A Practical Guide to Diabetes Management

Have you been diagnosed with type 2 diabetes? Here are the answers to your questions.
Did you know...

In Quebec, more than 880,000 people have diabetes and 250,000 of them are not even aware of it. This number is rising daily at an alarming rate, and we believe it is essential to diagnose people with diabetes as soon as possible to avoid serious health consequences.

In recent years, various health professionals have expressed concern about the lack of information for people who have just been diagnosed with type 2 diabetes. When individuals get this diagnosis, it is not uncommon for them to feel knocked off balance and unsure of what to do or where to turn for help.

Diabetes Québec’s health professionals have created this practical guide to help people with type 2 diabetes, especially when they have just been diagnosed. This guide contains some basic information about diabetes that we hope will help you talk in an informed way with the team of health professionals who will be involved in your care.

The Guide is available at Diabetes Québec and Universi-D (Diabetes Québec’s diabetes school), as well as in diabetes educational centres, family medicine groups (FMGs), CLSCs, hospitals and the large pharmacy chains.

We hope that our Practical Guide will help as many people who have to live with diabetes as possible.

Sylvie Lauzon, CEO, Diabetes Québec
Diabetes Québec would like to thank its partners who have made the production of this guide possible:

- Abbott
- Ascensia Diabetes Care
- AstraZeneca
- Bayer
- Dexcom
- Eli Lilly
- Janssen
- LifeScan
- Merck
- Novo Nordisk
- Roche Diabetes Care

This guide does not replace in any way the advice of a health professional.

It is intended to complement the care provided by your team of professionals, such as a nurse and a dietitian working at a diabetes educational centre.

These centres are located in specific family medicine groups (FMGs), CLSCs and hospitals.
After the diagnosis

You may feel many conflicting emotions after being diagnosed with type 2 diabetes: shock, fear, denial, confusion, indifference, etc. **All these emotions are perfectly normal.** They generally progress in various predictable and organized stages before you are able to adjust to this new reality.

Diabetes will force you to grieve—for the loss of your self-image, your body image and the way you think about your health. You will also need to make definitive changes to certain behaviours and learn to live with all the components of managing this disease.

These changes may seem like a daunting challenge. But as **someone living with diabetes, you have a great deal of power to alter the progression of your disease.**

You may also feel completely overwhelmed by all the information coming at you. This may make you feel helpless, incompetent, out of control and unable to take in and retain all this information. This can cause stress and anxiety.

**Give yourself time.** Your family or significant other can be of great help by lending an ear and offering support. Don’t hesitate to talk to a health professional, who can refer you to the support resources you need.
Section 1

Type 2 Diabetes
Type 2 Diabetes

Diabetes is a chronic disease that cannot be cured but can be controlled. It is characterized by higher than normal levels of sugar in the bloodstream.

Usually, blood sugar is maintained at normal values due primarily to the action of insulin. Insulin is a hormone produced by the pancreas. It acts like a key, allowing the sugar in the blood to enter the body’s cells to be used as a source of energy.

In type 2 diabetes, two phenomena are generally at work:

1. the body’s resistance to the action of insulin;
2. a reduction in the production of insulin.

Consequently, sugar accumulates in the bloodstream, which raises blood sugar above normal values.
What is the difference between type 1 and type 2 diabetes?

<table>
<thead>
<tr>
<th></th>
<th>Type 1 diabetes</th>
<th>Type 2 diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentages of diabetes diagnoses</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>When diagnosed</td>
<td>Usually in childhood, adolescence or early adulthood</td>
<td>Usually after 40 years of age</td>
</tr>
<tr>
<td>Phenomena</td>
<td>Destruction by the body’s immune system of the cells of the pancreas that produce insulin</td>
<td>Resistance of the body to the action of insulin and reduction in insulin production</td>
</tr>
<tr>
<td>Treatments</td>
<td>Insulin injections several times a day or insulin pump</td>
<td>Healthy lifestyle habits, oral or injectable medications, or insulin injections</td>
</tr>
<tr>
<td>Cause</td>
<td>Unknown</td>
<td>Multiple (e.g., genes, lifestyle)</td>
</tr>
<tr>
<td>Prevention possible in some cases</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
What increases the risk of developing type 2 diabetes?

— Being a male
— Being 40+ years of age
— Having a parent, brother, sister or child with type 2 diabetes
— Belonging to an ethnic group at high risk of developing diabetes (African, East, South or West Asian, Arab, Latin-American, Afro-Caribbean, Indigenous)
— Having had abnormally high blood sugar levels in the past (e.g., gestational diabetes when pregnant)
— Having given birth to a baby weighing more than 4.1 kg (9 lb.)
— Having high blood pressure
— Being overweight, especially with belly fat
— Doing less than 30 minutes of physical activity a day
— Not eating vegetables and fruit every day
How is type 2 diabetes diagnosed?

Type 2 diabetes is diagnosed using a laboratory blood test. Three different tests can be used:

1. **Fasting blood glucose (FPG):** This measures the blood sugar level after fasting for at least 8 hours. The data is expressed in mmol/L.

2. **Glycated hemoglobin (HbA1c or A1C):** This reflects the average blood sugar levels in the previous three months. This data is expressed as a percentage (e.g., 7%) or in decimals (e.g., 0.07).

3. **Oral glucose tolerance test (OGTT):** This measures the fasting blood sugar level, then measures it again two hours after a sugary liquid has been drunk.

If you have been diagnosed with type 2 diabetes, it is because one or more of these tests has returned higher than normal values.
Section 2

Complications
Complications

Habitually high blood sugar levels can cause **serious and irreversible complications**, primarily:

— **For the eyes** (retinopathy)

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

— **For the kidneys** (nephropathy)

Nephropathy can lead to dialysis, a treatment that replaces kidney function, or to a kidney transplant.

— **For the nerves** (neuropathy)

Neuropathy can cause numbness, pain or loss of sensation, especially in the legs and feet. One of the dangers is that you can injure yourself without being aware of it. The wound can then become infected, leading to gangrene and amputation. Neuropathy can also affect other organs and lead to sexual dysfunction and gastrointestinal problems, among others.
— **For the blood vessels** (calf pain when walking, gangrene, stroke, etc.)

— **For the heart** (angina, heart attack, etc.)

Diabetes causes the heart and blood vessels to age faster. It also contributes to the development of atherosclerosis, the accumulation of fat in the form of plaque in the arteries causing them to harden and narrow. Blood flow through damaged arteries is slowed down and may even be blocked. A clot can also detach from the plaque and block other blood vessels.

![Blood vessel without atherosclerosis](image1) ![Blood vessel with atherosclerosis](image2)

Having habitually high blood sugar levels is also associated with other health problems, such as *periodontitis*, *capsulitis* and *sleep apnea*, in addition to increasing the **risk of infections**.

For more information about the complications associated with diabetes, consult our various brochures:

![Brochure images](image3)

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.
Section 3

Blood Sugar Self-Monitoring
Blood Sugar Self-Monitoring

Following a diagnosis of type 2 diabetes, your doctor will prescribe a blood sugar meter, commonly known as a glucometer1. This is a small device that lets you measure your blood sugar levels yourself, at home.

There are different blood sugar meters on the market. Check with your team of health professionals or consult Diabetes Québec’s Répertoire des produits pour la gestion du diabète (in French only) to select the one that best meets your needs.

Why does blood sugar need to be measured?

By measuring your blood sugar, you can make sure you are managing your diabetes properly. The readings will help you understand the impact of your lifestyle on your blood sugar, as well as check the effect of your treatment and adjust it as necessary on the advice of your team of health professionals.

When does blood sugar need to be measured?

The timing and frequency of blood sugar measurements vary from person to person since this is determined by the type of diabetes, the prescribed treatment and the risk of a drop in blood sugar below target values. Your team of health professionals will advise you when to measure your blood sugar.

1. There are other devices to measure blood sugar, including the flash glucose monitoring system and continuous glucose monitors. Ask your team of health professionals to learn more about them.
What are the target values for blood sugar?

<table>
<thead>
<tr>
<th>Condition</th>
<th>Target Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting (on awakening or more than 4 hours after a meal)</td>
<td>Between 4.0 and 7.0 mmol/L</td>
</tr>
<tr>
<td>2 hours after the start of a meal</td>
<td>Between 5.0 and 10.0 mmol/L</td>
</tr>
</tbody>
</table>

Your doctor may give you different target values.

How to use a blood sugar meter?

1. Wash your hands with soap and water.
2. Insert a test strip into the opening of your blood sugar meter and close the test-strip container.
3. Insert a lancet into the lancing device.
4. Prick the side of the end of your finger with the lancing device.
5. Place the test strip in contact with the drop of blood that has formed.
6. Read the result. If required, write it down in a logbook and include any observations that help you better understand the result.
7. Discard the used test strip and lancet in a secure receptacle.
Section 4

High and Low Blood Sugar
High and Low Blood Sugar

High Blood Sugar

High blood sugar, also known as hyperglycemia, is characterized by a blood sugar level:

- Above 7.0 mmol/L, when fasting or more than four hours after a meal
- Above 10.0 mmol/L, two hours after the start of a meal

The symptoms most commonly associated with high blood sugar are the following:

- Intense Thirst
- Fatigue
- Extreme Hunger
- Frequent Urination
- Dizziness
- Irritability
- Involuntary Weight Loss
- Alteration of Vision
- Sudden Change in Mood
- Headaches
- Trembling
- Weakness
- Early Signs of Hypoglycemia

Some of these symptoms may have been present when you were diagnosed. They should disappear with the proper management of your blood sugar levels.

Blood sugar levels that are often high increase the long-term risk of developing diabetes-associated complications (see the section on complications on page 13).
What can raise your blood sugar:

- You have eaten a meal or snack that is higher in carbohydrates (sugars) than usual.
- You are less active than usual.
- You are experiencing physical stress (e.g., illness, surgery) or psychological stress (e.g., bereavement, new job).
- You are taking certain medications that can raise your blood sugar (e.g., cortisone).
- You have forgotten to take your medication or didn’t take the prescribed dose.
- Your treatment needs adjusting.

What should you do if you have high blood sugar?

- Drink water regularly to avoid becoming dehydrated.
- If possible, do a light physical activity, such as walking.
- Identify the cause and take appropriate action.

See a doctor immediately if one or more of these situations arise:

- Your blood sugar is above 25.0 mmol/L and you feel extremely drowsy.
- You are confused, agitated, hallucinating or behaving in uncharacteristic ways.
- You are not able to keep down any liquids or solid food.
- You are showing signs of dehydration, such as dry mouth, hollow eyes, loss of skin elasticity, etc.
- Your body temperature has stayed above 38.5°C for more than 48 hours.
Low Blood Sugar

Low blood sugar, also known as hypoglycemia, is characterized by a blood sugar level below 4.0 mmol/L.

The symptoms most commonly associated with low blood sugar are the following:

- Sudden mood swings
- Weakness
- Headache
- Dizziness
- Blurred vision
- Cravings
- Sweating
- Shaking

Not everyone with diabetes is at risk of low blood sugar. You are at risk, if you are being treated with insulin or with drugs that increase the production of insulin by the pancreas².

1. Gliclazide (Diamicron® and Diamicron® MR), Glimepiride (Amaryl®), Glyburide (DiaBeta®), Repaglinide (GlucoNorm®)
What can make your blood sugar drop?

— You have skipped or delayed a meal.
— You have eaten fewer carbohydrates (sugars) than usual.
— You have exercised intensely or for a prolonged period of time.
— You have been drinking alcohol on an empty stomach.
— You have taken a higher than prescribed dose of your medication.

What should you do if you have low blood sugar?

1. Take 15 g of rapidly absorbed carbohydrates (one of the following choices):
   — 4 tablets of Dex4®;
   — 15 ml (1 tablespoon) of corn syrup, honey or maple syrup;
   — 15 ml (1 tablespoon or 4 packets) of sugar dissolved in water;
   — 150 ml (⅔ cup) of a regular soft drink, fruit beverage or fruit juice;
   — 18 to 20 g of hard candy (e.g., 6 Life Savers®).

2. Rest for 15 minutes.

3. Measure your blood sugar again.
   — If the reading is below 4 mmol/L: treat again by following steps 1 to 3.
   — If the reading is 4 mmol/L or higher: if no meal or snack is planned within the next hour, eat a snack with 15 g of carbohydrates and a source of protein (e.g., 1 slice of bread with 1 oz. of cheese).
Section 5
Treatment
Treatment

It is important to remember that diabetes cannot be cured. Rather, the goal of treatment is to maintain blood sugar levels within target values to reduce the risk of developing complications, while minimizing the potential risk of low blood sugar.

The four pillars of type 2 diabetes treatment:

1. Diet
2. Exercise
3. Medication
4. Stress management

Healthy lifestyle habits are the basis for the treatment of type 2 diabetes. The recommendations are essentially the same as for the general population and will also help you improve your overall health.

Remember: type 2 diabetes is a disease that progresses over time. Therefore, it is possible that your treatment will need to be adjusted. This does not mean that you have failed in any way.
Section 6

Diet
Diet

Do people living with diabetes need to cut sugar from their diet?

No. People with diabetes should instead eat a healthy and balanced diet while monitoring the amount and quality of carbohydrates consumed and ensuring that they are properly distributed throughout the day.

Foods contain different types of carbohydrates:

— **SUGARS**: They give food a sweet taste. They can be found naturally, as in fruit and milk, or added, as in desserts, sugary drinks and certain processed foods. **Sugars make your blood sugar rise**.

— **STARCH**: It does not give foods a sweet taste. Starch is found in grain products (e.g., bread, pasta, rice, cereal), legumes (e.g., lentils, chickpeas, beans) and starchy vegetables (e.g., green peas, potatoes). **Starch makes your blood sugar rise**.

— **FIBRE**: It is found in whole grain products, fruit and vegetables, legumes, nuts and seeds. Fibre is not digested and therefore does not increase blood sugar. In fact, **fibre helps limit the increase in blood sugar after a meal**. You should choose foods that are high in fibre.
Here are some tips for healthy eating:

— Cook as often as possible with fresh and unprocessed ingredients.
— Eat a wide variety of foods.
— Take the time to savour what you are eating.
— Pay attention to your body’s signals so you know when you are truly hungry and when you are full.
— Choose water when you are thirsty.
— Eat three meals a day at regular mealtimes.
— If needed, have a nutritious snack to satisfy your hunger between meals or to prevent a drop in blood sugar, if applicable.
— The amount of carbohydrates that you need to eat each day depends on various factors. On average, most people with diabetes need:
  • 45 to 75 g of carbohydrates per meal;
  • 15 to 30 g of carbohydrates per snack, if required.
— Choose foods that are high in fibre: whole grain products, legumes, whole fruits and vegetables with their peel, nuts and seeds.
— Choose heart-healthy monounsaturated and polyunsaturated fats, such as olive oil, canola oil, nuts and seeds, fatty fish and avocados.

A dietitian can provide you with personalized advice and offer support as you begin to make changes to your dietary habits.
Let the balanced plate be your guide when you prepare your meals!

Half of your plate should be composed of vegetables.
Eat plenty of vegetables. Also, be sure to choose colourful vegetables and vary them. Don’t hesitate to choose frozen vegetables; they are just as nutritious as fresh vegetables.

A quarter of your plate should be composed of starches.
Starches include starchy vegetables (e.g., potatoes, green peas) and grain products (e.g., bread, pasta, rice, quinoa, barley). Among cereal products, choose whole grain ones.

A quarter of your plate should be composed of protein foods.
Make room for protein foods derived from plants (e.g., tofu, legumes) and fish. Choose milk and yogurt with 2% milk fat or less, and cheese with 20% milk fat or less. When eating meat, choose lean cuts and remove visible fat. Also remove the skin from poultry.

Fruits can be eaten as a dessert or as a snack.
Eat fruit whole with the peel on to maximize your fibre intake. Don’t hesitate to choose frozen fruits; they are just as nutritious as fresh fruit.
What does the diet of a person with diabetes look like?

Example of a daily meal plan providing 60 g of carbohydrates per meal

Breakfast

TOAST AND YOGURT

2 pieces whole wheat toast
30 g OF CARBOHYDRATES
30 ml (2 tablespoons) plain peanut butter
1/2 banana
15 g OF CARBOHYDRATES
125 ml (1/2 cup) of flavoured Greek yogurt
15 g OF CARBOHYDRATES
TOTAL CARBOHYDRATES: 60 g

Lunch

MEAL-SIZED SALAD

160 ml (1/3 cup) whole wheat couscous
30 g OF CARBOHYDRATES
125 ml (1/2 cup) chickpeas
15 g OF CARBOHYDRATES
60 ml (1/4 cup) slivered almonds
Various vegetables
Homemade salad dressing (olive oil and lemon juice)
1 small pear
15 g OF CARBOHYDRATES
TOTAL CARBOHYDRATES: 60 g

Supper

PASTA WITH MEAT SAUCE AND SALAD

160 ml (1/3 cup) whole wheat spaghetti
30 g OF CARBOHYDRATES
125 ml (1/2 cup) meat sauce
Garden salad
Homemade salad dressing (olive oil and balsamic vinegar)

250 ml (1 cup) milk
15 g OF CARBOHYDRATES
250 ml (1 cup) melon cubes
15 g OF CARBOHYDRATES
TOTAL CARBOHYDRATES: 60 g

Snack if needed

1 small homemade bran muffin
30 g OF CARBOHYDRATES
250 ml (1 cup) enriched unsweetened soy beverage

500 ml (2 cups) strawberries
15 g OF CARBOHYDRATES
125 ml (1/2 cup) cottage cheese
Example of a daily meal plan providing 45 g of carbohydrates per meal

**Breakfast**

**GARNISHED OATMEAL**
- 125 ml (½ cup) rolled oats
  - 30 g OF CARBOHYDRATES
- 250 ml (1 cup) enriched unsweetened soy beverage
- 1 orange
  - 15 g OF CARBOHYDRATES
- 30 ml (2 tablespoons) roasted pumpkin seeds

**TOTAL CARBOHYDRATES:** 45 g

**Lunch**

**CHICKEN SANDWICH WITH CRUDITÉS**
- 2 slices whole-wheat bread
  - 30 g OF CARBOHYDRATES
- Lettuce and tomato slices
- 60 g (2 oz.) grilled chicken
- Mayonnaise
- Crudités (vegetable sticks)
- Yogurt dip
- 15 red grapes
  - 15 g OF CARBOHYDRATES

**TOTAL CARBOHYDRATES:** 45 g

**Supper**

**SALMON, BROCCOLI AND QUINOA**
- 90 g (3 oz.) grilled salmon with mango
- 125 ml (½ cup) quinoa
  - 15 g OF CARBOHYDRATES
- Broccoli
- 125 ml (½ cup) flavoured yogurt
  - 15 g OF CARBOHYDRATES
- 250 ml (1 cup) blackberries
  - 15 g OF CARBOHYDRATES

**TOTAL CARBOHYDRATES:** 45 g

**Snack if needed**

- 1 apple
  - 15 g OF CARBOHYDRATES
- 30 g (1 oz.) cheese

- Carrots and cucumbers
- 75 mL (½ cup) hummus
  - 15 g OF CARBOHYDRATES
How to read the Nutrition Facts table

Reference serving size
This is not necessarily the recommended serving size for you. It is simply the serving size used to calculate the table’s values. Ask yourself if you eat the same amount. If not, do you eat more or less?

Carbohydrates
This amount includes all types of carbohydrates: starch, sugars and fibre.

<table>
<thead>
<tr>
<th>Valeur nutritive Nutrition Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>pour 1 tasse (250 mL)</td>
</tr>
<tr>
<td>Per 1 cup (250 mL)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calories 110</th>
</tr>
</thead>
<tbody>
<tr>
<td>% valeur quotidienne*</td>
</tr>
<tr>
<td>% Daily Value*</td>
</tr>
<tr>
<td>Lipides / Fat 0 g</td>
</tr>
<tr>
<td>saturés / Saturated 0 g</td>
</tr>
<tr>
<td>+ trans / Trans 0 g</td>
</tr>
</tbody>
</table>

| Glucides / Carbohydrate 26 g      |
| Fibres / Fibre 0 g                |
| Sucre / Sugars 22 g               |
| Protéines / Protein 2 g           |
| Cholestérol / Cholesterol 0 mg    |

| Sodium 0 mg                       |
| Potassium 450 mg                  |
| Calcium 30 mg                     |
| Fer / Iron 0 mg                   |

* 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 find out the amount of carbohydrates that will impact your blood sugar, subtract the fibre. E.g., 18 g carbohydrates – 2 g fibre = 16 g of carbohydrates having an effect on blood sugar

Sugars
The amount of sugars includes both added sugar and the sugars naturally present in the food, such as those in milk and fruit. To find the source of these sugars, you need to read the list of ingredients.
What do the percentages mean?

Percentages indicate the percentage of your daily needs that you get from the reference serving size. The percentages let you quickly see if a food contains a low or high amount of a nutrient. **Five percent (5%) or less is considered a little; 15% or more is considered a lot.**

Don’t forget to read the list of ingredients!

This list tells you precisely what a food contains. The ingredients are listed in descending order by weight. Thus, the first ingredient on the list is found in the greatest quantity. For example, when salt and sugar are the first two ingredients, this tells you that this product contains a large amount of both.

Opt for products with a short list of ingredients that you are familiar with.
Read these publications to help you adopt a healthy diet.

- **Recipe book**
  - 12 repas – 5 services
  - pour personnes diabétiques
  - et autres gourmets
  - Éditions Glénat
  - (in French only)

- **Recipe book**
  - Diabète – 125 recettes simples
  - et savoureuses pour toujours bien manger,
  - Pratico Édition
  - (in French only)

- **Brochure**
  - Meal Planning for People with Diabetes at a Glance,
  - MSSS

- **Brochure**
  - Snacks and diabetes,
  - Diabetes Québec

- **Brochure**
  - Your Pocket Guide to Dining Out,
  - Diabetes Québec

**What does a nutritious snack contain?**

- 15 to 30 g of carbohydrates
- Protein (e.g. eggs, milk, soy beverage, yogurt, low-fat cheese, legumes [beans and lentils], nuts, seeds, nut butters)

Opt for unprocessed foods containing fibre, with little or no added sugar.

Adding protein to your snacks helps to curb your hunger and stave off hypoglycemia for a longer period of time.

A low-carb snack might also be appropriate if you get hungry and your meal plan has no snack scheduled for that particular time.

Consult a nutritionist for personalized advice.

**True or false hunger?**

Learn to distinguish between true and false hunger by being aware of what really prompts you to eat.

Ask yourself:

- Do I want to eat out of habit or because I’m bored?
- Am I eating because I feel stressed or emotional?
- Do I want to give myself a treat?
- Is my appetite being stimulated by an outside source (the sight or smell of food, being offered food by colleagues, etc.)?
- Does my stomach feel hollow or is it rumbling?
- Has my energy or concentration dropped?

If you answered “yes” to either or both of the last two questions, you were experiencing true hunger. Ask yourself what kind of nutritious snack you’d like to have, and then enjoy it.

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Questions about diabetes?

InfoDiabetes Service

514-259-3422

1-800-361-3504

infodiabete@diabete.qc.ca

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Diabetes School

Resources

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Resources
Section 7

Exercise
Exercise

Being physically active has many health benefits:

— Better blood sugar management
— Better weight management
— Reduced risk of osteoporosis, arthritis, cardiovascular diseases and neuropathy
— Reduced stress
— Increased self-esteem, a sensation of well-being and better quality of life
— Improved sleep quality
— More energy and better fitness

Check with your doctor before starting an exercise program.
It is recommended that you do **two and a half hours of aerobic exercise per week**, spread over at least three days, without being inactive for more than two days in a row.

It is also recommended that you add **minimum two strength exercise sessions per week**.

### Following these recommendations

These recommendations may seem ambitious. **Start slowly and gradually increase, going at your own pace.** For example, you could start with 10 minutes of physical activity a day, five days a week, then increase by 5 minutes every week until you reach 30 minutes.

Look for every opportunity to get moving. **Remember: every effort counts! Here are some examples:**

- Walk or bike to work or when running errands.
- Take the stairs instead of the elevator.
- Get off the bus or metro one or two stops before your destination.
- Park your car a few streets away from your workplace and walk the rest of the way.
- Do strength exercises while watching your favourite TV programs.
- Dance to upbeat music while doing your daily chores.
- Play with your children or grandchildren in the park.

For simple muscular strength exercise routines you can do at home, consult our brochures *Get Fit at Home 1* and *2.*

A kinesiologist can give you personalized advice and support you in your journey to increase your level of physical activity.
Section 8

Medication
Medication

Diabetes medication may be prescribed if adopting healthy lifestyle habits fails to maintain your blood sugar within the target values. You may also be prescribed medication right away if your blood sugar is very high at the time of diagnosis. It is important to note that medication is not a substitute for a healthy lifestyle, but a complement to it.

What are the different types of medication?

Diabetes medications are known as antidiabetic drugs and are intended to lower blood sugar levels. There are different classes of antidiabetic drugs, each with its own method of acting. Some drugs combine several classes. They can be oral (i.e., taken by mouth in tablet form) or injectable.
**Method of acting for all classes of antihyperglycemic drugs**

### Biguanides
Metformin (Glucophage®, Glumetza®)
- **Reduce the amount of sugar produced by the liver**
- **Increase the sensitivity of the body’s cells to insulin**

### SGLT2 inhibitors
Canagliflozin (Invokana®)
Empagliflozin (Jardiance®)
Ertugliflozin (Steglatro®)
Dapagliflozin (Forxiga®)
- **Help eliminate sugar in the urine**

### GLP-1 agonists
Injectable drugs
- Liraglutide (Victoza®)
- Lixisenatide (Adlyxin®)
- Exenatide (Byetta®)
- Exenatide extended release (Bydureon®)
- Dulaglutide (Trulicity®)
- Semaglutide (Ozempic®)
- **Slow digestion in the stomach**
- **Reduce appetite**
- **Imitate certain intestinal hormones (incretins) that act when blood sugar is high: stimulate insulin secretion and reduce glucagon production by the pancreas**

### DPP-4 inhibitors
Linagliptin (Trajenta®), Saxagliptin (Onglyza®), Sitagliptin (Januvia®), Alogliptin (Nesina®)
- **Increase the effect of certain intestinal hormones (incretins), which act when blood sugar rises after a meal: stimulate insulin secretion and reduce glucagon production by the pancreas**

### Alpha-glucosidase inhibitors
Acarbose (Glucobay®)
- **Slow the absorption of certain carbohydrates (sugars) in the intestines**

### Insulin secretagogues
Drugs that increase the risk of hypoglycemia.
- Gliclazide (Diamicron®)
- Gliclazide (Diamicron® MR)
- Glimepiride (Amaryl®)
- Glyburide (DiaBeta®)
- Repaglinide (Glucotrol®)
- **Stimulate the production of insulin by the pancreas**
What you should know if you are taking a diabetes medication:

— It may take **some time for the medication to take full effect**. It may also take some time to find the right dose or combination of drugs that will help you reach and maintain your blood sugar targets.

— It may be necessary to **test your blood sugar more often** after starting a new medication to determine its impact on the management of your blood sugar.

— Often, by the time your diabetes is diagnosed, it has been present for several years. As a result, your body may have become used to high blood sugar levels and **symptoms may appear when blood sugar levels return to normal**. This is known as “false hypoglycemia.” This phenomenon is not dangerous. You need to let your body get used to these new blood sugar levels.

— All diabetes medications are approved by Health Canada. However, some might **cause side effects**. Often, these side effects go away over time. If they persist or affect your quality of life, discuss them with your doctor or pharmacist.

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It is essential to take your medication as prescribed and discuss any adjustments in advance with your doctor or pharmacist.
— Not all drugs cause a risk of low blood sugar. If you are at risk, you need to be proactive! Be sure to:
  • always have on hand nutritious snacks and quickly absorbed sources of sugar;
  • quickly treat low blood sugar;
  • identify the cause of any drops in blood sugar;
  • take the necessary measures to avoid a repeat occurrence (see the section on low blood sugar on page 25).

— Your doctor may also prescribe medication to prevent other health problems (e.g., high blood pressure, high cholesterol).

I am afraid to take insulin!

Insulin injections can seem intimidating. You should know that insulin is rarely prescribed when type 2 diabetes is first diagnosed. Adopting a healthy lifestyle, with or without antidiabetic drugs, is the usual treatment plan. However, since diabetes is a disease that progresses, you may be prescribed insulin later. This does not mean that your diabetes is more “serious” or that you have failed. Insulin is just another treatment option to help keep your blood sugar within target values.
Section 9
Stress Management
Stress Management

Stress can affect you both physically and psychologically.

Here are some examples of situations that cause physical stress:

— Surgery or hospitalization
— An infection (e.g., a cold, gastrointestinal infection)
— Chronic or episodic pain

Here are some examples of situations that cause psychological stress (they can be positive or negative):

— Bereavement
— Losing a job or starting a new job
— Marriage

When you experience stress, you might feel these effects:

— Your heart beats faster
— You sleep poorly
— You are more irritable
— You smoke or drink more than usual, if applicable
Can stress impact blood sugar?

Yes. Anything that upsets your normal balance is considered a threat by your body. It will react by producing stress hormones (adrenalin, cortisol). These hormones cause an increase in blood sugar levels by prompting the liver to produce sugar in order to provide energy to the cells.

How to manage stress?

— Take a few deep breaths.
— Talk to a close friend or loved one about what you are experiencing and feeling.
— Relax by doing something you enjoy: reading a book, watching a movie, listening to music, etc.
— Do some form of exercise.
— Write down what causes you stress, as well as the advice you would give to someone experiencing the same thing as you.

Consult a professional (psychologist, social worker) if the stress persists and negatively affects your quality of life.
Section 10
Your Personal Goals
Your Personal Goals

The four pillars of diabetes treatment (diet, exercise, medication and stress management) require making changes to your lifestyle. However, it is impossible to change everything at once. Set yourself one goal at a time. To ensure success, this goal must be **realistic, precise, measurable and time-limited**. Start with the easiest goal to achieve. You can also ask your team of healthcare professionals for advice.

Ask yourself the following questions:

1. What are my reasons for wanting to achieve this goal?
2. What actions do I need to take to achieve my goal?
3. What difficulties could become an obstacle to achieving my goal and how can I overcome them?
Here are two examples of personal goals:

1. **Starting next Monday, I am going to walk for 15 minutes after lunch at least 3 times a week.**
   
   1. I want to achieve this goal because I understand that exercise will help me better manage my blood sugar levels and promote feelings of well-being.
   
   2. I am going to ask my neighbour to join me, and we will plan our walking days at the beginning of each week.
   
   3. On bad-weather days or when my neighbour is not available, I will do an exercise routine for 15 minutes at home on my own.

2. **Starting today, I will take my medication every day as prescribed by my doctor.**
   
   1. I want to achieve this goal because I understand that taking medication is essential for my health.
   
   2. Every Sunday evening, I will prepare my pillbox for the week.
   
   3. So that I don’t forget to take my medication, I will leave my pillbox in full view on the kitchen counter.

**My goal:**

1. The reasons why I want to achieve this goal:

2. The actions I am going to take to achieve my goal:

3. The difficulties that could become an obstacle to achieving my goal and how I can overcome them:
Section 11

Follow-Up Tests
Follow-Up Tests

In order to assess the management of your diabetes and to decide if any adjustments to your treatment are necessary, you will need to have regular blood tests. Your fasting blood glucose, which is your blood sugar level after an 8-hour fast, or your glycated hemoglobin (HbA1c or A1C) or both will be measured. Glycated hemoglobin reflects your average blood sugar levels over the preceding two or three months.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Target values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting blood glucose</td>
<td>Between 4.0 and 7.0 mmol/L</td>
</tr>
<tr>
<td>Glycated hemoglobin</td>
<td>7% or less</td>
</tr>
</tbody>
</table>

Your doctor will also assess your cardiovascular health. To do this, a blood test will measure the LDL cholesterol (“bad” cholesterol) level in your blood, and your blood pressure will be taken during medical appointments.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Target values</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDL cholesterol</td>
<td>2.0 mmol/L or less</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>130/80 mm Hg or lower</td>
</tr>
</tbody>
</table>
Other tests must also be done annually to detect the presence of complications associated with diabetes:

- Damage to the nerves (neuropathy) and feet: monofilament test and a foot exam by a doctor, podiatrist or footcare nurse
- Kidney damage (nephropathy): urinalysis and blood test
- Eye damage (retinopathy): an exam of the back of the eye by an optometrist
- Gum disease (parodontitis): an examination of the mouth and teeth by a dental hygienist or a dentist

Your doctor may give you these tests more frequently or may recommend additional tests as needed.
Resources

For reliable information about diabetes
— Diabetes Québec: diabete.qc.ca/en
  514-259-3422 | 1-800-361-3504

For answers to your questions about diabetes
— Diabetes Québec’s InfoDiabète Service:
  514-259-3422 | 1-800-361-3504 or infodiabete@diabete.qc.ca

For diabetes training in person or online
— Universi-D: universi-d.com
  514-259-3422 | 1-800-361-3504

To arrange an appointment with a dietitian
— Public sector referral (free of charge)
  Contact your FMG, CLSC or the diabetes educational centre in your region
— Private sector (charges apply)
  Ordre professionnel des diététistes du Québec: opdq.org
  514-393-3733 | 1-888-393-8528

To arrange an appointment with a footcare professional (charges apply)
— Ordre des podiatres du Québec: ordredespodiatres.qc.ca
  514-288-0019 | 1-888-514-7433
— Association des infirmières et infirmiers en soins podologiques du Québec (AIISPQ): aiispq.org 1-800-771-9664

To arrange an appointment with a psychologist (charges apply)
— Ordre des psychologues: ordrepsy.qc.ca
  514-738-1223 | 1-800-561-1223

To arrange an appointment with a kinesiologist (charges may apply)
— Fédération des kinésiologues du Québec: kinesiologue.com/en
  514-343-2471

To stop smoking
— I Quit Now: tobaccofreequebec.ca/iquitnow
  Telephone support: 1-866-527-7383
— Quit to Win! Challenge: quitchallenge.ca

Other resources
— Ordre des optométristes du Québec: ooq.org
— Québec Association of Chronic Pain: douleurchronique.org
— Centre for Studies on Human Stress (CSHS): humanstress.ca
— The Kidney Foundation of Canada: kidney.ca
— Heart and Stroke Foundation of Canada: heartandstroke.ca
— Ordre des dentistes du Québec: 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

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RGP-20
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Please make the cheque out to Diabète Québec.
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.

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- Self-study courses
- Video courses

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

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