

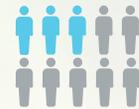


Type 2 diabetes: Taking action!

Prevention and treatment



10% OF CANADIANS
HAVE DIABETES



3 OUT OF 10 DIABETICS
DO NOT KNOW
THEY HAVE THE DISEASE

ABOUT 90% OF DIABETICS HAVE **TYPE 2 DIABETES**

Type 2 diabetes is partially genetic, but it's also closely linked to lifestyle.

You can live with the disease for years without showing any symptoms. **This is why screening is recommended.** Diabetes that goes untreated and is not controlled can cause major damage to your health.

The good news is that this disease can be prevented and, if you have diabetes, you can reduce the impact.

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IN COLLABORATION WITH:



AND THE SUPPORT OF:



- Québec College of Family Physicians
- Fédération des médecins omnipraticiens du Québec
- Fédération des médecins spécialistes du Québec
- Association des médecins endocrinologues du Québec

- Ordre des infirmières et infirmiers du Québec
- Ordre des pharmaciens du Québec
- Ordre professionnel des diététistes du Québec

Understanding **type 2 diabetes**

Diabetes is when you have abnormally high blood glucose levels.

Glucose is a type of sugar that gives your cells energy. To enter the cells, glucose needs insulin, a hormone produced by the pancreas.

For people who have type 2 diabetes, **either the pancreas does not produce enough insulin or the insulin is not working properly.** The glucose has difficulty being absorbed by the cells and builds up in the blood. This can eventually lead to a **variety of complications** that cause damage to the kidneys, eyes, heart, and nerves.



How do you know if you have type 2 diabetes?

There are two types of blood tests used to diagnose diabetes.

- A **blood glucose test** measures the amount of glucose in your blood. You can either have the test done after fasting or two hours after having a drink containing a specific amount of sugar.
- A **glycated hemoglobin test** (or A1C test) measures your average blood glucose for the past three months.

Sometimes more than one test is needed to confirm the diagnosis.

Test results used to diagnose prediabetes or diabetes

	PREDIABETES	DIABETES
Fasting Plasma Glucose (FPG) (mmol/L)	6.1 to 6.9	7.0 or higher
Oral Glucose Tolerance Test (OGTT) (mmol/L)	7.8 to 11.0	11.1 or higher
Glycated Hemoglobin (A1C)	6.0 to 6.4%	6.5% or higher

Reference: Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada.

What are the symptoms?

- Fatigue, drowsiness
- Frequent and increased urination
- Extreme thirst
- Excessive hunger
- Blurred vision
- Inexplicable weight loss
- Genital and bladder infections
- Irritability

A person who has type 2 diabetes may not show any symptoms. **To see if you are at risk, take a close look at the risk factors on the opposite page.**

Prediabetes: a warning sign

People with prediabetes are at greater risk of developing type 2 diabetes. The good news is that by changing their lifestyle and, if necessary, taking medication, people who are prediabetic can slow down or prevent the onset of diabetes.



Assessing your risk factors

If you have any of the risk factors for type 2 diabetes, **you should speak with a healthcare professional.** The more risk factors you have, the more important it is that you schedule an appointment soon for a more thorough evaluation of your case. **It may be recommended that you have a blood test.**

Take the test

This questionnaire is mainly intended for adults aged 40 to 74 years.

Check the type 2 diabetes risk factors that describe you.

- I am a **man**.
- I am **45 years old or older**.
- I have had **high blood sugar** during an illness or pregnancy.
- I have **given birth to a baby weighing 9 lb. (4.1 kg) or more**.
- One of my **blood relatives** (father, mother, brother, sister, child) has been diagnosed with diabetes.
- My **biological father** or **mother** is of Asian, Aboriginal, Latin American, or African descent.
- I have been diagnosed with **high blood pressure** OR I have already taken high blood pressure pills or I am currently taking some.
- I am **overweight** (see 1).
- My **waist circumference** measures over 94 cm (37 in.) if I'm a man OR over 80 cm (32 in.) if I'm a woman (see 2).
- I usually do less than 30 minutes of **physical activity** a day (including activities at work or home).
- I don't eat **vegetables** and **fruit** every day.
- I didn't go to **college** or **university**.

Adapted from: The Canadian Diabetes Risk Questionnaire (CANRISK), Public Health Agency of Canada, 2011.

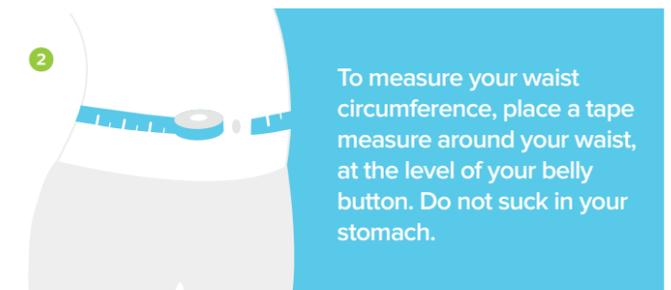
For more information on your level of risk, visit www.diabete.qc.ca.

1 Find your height in the table below.

A person is generally considered overweight when their weight is equal to or greater than the weight indicated in the column on the right.

HEIGHT		WEIGHT*	
1.45 m	4'9"	53 kg	117 lb.
1.48 m	4'10"	55 kg	121 lb.
1.50 m	4'11"	56 kg	123 lb.
1.52 m	5'0"	58 kg	128 lb.
1.55 m	5'1"	60 kg	132 lb.
1.58 m	5'2"	62 kg	137 lb.
1.60 m	5'3"	64 kg	141 lb.
1.62 m	5'4"	66 kg	146 lb.
1.65 m	5'5"	68 kg	150 lb.
1.68 m	5'6"	71 kg	156 lb.
1.70 m	5'7"	72 kg	159 lb.
1.72 m	5'8"	74 kg	163 lb.
1.75 m	5'9"	77 kg	170 lb.
1.77 m	5'10"	78 kg	172 lb.
1.80 m	5'11"	81 kg	179 lb.
1.83 m	6'0"	84 kg	185 lb.
1.85 m	6'1"	86 kg	190 lb.
1.88 m	6'2"	88 kg	194 lb.
1.90 m	6'3"	90 kg	198 lb.
1.93 m	6'4"	93 kg	205 lb.

* Equals a body mass index of 25 (BMI = kg/m²)



Adopting a *healthy lifestyle*

Four lifestyle habits can help you prevent and control type 2 diabetes, as well as many other diseases.

These lifestyle habits are key to managing diabetes. They will help you manage your blood glucose and prevent complications. In the case of prediabetes, they may slow down or even prevent the onset of diabetes. As an added bonus, these habits will help you feel better and give you more energy.

-  **Eating well**
-  **Staying active**
-  **Managing your weight**
-  **Dealing with stress**

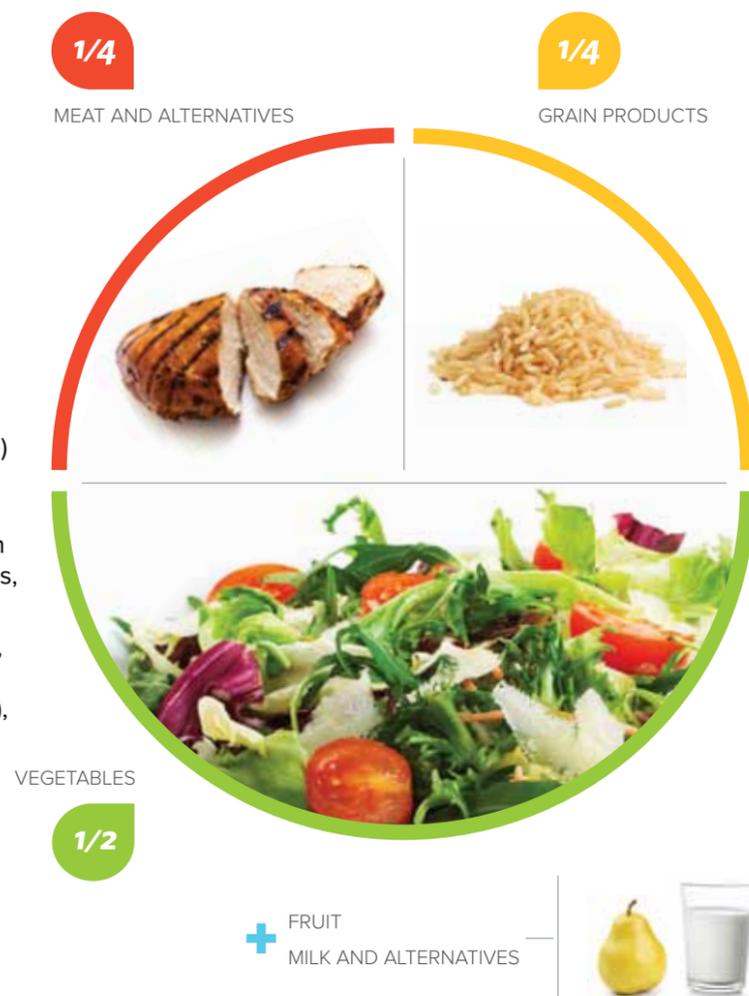
Eating well

The recommended diet for people with diabetes or prediabetes is similar to that of the general public. Basically, they need to eat three healthy, balanced meals every day—with snacks if necessary. They also need to pay special attention to carbohydrates.

What makes up a balanced meal?

For **lunch and dinner**, aim for a balanced plate.

- Fill half of your plate with **vegetables** (raw or cooked) as a side dish or mixed into the main dish.
- Fill a quarter of your plate with foods that are high in protein (**meat and alternatives**), such as poultry, lean meat, fish, seafood, legumes (for example, chick peas, beans, lentils), eggs, and tofu.
- Fill the last quarter of your plate with **grain products**, preferably whole grains, (for example, bread, whole-wheat pasta or couscous, brown rice, quinoa, barley), or other **starchy foods** (for example, potatoes, sweet potatoes, corn).
- + To complete your balanced plate, add a serving of **fruit** and a serving of **milk** (or an alternative, such as a fortified soy beverage or yogurt) to your meal or enjoy them later, as a snack.



For breakfast, make sure you get a serving of fruit, whole-grain products, and protein (eggs, egg whites, nut or peanut butter, meat, milk products, fortified soy beverage, etc.).

Try these two ideas to mix things up:

- Top your oatmeal and milk with diced apple and crumbled nuts.
- Whip up a smoothie made with berries, yogurt, and silken tofu, and have it with a homemade muffin.

About carbohydrates (carbs)

Most foods (except meat and fats) contain carbs. During digestion, carbs are transformed into glucose—the type of sugar that gives your body energy. That’s why a balanced meal must include foods that have carbs. All the same, these foods affect your blood glucose level. That’s why it’s important, if you have diabetes, to **watch how much you eat** and **make healthy choices**.

Healthy high-carb foods

Whole-grain products, potatoes, legumes, milk, yogurt, and fruit.

Less healthy high-carb foods

White sugar, brown sugar, honey, maple syrup, and all foods with added sugar (cookies, candy, jams, chocolate, etc.).

It’s important that your diet includes enough carbs. As for those foods with little nutritional value, you don’t have to give them up completely, just limit how much and how often you eat them.

What can I drink?

Water is the No. 1 choice when it comes to drinks. You can try flavouring your water with a squeeze of lemon or lime. Herbal teas are another enjoyable way to add flavour to water.

Avoid soft drinks and other **sugary beverages**. Even fruit juice with no sugar added is naturally high in sugar. Try fresh fruit instead—the fibre in fruit makes them less likely to make your blood glucose levels spike.

Alcohol also affects your blood glucose levels. If you drink alcohol, it is recommended that you not do so on an empty stomach, that you do not drink every day, and that you limit your alcohol intake to the amount agreed on with your doctor or another member of your health-care team.

Eating at regular hours

If you have diabetes, you should eat three meals a day at regular times, every 4 to 6 hours. This allows your body to ingest the food over the course of the day and better control your blood glucose levels.

If you’re hungry between meals, choose a healthy snack, such as fruit with a slice of cheese or raw veggies and plain almonds. This will help curb your appetite.

Get cooking!

By cooking at home as much as possible, you can make sure you’re eating well, and you can monitor the quality and quantity of your ingredients. Plus, home-cooked meals often taste better!

- Make snacks and desserts that contain little or no added sugar, such as muffins, cereal bars, cookies, and blanchmange.
- Use good fats, like olive or canola oil, in small quantities.
- Limit your salt (sodium) intake and eliminate store-bought foods that are high in salt. If you buy canned or packaged foods (stock, vegetables, fish), look for products that have no or reduced salt.



If you have diabetes, it is recommended that you meet with a dietitian to get personalized tips and learn how to read food labels and count carbohydrates.

Staying active

A lack of physical activity is partially responsible for the increase in cases of type 2 diabetes. It doesn't have to stay that way—**8 out of 10 people say they'd like to be more active**. It's just a matter of actually doing it!

Reaping the benefits

Regular moderate-intensity physical activity plays a major role in preventing and treating type 2 diabetes. Exercise can help you control your weight, but even if you don't lose weight, there are many other benefits:

- Lowering your blood glucose
- Relieving stress
- Reducing your risk for heart disease
- Delaying the need for medication, in some cases

If you haven't been active for a while, it's important to talk to your doctor before starting an exercise program that's more intense than walking briskly.

Getting active—your way!

"I tried jogging, but since I'm more than 40 lb. overweight, it was tough. So I changed activities. Now I go to the pool three times a week. I also changed my eating habits. My pants aren't as tight, I sleep better at night, and I feel healthier!"

Patricia, age 41

"I enjoy walking when I have somewhere to go. Since most shops are only a 20-minute walk away, I try to have at least one errand to run every day. It could be going to the fruit stand, grocery store, drug store, or bank."

Mario, age 62

Physical activity every single day

If you're just starting out, increase your activity gradually and go at your own pace. Choose activities that you enjoy and that work with your schedule.

Aim for at least **150 minutes of moderate-intensity aerobic exercise every week**. This works out to about 30 minutes almost every day, which can be broken down into smaller sessions of 10 or 15 minutes.

Walking, swimming, skating, and playing badminton are all examples of aerobic sports, in other words, activities that increase your heart rate.

You should also do resistance training—like lifting weights, using resistance bands, or doing push-ups and sit-ups—at least twice a week to build strong muscles.



Managing your weight

Eight out of 10 people with type 2 diabetes are overweight, so it's easy to understand why you should manage your weight. **Excess weight prevents insulin from doing its job**, especially when the fat is around the tummy area. Luckily, losing weight gradually, even just a few pounds (5% to 10% of the initial weight), can help lower the amount of sugar in your blood and keep you slimmer around the waist.

Understanding how someone becomes overweight

Your lifestyle, emotions, stress, financial situation, and social environment (family, friends, work, neighbourhood) are just some of the factors that can affect your weight.

If you need to shed a few pounds, understanding why you're overweight in the first place will help you find strategies that work for you. A dietitian, a kinesiologist and a psychologist can help you achieve your goals.

Managing your weight is possible!

- Eating well and exercising are two key steps to weight control.
- Miracle and starvation diets may promise quick results, but they usually don't keep their promises in the long run. They can even cause physical and psychological damage.
- Listening to your body will help you know when you're **truly hungry**, like when your stomach contracts or your energy level drops. This is when you should actually start eating, not just when you **get a craving**, which could cause you to eat even though your body doesn't really need food.
- At meals, eat slowly so you have time to feel when you've eaten enough. Stop eating when you're no longer hungry, even if you haven't finished your plate.

8 out of 10 people

WITH TYPE 2 DIABETES ARE OVERWEIGHT



Did you know?

Some studies show that not getting enough sleep can contribute, for a variety of reasons, to weight gain.





Dealing with stress

Stress releases hormones that can have a number of effects on your body, such as increasing your heart rate, blood pressure, and sometimes even your blood glucose level. That's why it's important to know how to manage stress.

Recognizing stress

New, unforeseen, uncontrollable, and threatening situations are four types of situations that can cause stress.

If you are dealing with stress, try these solutions:

- Change the situation, if possible.
- Change your way of seeing and reacting to the situation.
- Avoid the situation.

Knowing yourself

We are often the cause of our own stress! Regardless of your age, changing how you think and react can help improve your well-being. Ask yourself the following questions to see which aspects you need to work on to better manage your stress.

- Do you see and react to things in an objective and realistic way?
- Do you listen to your needs? Are you able to communicate clearly and easily with those around you?
- Are you able to accept your mistakes and imperfections and those of others?
- Do you have a good support system and friends?
- Do you allow yourself time to relax?

Living with diabetes

Learning that you have diabetes can be a huge source of stress. It's a disease that cannot be cured and which requires lifelong treatment. Having to modify your lifestyle affects your day-to-day life. Since it's not a situation you chose, you may feel like you have lost control over your life. The symptoms and complications can be scary.

- **By learning more about the disease and taking an active role in your treatment, you can regain more control over your life** and feel less threatened by the situation.
- **Make time to learn about living with diabetes.** Don't try to change your habits overnight. Take it one step at a time.
- **Don't hesitate to ask for help** when things get tough. Your doctor, nurse, dietitian, kinesiologist, pharmacist, psychologist, and other healthcare professionals are there to help you cope with diabetes. Lean on your **family** and **friends** for support.

If you feel sad, discouraged, angry, or anxious for several weeks, you may be depressed. Consult a healthcare professional. The right treatment will help you see the light at the end of the tunnel.



Managing your *diabetes*

-  Testing your blood glucose
-  Taking your prescribed medicine
-  Preventing and treating complications

Testing your blood glucose

Ask your doctor or another professional from your healthcare team if you need to test your blood glucose yourself. If they say yes, they will also tell you how often you should do so. To check your blood glucose, you can use a blood glucose meter to test a drop of blood taken from the tip of your finger.

Keep a log of your results, noting the date, time you took the test, and any changes (food, physical exercise, stress, missed medication, etc.) that could have affected your levels. This will help you see what has an impact on your glucose levels and let you act accordingly. It will also help you and your healthcare team see if your treatment is working and make adjustments where necessary.

Target range for most diabetics:

- Blood glucose before meals: **4 to 7 mmol/L**
- Blood glucose 2 hours after meals: **5 to 10 mmol/L**
- A1C: **equal to or under 7%**

Depending on your condition, your doctor may set different target ranges for you.

Hyperglycemia and hypoglycemia

Hyperglycemia is when **the amount of glucose in your blood is higher than the target range**. When this happens, try to determine the cause and follow the advice of your healthcare team. If it's a regular occurrence, your diabetes is probably poorly controlled and it would be wise to consult with your doctor. If untreated, hyperglycemia can lead to serious complications.

Hypoglycemia is when **the amount of glucose in your blood is lower than 4 mmol/L**. Diabetics receiving treatment with certain medications or insulin are more at risk of experiencing episodes of hypoglycemia. Ask your doctor or pharmacist if this applies to you.

Hypoglycemia can arise, for instance, when you eat less or are more active than usual, if you have consumed alcohol, if you have taken the wrong amount of medication, or if your medication needs to be adjusted due to weight loss.

Hypoglycemia can happen quickly and lead to unconsciousness if not treated right away. That's why it's important to always have a glucagon kit on you to treat hypoglycemia.

What should you do if you experience hypoglycemia?

- 1 Check your blood glucose immediately** if you experience any of the following symptoms:
 - Shakiness
 - Weakness, fatigue
 - Sweating
 - Hunger or nausea
 - Rapid heartbeat
 - Dizziness
 - Anxiety, irritability, anger
 - Blurred vision
 - Trouble concentrating, impaired judgment, confusion
- 2 If your blood glucose is under 4 mmol/L**, consume one of the following sources of sugar immediately:
 - Glucose tablets (follow the instructions on the package)
 - 3 packets of sugar (15 mL/1 tbsp.) diluted in water
 - 175 mL (3/4 cup) fruit drink, fruit juice, or regular soda
 - 15 mL (1 tbsp.) honey or maple syrup
- 3 Wait 15 minutes and then test your blood glucose again.** If it's still under 4 mmol/L, repeat step 2.
- 4 If your blood glucose is equal to or higher than 4 mmol/L**, and your next meal is more than an hour away, eat a small snack that includes carbohydrates and proteins. For instance, 7 soda crackers with 30 g (1 oz.) of cheese.

Taking your prescribed medicine

Diabetes changes over time. Sometimes changing your lifestyle is not enough to keep your blood glucose levels in the target range. In this case, your doctor may also add medication to your treatment.



Antihyperglycemic medications

There are several classes of medication for diabetes, each one acting in a different way. Some drugs stimulate the release of insulin, while others make insulin more effective. Different classes of medication are often used together to make the treatment more effective.

Some drugs may cause hypoglycemia. Check if this is the case for the drugs you are taking. **If you experience episodes of hypoglycemia, treat them as described on page 9, and have your medication adjusted if necessary**

It's completely normal that your medication will need some adjusting at different times in your life.

Insulin

Insulin is used when other medications are not effectively managing your blood glucose. Some people start on insulin at the onset of diabetes. Every person is different and so is the treatment they require.

Training by a qualified healthcare professional is required to learn how to properly use a syringe, insulin pen, or any other injection device and to adjust the doses.

A few tips

If you have to take medication, make sure you respect the prescribed dosage and follow all recommendations made by the professionals treating you. If you have questions, feel free to ask. And if you're worried or experiencing side effects, talk about it.

Non-prescription drugs and natural products

Some non-prescription drugs or natural health products can affect your blood glucose levels or have adverse reactions with your medications.

Read the label to see if the products that you plan to take have any contraindications that concern you (diabetes or high blood pressure, for example).

Before trying a new product, speak to your pharmacist or doctor first. If you decide to use them, check your blood glucose levels more often so you can monitor their effects.



Preventing and treating complications

Serious consequences

Having high levels of glucose in the blood over an extended period of time can lead to the following complications:

- **Damaged blood vessels.** Damage to the smaller blood vessels can affect the eyes (retinopathy) and the kidneys (nephropathy). Damage to the larger blood vessels can lead to heart disease (and eventually a heart attack), stroke, or even the amputation of lower extremities.
- **Nerve damage** (neuropathy), especially those responsible for the feeling in your feet.
- Increased risk for **infection** of all kinds.

Follow these tips to avoid complications:

- **Managing your blood glucose** is vital. That's why it's important that you lead a healthy lifestyle, take the medication that has been prescribed to you, and check your blood glucose on a regular basis.
- Get your **blood pressure** checked at each medical examination.
- Have your **cholesterol** and **triglyceride** levels checked every year or as indicated by your healthcare team.
- If you are prescribed **medication**, be sure to take it as recommended.
- Have your **eyes examined** regularly and schedule **checkups at the dentist** as recommended by your healthcare team.

Diabetes and sexual health

Hyperglycemia over an extended period of time can lead to vaginal infections (vaginitis) or infections of the penis (balanitis) and erectile dysfunction. If you experience any of these complications, speak to your doctor.

Caring for your feet

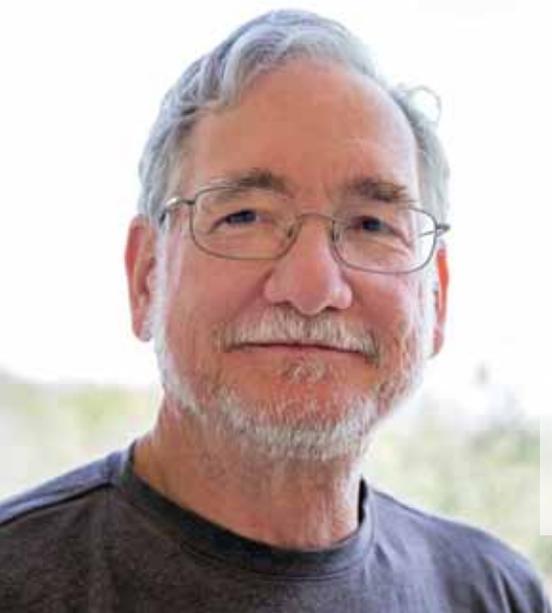
Pay special attention to your feet. If you have reduced sensation in your feet, you might not notice if you have a wound or infection.

- Examine your feet daily for wounds or other problems.
- Watch out for burns and frostbite. Reduced sensation makes it easy to burn your feet in an overly hot bath or get frostbite on your toes in the winter.
- Don't remove corns or warts by yourself. Consult a foot care nurse, podiatrist, or your doctor.
- Avoid walking barefoot.
- Ask your healthcare team to recommend appropriate socks and shoes.

Quit smoking and breathe easy!

Smoking can cause so many problems, including damage to your heart and blood vessels. People who have diabetes or prediabetes and smoke have an increased risk for complications.

If you smoke, butting out is certainly the best thing you can do for your health. Even if it takes several tries, you can quit. Be sure to ask for help.



“My doctor often told me I needed to lose weight but, after two weeks of intense workouts and a strict diet, I gave up. Learning that I had prediabetes was like a kick in the pants! I decided to talk to a dietitian. She suggested I start by **adding foods** to my diet rather than trying to eliminate foods. I learned to enjoy vegetables and realized that when I ate whole grains, I ate more reasonable servings. Rather than forcing myself to go to the gym, I started walking. By adopting a more realistic strategy, I’ve been able to stick to it for more than a year. My blood glucose levels have dropped, and I feel a lot better!”

Thomas, age 65

I have a plan!

To prevent or manage type 2 diabetes:

- I'll eat well.
- I'll exercise every day.
- I'll watch my weight.
- I'll make sure to keep my stress levels down.
- I won't smoke or I'll try to quit.

Also, if I have diabetes:

- I'll check my blood glucose levels as recommended.
- I'll take my medication if I have any prescriptions.

For more information



InfoDiabète

514 259-3422, ext. 233
1 800 361-3504, ext. 233
or Infodiabete@diabete.qc.ca
(free information and reference service)

Canadian Diabetes Association

www.diabetes.ca
Contact Centre
1 800-BANTING | 1 800-226-8464

Public Health Agency of Canada

www.publichealth.gc.ca
· Chronic Diseases
· Diabetes

This publication is for information purposes only and should not replace the advice of a healthcare professional.

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