

**Centre intégré
universitaire de santé
et de services sociaux
de l'Estrie – Centre
hospitalier universitaire
de Sherbrooke**

Québec



**Educational
program for people
with diabetes**

1

**General information
Blood glucose self-monitoring
Diabetes and nutrition**

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EDUCATIONAL PROGRAM

Diabetes

Whether you have just been diagnosed with diabetes or you have known it for several years, it takes time to learn to live with diabetes. It is a learning curve that requires both knowledge and practice.

The information given here has been prepared by a team of professionals. We hope it helps you better understand diabetes and the ways to treat it.

Objectives of the educational program

- Improve your knowledge about diabetes;
- Enable you to apply your treatment with confidence;
- Develop a healthy lifestyle.



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Centre intégré universitaire de santé et de services sociaux de l'Estrie—Centre hospitalier universitaire de Sherbrooke website : www.chus.qc.ca

Diabetes Canada website: diabetes.ca (visited in April 2017)

Éduc'alcool website: educalcool.qc.ca

AVAILABLE RESOURCES

For more information about diabetes or to receive personalized recommendations, you may contact:

Your local CSSS (ask for the Chronic illness desk):

- ♦ Coaticook: 819-849-9102
- ♦ Des Sources: 819-879-7158
- ♦ Du Granit: 819-583-0330
- ♦ Haut-Saint-François: 819-821-4000
- ♦ Haute-Yamaska: 450-375-1442
- ♦ La Pommeraie: 450-266-4342
- ♦ Memphrémagog: 819-843-2572
- ♦ Sherbrooke (CSSS-IUGS): 819-780-2222
- ♦ Val-Saint-François: 819-542-2777

The Specialized diabetes clinic of the Centre intégré universitaire de santé et de services sociaux: 819-346-1110 extension 28079

Diabetes Canada

To talk Diabetes Canada representative, Monday to Friday, 7:30 a.m. to 6:30 p.m.

Phone number : 1-800-BANTING (226-8464)

Website : diabetes.ca

Here are the different parts of the program :

- Booklet 1 General information
 Blood glucose self-monitoring
 Diabetes and nutrition
- Booklet 2 Medication
- Booklet 3 Insulin and special situations
- Booklet 4 Hypoglycemia, Hyperglycemia, Physical activity, Sick days, Driving, Leaving on a trip
- Booklet 5 Ketoacidosis, Long-term complications, Sexuality, Foot care
- Booklet 6 Adaptation and community resources

The educational program is adapted to the health situation and needs of each diabetic person. Information is available on any specific chapter or in regards to the entire program.

INTRODUCTION

Diabetes has been known for a long time. Egyptian writings mention this disease but no treatment was available at that time. Fortunately, the situation has changed, and thanks to research, the quality of life of persons who have diabetes continues to improve.

Diabetes is a disease that affects more than one person in twenty. It is known to affect certain people for several years before being diagnosed. In Quebec, around 7 % of persons are affected, and many others still do not know that they suffer from it.

Diabetes is a chronic disease (one that cannot be cured but which can be controlled).

YOU HAVE DONE NOTHING TO GET DIABETES.

It is important to understand diabetes so you can :

- ♦ Learn how to live with this health problem;
- ♦ Prevent complications.



The following information will help you to deal with this problem. Your doctor, nurse, nutritionist, pharmacist and kinesiologist will be happy to answer any questions you might have.

Recommendations :

Men : maximum 15 drinks per week

(limit yourself to 3 drinks in one day)

Women : maximum 10 drinks per week

(limit yourself to 2 drinks in one day)

1 drink =

- ♦ 12 oz (350 mL) of beer
- ♦ 5 oz (150 mL) of wine
- ♦ 1½ oz (45 mL) of spirits

It is not recommended to add alcohol to your menu if it is not already a habit.

To avoid physical and psychological addiction, it is recommended to abstain from drinking one or two days a week.

ALCOHOL

The moderate consumption of alcohol is generally permitted for diabetics whose blood glucose is well controlled. Take note that alcohol can disrupt weight control as it stimulates your appetite, all the while furnishing unneeded calories. Alcohol can also affect your blood pressure and your triglyceride level (fat in the blood). Some alcoholic beverages contain sugar and can raise your blood glucose : beer, wine coolers, digestives, sweet wines. Others contain no sugar and do not raise your blood glucose rate if they are taken in small quantities : dry wines, spirits (gin, rum, vodka, ...).

Warning for diabetic persons treated with tablets (pills) used to stimulate the secretion of insulin or taking insulin : in certain circumstances, alcohol can cause or aggravate hypoglycemia. To prevent this, avoid consuming alcohol on an empty stomach; take it instead while having a meal.

GENERAL INFORMATION

WHAT IS DIABETES ?

If you are told that you are diabetic, it is that a blood test revealed that the quantity of sugar (glucose) in your blood was higher than normal (hyperglycemia) on 2 different occasions, that is :

- ♦ **7 mmol/L** or above, fasting in the morning;

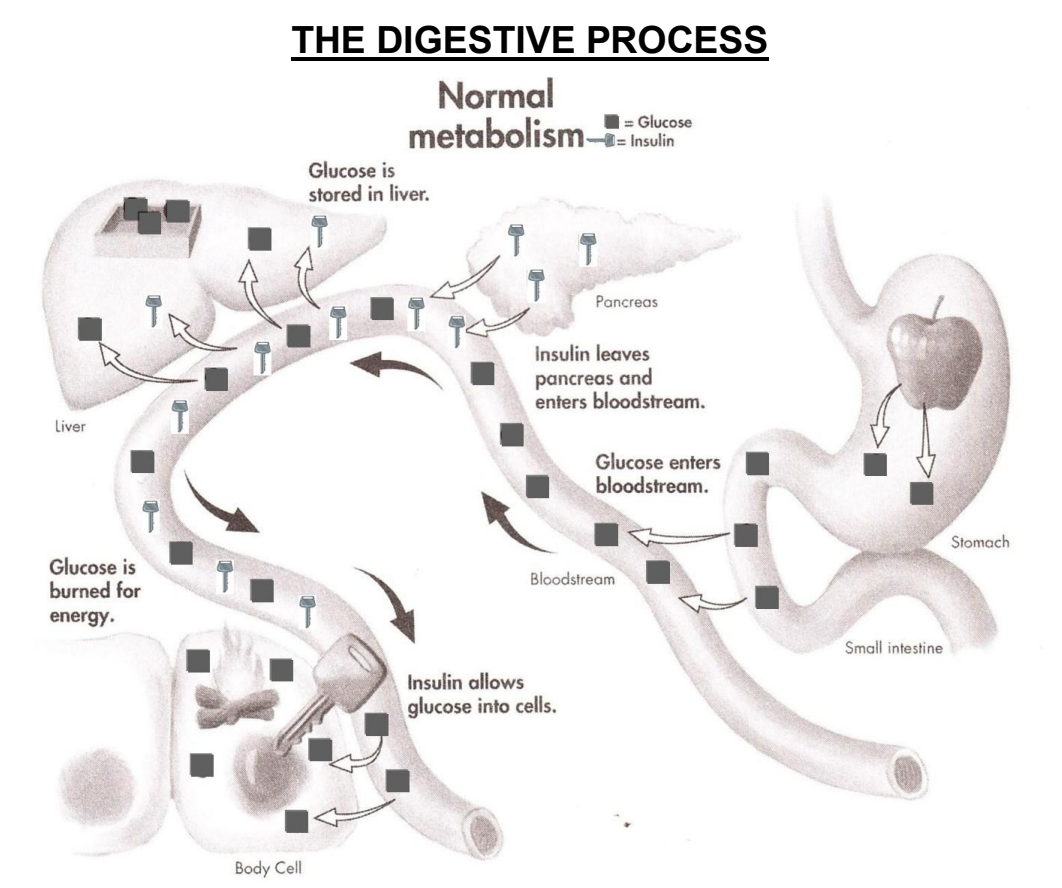
or
- ♦ **11.1 mmol/L** or above, 2 hours after an oral glucose tolerance test;

or
- ♦ A single value of **11.1 mmol/L** or above, at any time of the day in the presence of symptoms (excessive thirst, more frequent urination, weight loss).

or
- ♦ An A1C value of **6,5%** or more.

Diabetes is a complex disease. To gain a better comprehension of it, it is important to understand how the body uses sugar (glucose).

The foods you eat are transformed during digestion to meet the body’s needs. Most food contain sugar that is converted to glucose. Glucose enters the bloodstream to go to the different cells of the body to nourish them.



It is our main source of energy. Glucose is fuel for the cells, comparable to gas for a car.

READING A NUTRITIONAL LABEL

Compare this portion to the portion that your usually eat.



- ① **Percentage of daily value :**
This is the estimated value needed for the average Canadian adult. The number indicates if the product contains little or a lot of a nutrient per portion.
- ② **Choose products that have the least amount of the following nutrients :**
 - ♦ Lipids;
 - ♦ Saturated fats;
 - ♦ Trans fat;
 - ♦ Sodium.
- ③ **Carbohydrates :** Carbohydrates are the sum of the fibres, sugars and starch. The moderate consumption of carbohydrates favors a good blood glucose control.
- ④ **Choose products that contain the most possible of the following nutrients :**
 - ♦ Fibres;
 - ♦ Vitamins A and C;
 - ♦ Calcium;
 - ♦ Iron.

Valeur nutritive Nutrition Facts	
par 250 mL (1 tasse) / Per 250 mL (1 cup)	
Teneur Amount	% valeur quotidienne % Daily Value
Calories / Calories 100	
Lipides / Fat 2,5 g	4 %
saturés / Saturated 1,5 g + trans / Trans 0 g	7 %
Cholestérol / Cholesterol 15 mg	
Sodium / Sodium 115 mg	5 %
Glucides / Carbohydrate 12 g	4 %
Fibres / Fibre 0 g	0 %
Sucres / Sugars 11 g	
Protéines / Protein 9 g	
Vitamine A / Vitamin A	15 %
Vitamine C / Vitamin C	0 %
Calcium / Calcium	30 %
Fer / Iron	0 %

<http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/cons/dv-vq/info-fra.php>

Trans fats : Found in commercial products containing hydrogenated oils, is associated with the increased of blood cholesterol. Examples: hard margarine and certain commercial bakery items. They must be avoided.

Tips to decrease the consumption of lipids in your diet :

- ♦ Choose lean meat cuts, remove all visible fat and skin off poultry;
- ♦ Eat fish at least twice a week;
- ♦ Consume moderate portions of meat as recommended by Canada's Food Guide;
- ♦ Decrease your consumption of cheese and choose cheeses with less than 20% milk fat;
- ♦ Eat only occasionally fried food and other fatty foods such as pastries, deli products, chips and snacks;
- ♦ Limit adding fats to foods, use maximum of 30-45 mL (2-3 tbsp) per day and favour unsaturated fats.

Insulin is essential to get the glucose into the cells. It acts as a key that opens the cells.

Glucose accumulates in the blood after a meal and then returns to normal levels, thanks to insulin. After several hours without eating (e.g. at night), the liver, acting as a storehouse, lets out glucose into the blood so the cells receive a constant supply of fuel.

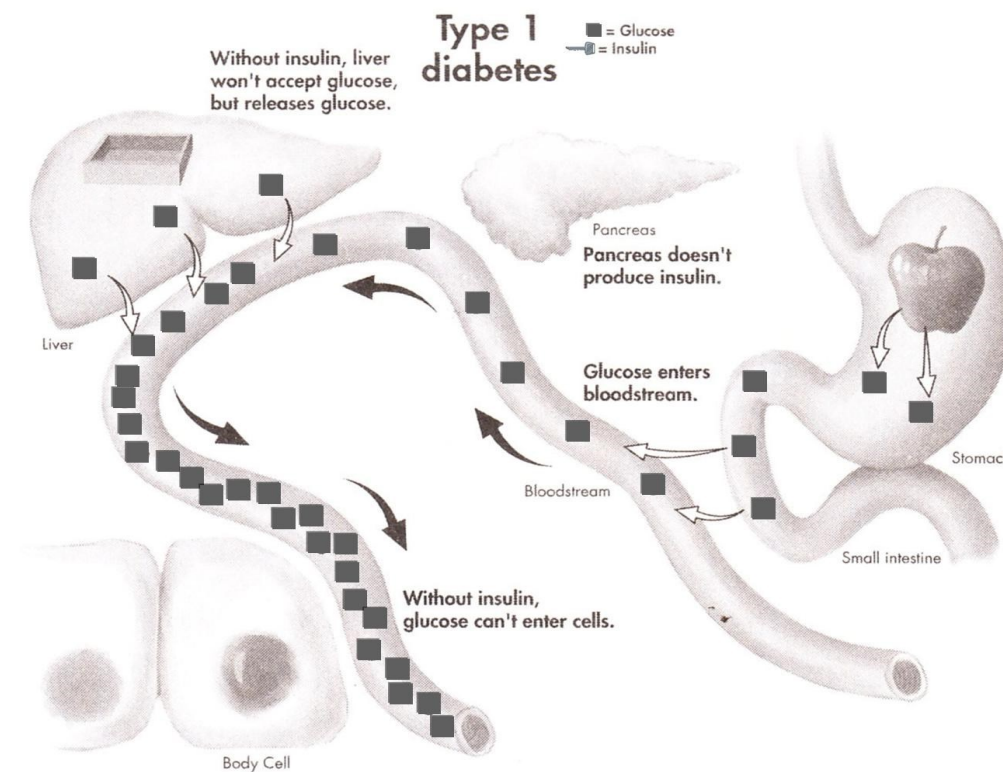
When you become diabetic, the ability of the body to use glucose is affected.

There are 3 main types of diabetes :

- ♦ Type 1;
- ♦ Type 2;
- ♦ Gestational (pregnancy). Taking into account its particular nature, this one is however not discussed in this document.

They are caused by different problems. Ask your doctor to tell you which type of diabetes you have.

TYPE 1 DIABETES



- ♦ About 5 to 10 % of all diabetic persons have type 1 diabetes;
- ♦ It appears suddenly;
- ♦ It occurs especially among children and young adults;
- ♦ The real cause remains unknown. However, certain factors may influence its development (e.g. : heredity, viral infections or a weakness in the body's defences against infections);
- ♦ Daily insulin injections are necessary.

SODIUM (SALT)

Sodium has no impact on blood glucose, but lowering salt intake can help in controlling blood pressure. The daily sodium intake should not exceed 2300 mg. Sodium can be found in its natural form in many foods, however the majority of sodium consumed has been added by manufacturers during the transformation of many products. The use of the salt shaker daily should also be avoided.

LIPIDS

Fat has no direct impact on blood glucose, but can increase insulin resistance. Fatty foods and added fat content can also disrupt weight control and cholesterol rate. Use with moderation.

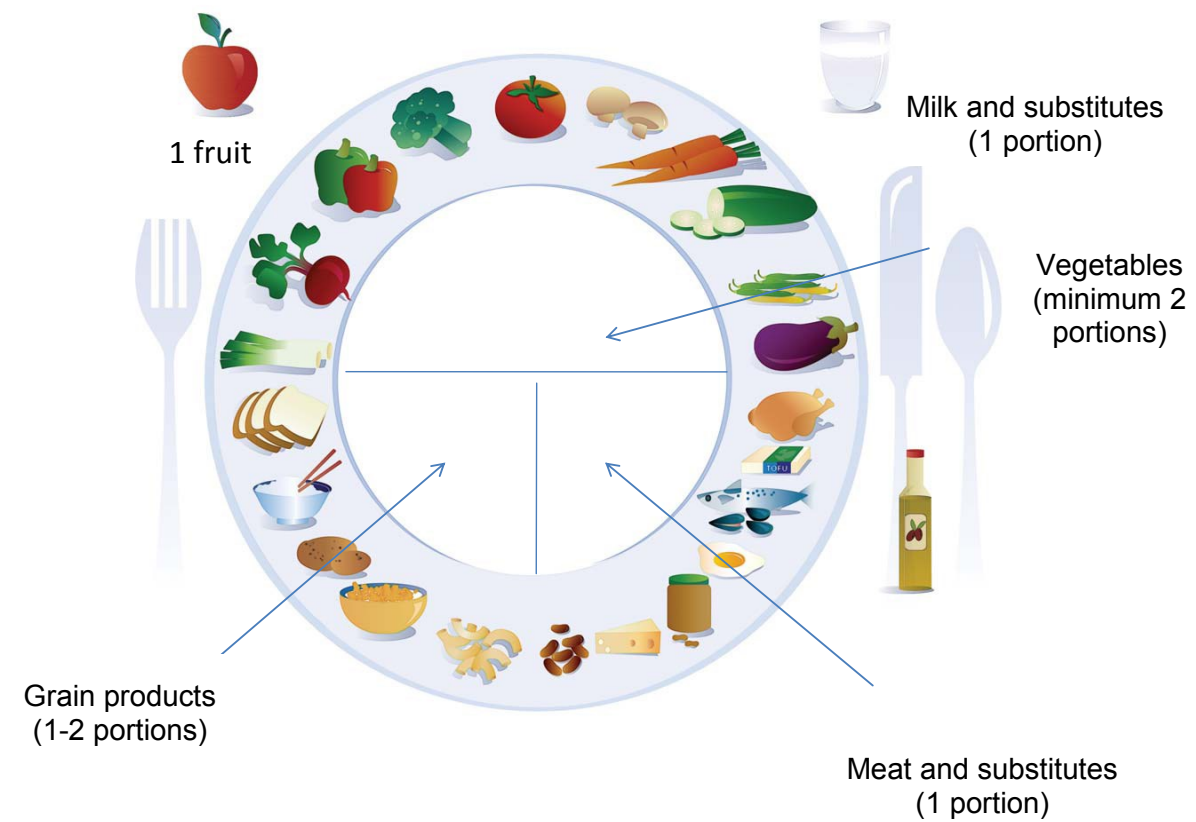
There are 4 types of fats in our diet :

Unsaturated fats : Found mostly in vegetable originated products; favors the lowering of blood cholesterol. Examples : canola oil, olive oil, nuts and seeds, and non-hydrogenated margarine.

Saturated fats : Found mostly in animal originated products and processed foods; can contribute in raising blood cholesterol. Examples : fatty meats, fatty dairy products (including butter), ready-to-eat foods and bakery products made with hydrogenated or tropical oils (such as palm or coconut).

Cholesterol : Found mostly in animal-originated products; can contribute in raising blood cholesterol. Examples : meat, eggs, shellfish and milk and substitutes rich in fat.

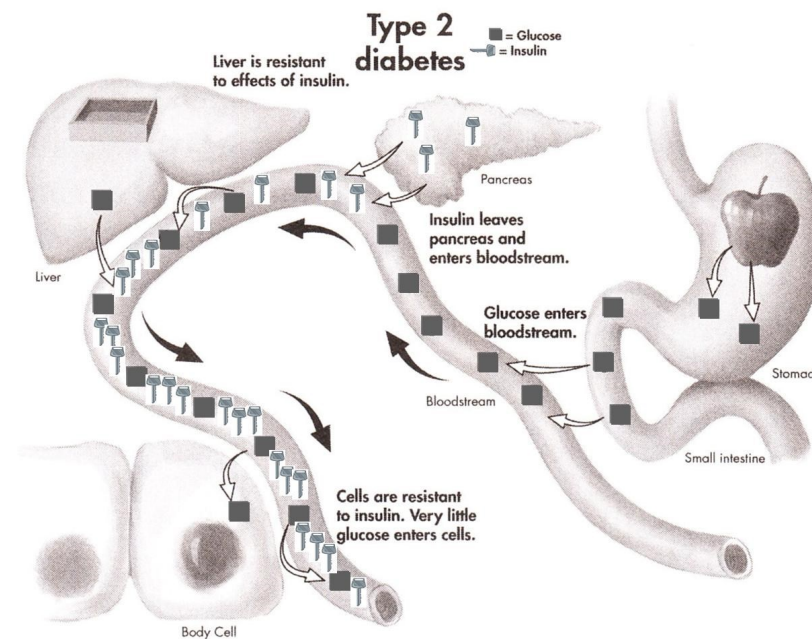
BALANCED DIET



Adapted from www.diabete.qc.ca

In type 1 diabetes, the pancreas no longer secretes insulin. The lack of insulin (there is no longer a key) prevents glucose from entering the cells and it accumulates in the blood. To compensate for the lack of glucose in the cells, the liver increases its production of glucose.

TYPE 2 DIABETES



- ♦ This is the most common type of diabetes; around 90 % of diabetics have type 2;
- ♦ Certain risk factors make you more at risk for diabetes :
 - Age higher than 40 years old;
 - Heredity (especially if a parent, brother or sister is affected);
 - Being a member of a high-risk group (Aboriginal, Hispanic, South Asian, Asian or African descent);
 - Having had gestational diabetes (diabetes during pregnancy) or having given birth to a baby that weighed over 9 lbs at birth;

PROTEINS

Proteins contribute to making a sustaining meal. They can also help to reduce blood glucose rises by delaying the entrance of glucose in the blood. Each meal should include a source of proteins.

Foods containing proteins :

- ♦ **Milk and substitutes :**
Milk, soy beverages, yogurt, cheese.
- ♦ **Meat and substitutes :**
Meat, poultry, fish, shellfish, legumes, tofu, eggs, peanut butter, almonds, nuts and seeds.

Apart from legumes, milk, yogurt and soy beverages, these foods do not furnish any carbohydrates (if not only a little).

FIBRES

Food rich in fibres are often good sources of vitamins and minerals. They help to feel full and favour the good function of the intestines. Furthermore, fibres can help in controlling blood glucose and blood cholesterol. Therefore, their consumption is encouraged.

MAIN SOURCE OF FIBRES : vegetables and fruit, whole grain products, legumes, nuts and seeds.

- Being overweight, especially when waist circumference is higher than 80 cm in women and 94 cm in men;
- Having high blood pressure and/or high cholesterol.

♦ Treatment :

- Healthy eating habits;
- Regular physical activity;
- Managing stress.

Overtime, pills and/or insulin might have to be added as the disease progresses.

In type 2 diabetes, insulin is less effective. This is what we call **insulin resistance** (the key does not work as well). This resistance is more important in people who are overweight.

To compensate, the pancreas increases its production of insulin, and over time, it runs out (less keys). Insulin (the key) slows the exit of glucose from the liver. The lack of insulin causes an increase in the amount of glucose coming from the liver. The glucose that has more difficulty entering the cells and the liver that must increase its production of glucose both contribute to increasing the amount of glucose in the blood.

PROGRESSION OF DIABETES

It is possible that your doctor once told you had "borderline diabetes", some time before the diabetes diagnosis was made. This step is also known as prediabetes. It includes glucose intolerance and impaired fasting glucose.

Glucose intolerance is diagnosed when blood sugar is higher than 7.8 mmol/L but lower than 11.1 mmol/L, 2 hours after an oral glucose tolerance test.

Impaired fasting glucose is diagnosed when fasting glucose is between 6.1 and 6.9 mmol/L.

An A1C between 6.0 and 6.4% is called **prediabetes**.

It is important to know that it is possible to prevent prediabetes from evolving into diabetes by modifying lifestyle.

CARBOHYDRATES

Carbohydrates indicate the amount of different sugars contained in food; natural sugars, refined sugars, starch and fibres.

In a diet, it is mostly the carbohydrates that have an impact on blood glucose. Carbohydrates are an important source of energy for your body. This is why they should not be completely eliminated. An adequate distribution of carbohydrates during the day contributes to maintaining a good blood glucose.

Foods containing carbohydrates :

- ♦ **Grain products and other starches :**
Bread, cereal, crackers, potatoes, rice, pasta, corn, legumes, all flour based products
- ♦ **Fruit :**
Fresh fruit, unsweetened juice; dried or canned fruit
- ♦ **Certain vegetables :**
Green peas, parsnip, certain squash
- ♦ **Milk and substitutes :**
Milk, yogurt, soy beverage
- ♦ **Refined sugars :**
White sugar, brown sugar, maple syrup, candy, chocolate, doughnuts, pastries, ice cream, regular soft drinks, sweetened iced tea, sweetened fruit drinks

Important : *These refined sugars can be consumed occasionally in small quantities.*

Do not forget that the total of your daily consumption (meals and snacks) should reach the number of portions recommended of the 4 food groups of the Canadian Food Guide.

QUANTITY

It is important to moderate your portions because big meals and excessive snacks may raise your blood glucose over the target values and can also affect your weight.

By regularly monitoring your blood sugar level, you can assess the impact your diet has on it. This will help you make necessary diet adjustments (especially carbohydrates).

SYMPTOMS

Diabetes is a sneaky disease that often develops silently. Many people experience no symptoms but live with too much sugar in their blood (hyperglycemia); this may bring harmful consequences in the long-term.

Signs and symptoms of diabetes (they are also the symptoms of hyperglycemia) include the following :

- ♦ Intense thirst;
- ♦ Increased quantity of urine and frequency of urination;
- ♦ Excessive hunger;
- ♦ Fatigue and sleepiness;
- ♦ Blurred vision;
- ♦ Frequent or recurring infections;
- ♦ Wounds that heal poorly;
- ♦ Significant loss of weight (particularly in type 1 diabetes);
- ♦ Numbness of hands and feet.

CONTROL OF DIABETES



Healthy meals

Consult your nutritionist to plan balanced meals.



Physical activity

Adopting an active lifestyle will help you control the amount of sugar (glucose) in your blood.



Medications

Your doctor may have to prescribe an oral agent (pill) and/or insulin to help you control your level of sugar (glucose).



Healthy weight

If you are overweight, losing 5 % to 10 % of your weight may be enough to lower your blood glucose.



Stress management

Stress contributes to increase your blood glucose (see chapter 6). It is important to find techniques to manage it.



Blood glucose self-monitoring

It is strongly suggested that you measure your blood glucose at home with the help of a glucometer. This will show variations in your blood glucose, and will allow you to better treat your diabetes.

Keeping your blood glucose in the normal range will help you stay healthy.

DISTRIBUTION

It is recommended to take 3 meals daily at regular hours. Space them out 4 to 6 hours. This will help to stabilize your blood glucose and regulate your appetite. Avoid skipping meals. By passing long periods of time without eating, you might be exposing yourself to hypoglycemia (low blood glucose), if you are treated with insulin or medication that can induce hypoglycemia.

Snacks are not always necessary. They can be added 2-3 hours after meals when hunger arises or in case of physical activity. People who take intermediate insulin (N or NPH) at bedtime have advantage to take an evening snack to prevent hypoglycemia during the night if their blood glucose at bedtime is less than 7—talk about it with your healthcare professional.

QUALITY

Each meal should have a variety of food. A well balanced meal should contain at least 3 to 4 groups of the Canada Food Guide (see page 34).

If snacks are needed, make healthy choices.

Examples:

- ♦ Day : 1 fresh fruit or 175 g ($\frac{3}{4}$ cup) yogurt;
- ♦ Evening : 1 slice of bread with peanut butter or a piece of cheese;
- ♦ Raw vegetables can be eaten at any moment during the day.

4) **Meat and alternatives**

Have meat alternatives such as beans, lentils and tofu often. Eat at least 2 portions of fish each week.

Examples of portions :

- ♦ 75g (2½ oz) / 125 mL (½ cup) of cooked fish, shellfish, poultry or lean meat;
- ♦ 175 mL (¾ cup) of cooked legumes;
- ♦ 150g / 175 mL (¾ cup) of tofu;
- ♦ 2 eggs;
- ♦ 30 mL (2 tbsp) of peanut (or other nut) butter;
- ♦ 60 mL (¼ cup) of shelled nuts or seeds.

Number of portions recommended daily for an adult :

19 to 50 yrs old		51 yrs old and more	
Women	Men	Women	Men
2	3	2	3

The Canadian Food Guide recommends that you choose more often foods that are prepared with less or no fats, salt (sodium) or sugars .
It is important to consume foods from each group daily and to vary your choices in each group.

For more information, ask your nutritionist or doctor for a copy of the Canadian Food Guide. You can also consult Health Canada's website for more information at :

<http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php>

BLOOD GLUCOSE SELF-MONITORING

Blood glucose monitoring is the measure of the level of sugar in your blood. It is usually measured by taking a drop of blood from the tip of your finger. This is an efficient way to obtain your results so the treatment can be adjusted accordingly.

Glycemic (blood glucose) control

Fasting and before meals :

Target values : → between 4.0 et 7.0 mmol/L

2 hours after the beginning of a meal :

Target values : → between 5.0 et 10.0 mmol/L

If glycosylated hemoglobin (A₁C) remains above 7 % → between 5.0 et 8.0 mmol/L

Hypoglycemia : → blood glucose lower than 4.0 mmol/L

Hyperglycemia : → fasting blood glucose higher than 7.0 mmol/L or than 10.0 mmol/L after meals

Please note that these targets are recommended for **most** people with diabetes. Talk with your doctor or diabetes educator to know about your blood sugar targets.

Self-monitoring your blood glucose allows you to :

- 1. Check the impact of the food you eat, physical activity, medication and stress on your blood glucose;
- 2. Identify episodes of hypoglycemia and hyperglycemia and react quickly;
- 3. Modify certain behaviours that could interfere with controlling diabetes;
- 4. Make you feel confident and competent in controlling diabetes yourself.

It is important for you to purchase a glucometer to measure your blood glucose now.

Your doctor will prescribe you the equipment you need.

2) Grain products

Make at least half of your portions of grain products whole grain.

Examples of portions :

- ♦ 1 slice of bread (35g);
- ♦ 125 to 175 mL (½ - ¾ cup) of cold cereal (30g);
- ♦ 125 ml (½ cup) cooked pasta;
- ♦ 125 ml (½ cup) of cooked rice or couscous.

Number of portions recommended daily for an adult :

19 to 50 yrs		51 yrs and over	
Women	Men	Women	Men
6-7	8	6	7

3) Milk and alternatives

Drink skim, 1 % or 2 % milk daily.

Examples of portions :

- ♦ 250 mL (1 cup) of milk or enriched soy beverage;
- ♦ 175g (¾ cup) of yogurt;
- ♦ 50 g (1 ½ oz) of cheese.

Number of portions recommended daily for an adult :

19 to 50 yrs		51 yrs and over	
Women	Men	Women	Men
2	2	3	3

THE BASICS OF A BALANCED DIET

The **Canadian Food Guide** proposes a diet that fulfills your needs of vitamins, minerals and other nutrients. Following the recommendations of this guide can help to control carbohydrates, weight and reduces the risk of heart problems.

This guide classifies food in four groups :

1) Fruits and vegetables

Eat at least one green vegetable and one orange vegetable daily. Whenever possible consume fruits and vegetables instead of juice.

Examples of portions :

- ♦ 125 mL (½ cup) of cooked or raw vegetables;
- ♦ 250 mL (1 cup) of leafed vegetables;
- ♦ 1 medium size fruit or 125 mL (½ cup) in pieces;
- ♦ 125 mL (½ cup) of 100 % pure fruit or vegetable juice.

Number of portions recommended daily for an adult :

19 to 50 yrs		51 yrs and over	
Women	Men	Women	Men
7-8	8-10	7	7

TECHNIQUE

- ♦ Wash your hands with warm soapy water and dry them well. (Warm water activates circulation in your fingers, so it is easier to take the blood sample). **Do not use alcohol;**



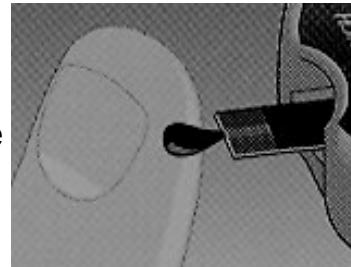
- ♦ Insert the lancet (needle) into the lancing device and adjust the depth of the prick according to the thickness of your skin;
- ♦ Insert the reactive strip in the slot of the device;
- ♦ Choose the side of a fingertip, firmly apply the tip of the pricking device and press the button to release it. (Use a different finger each time);



- ◆ After pricking the finger, lower your hand and apply pressure on the finger while pointing it downwards;



- ◆ Put the drop of blood on the end of the reactive strip;



- ◆ Follow the instructions for the operation of your blood glucose meter;

Throw away all used lancets in a rigid covered plastic container, available at the pharmacy.
Do not use a lancet more than once.

DIET FOR A PERSON WITH DIABETES

Please take note that the recommendations in this booklet are only summarized, we suggest that you consult a nutritionist. He/She will be able to make you a personalized meal plan adapted to your eating habits, your medical condition, your weight and your particular needs.

OBJECTIVES

A healthy and balanced diet is the basis for the treatment of diabetes. It aims to :

- Furnish the essential nutrients for good health (examples : proteins, vitamins, carbohydrates);
- Help maintain a healthy weight or to lose 5 to 10 % of your actual weight if needed;
- Maintain your blood glucose as close as possible to target values;
- Help to control the lipids and the blood pressure.

PERIODIC EVALUATION

Your doctor will prescribe generally another blood test to check on the overall control of your diabetes :

- ◆ **Glycosylated hemoglobin (A₁C)** : average of your blood glucose for the past 3 months. It should be done every 3 to 4 months. For most people with diabetes, the target glycosylated hemoglobin is lower than or equal to 7%.

This test, however, do not reflect daily variations in your blood glucose levels. The result shows solely an **average** of blood glucose. This is why it is essential to continue to carry out your blood glucose monitoring at different times of the day.

Other tests / exams should be performed regularly to prevent and detect complications :

Tests / exams	Frequency
Weight	Every routine visit
Blood pressure	Every routine visit
Eye fundus exam (back of the eye)	At the time of the diagnosis and every 1 or 2 years
Fasting verification of blood glucose meter	Annually
Lipid profile (level of cholesterol)	Annually (if needed)
Microalbuminuria (urine protein analysis)	Annually
Feet exam	Annually (more often for patients with very high risk of foot injury)

- ◆ After the test, write the result in the proper space in your logbook. For example :

Day of the week	Blood glucose results							Comments
	Breakfast		Lunch		Supper		Bedtime	
	Before	After	Before	After	Before	After	Before snack	
Sunday	5.2				7.5			
Monday	7.1		12.1		8.1		14.0	Supper at restaurant
Tuesday	4.6	9.5						
Wednesday			10.4				11.0	

Other relevant information that you should record in your logbook :

1. Hypoglycemia (result of blood glucose testing, time, signs, corrective measure, causes);
2. New medication or dose changes;
3. Insulin dose, time of injection and any dose changes;
4. Any event that might have an impact on your blood glucose (change in eating, physical activity, illness, stress, alcohol, etc.).

*There are a lot of smart phone apps that you can use to keep track of your blood sugar results. Talk to your doctor or diabetes educator.

FREQUENCY AND SCHEDULE

During the period following the diagnosis and while the treatment is being adjusted, it is advisable to measure your blood glucose more frequently, that is :

2 to 4 times a day, **before meals and at bedtime** (before the snack). Your doctor might also recommend that you measure it 2 hours after the beginning of a meal.

Once your blood glucose is stabilized, you may reduce the frequency of testing to once or twice a day, alternating the time of the tests from one day to another, depending on the recommendations of your doctor.

It is also advisable to measure your blood glucose :

- ♦ Whenever you experience discomfort that might be related to hypoglycemia or hyperglycemia;
- ♦ In case of illness;
- ♦ Before, during and after physical activity, if there is a risk of hypoglycemia;
- ♦ Before driving a car if your treatment puts you at risk for hypoglycemia.

The Diabetes Canada website has an interactive tool to help you determine how frequently you should be measuring your blood sugar:
<http://guidelines.diabetes.ca/bloodglucoselowering/smbgtool>

RELIABILITY OF TESTS

The results may be affected by the following causes :

- ♦ Test strips that have expired or been exposed to humidity, light, open air or extreme temperatures;

Important: Always keep your test strips in the original container or packaging

- ♦ Insufficient quantity of blood;
- ♦ Lack of accuracy of the blood glucose meter.

When you have a blood test, we advise that you bring your meter, so immediately after your blood test you can test your blood glucose, and note the results in your logbook. The different between the 2 tests should be less than 15%.

How to measure the accuracy of the blood glucose meter :

Example :

$$\left[\begin{array}{c} \text{Blood glucose} \\ \text{on fingertip with} \\ \text{meter} \end{array} \text{ — } \begin{array}{c} \text{Fasting blood} \\ \text{glucose by blood} \\ \text{test} \end{array} \right] \div \begin{array}{c} \text{Fasting blood} \\ \text{glucose by blood} \\ \text{test} \end{array} \times 100 = \square \%$$

$$\left[\begin{array}{c} 9.5 \\ \\ \end{array} \text{ — } \begin{array}{c} 10.0 \\ \\ \end{array} \right] \div 10.0 \times 100 = 5 \%$$