca** or fill out this form and mail it to us at:

Diabetes Québec

3750 Crémazie Boulevard East, Suite 500
Montréal, Québec H2A 1B6

Membership Form

Language of correspondence: French English

Salutation: Mrs. Ms. Mr. Prefer not to answer

First name

Last name

Address

Apt./Unit

City

Postal code

Home phone

Mobile

Email

Signature

Date

When you become a member of Diabetes Québec at a cost of \$20 per year, you will receive the quarterly magazine *Plein Soleil* (in French only). Please check your preference below:

- In print format
- In electronic format
- I do not want to receive the magazine.

Diabetes Québec reserves the right to make any changes to its membership without notice.

RGP-20



Diabetes School

Universi-D is a non-profit organization whose mission is to train people living with diabetes. Our goal is to help them self-manage their diabetes on a daily basis.

Our services:

- In-person training
- Web-based training
- Self-study courses
- Video courses



Our training courses cover topics such as diet, medication, hypoglycemia, long-term complications and more!

Diabetes is complicated to manage, but Universi-D is there for you!

Exclusive Offer

Enter the promo code UNIVERSI-D and get \$5 off when you purchase the training course of your choice.

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Questions about diabetes?

InfoDiabetes Service

514-259-3422

1-800-361-3504

infodiabete@diabete.qc.ca



diabete.qc.ca