
Living with Type 1 Diabetes

An information book for people with Type 1 Diabetes



HALTON DIABETES PROGRAM APRIL 2019

Introduction

Welcome to My Diabetes Handbook

This handbook is your personal diabetes reference guide. It builds on the information that you already know, and provides new information that you gather working alongside your diabetes healthcare team.



Finding out that you have diabetes can come as a shock. It is natural to feel angry or be frightened.

You can succeed with diabetes with knowledge, help from your health care team and emotional support.

If you take care of your diabetes, it will help to prevent health problems in the future.

Everyone learns differently and it is important to get all the details that you need. Some people like a lot of detail, while others prefer to know less.

Your diabetes health care team may include:

	Name	Phone Number
Family physician		
Registered Dietitian		
Registered Nurse		
Endocrinologist/Diabetes Specialist		
Social Worker		
Optometrist/Ophthalmologist		
Chiropract/Podiatrist		
Kinesiologist/Exercise Specialist		

This handout is for self-care. It should not be used to replace a visit with your healthcare provider. If you have questions about your personal medical situation, please call your healthcare provider.

Other resources are available to give you support.

See the Appendix for a list of these resources.

Each individual's experience with their diabetes diagnosis will be different. If you feel sad for a long period of time, you may be at risk for depression.

Watch for these warning signs:

- Loss of interest or pleasure in things you usually like to do
- Feeling sad, down or hopeless
- Loss of energy
- A change in your sleep pattern
- Change in appetite
- Trouble concentrating
- Nervousness and/or worry

If you have 2 or more of the symptoms listed or wonder whether you may have depression, talk to your doctor or diabetes health care team about how you are feeling. Getting help early can help you feel better and make it easier to take care of your health.



What is Diabetes?

When you have diabetes, your body cannot use sugar (known as glucose) properly. This raises your blood sugar which is called blood glucose. Diabetes can occur at any age.

What are the types of diabetes?

There are three different types of diabetes:

- Type 1 diabetes
 - Can occur at any age but typically occurs under the age of 30
 - Lack of hormone called insulin
 - Requires insulin injections
 - Not caused by anything a person did or did not do

- Type 2 diabetes
 - Usually occurs later in life
 - Insulin may be present but not working properly
 - Body may be insulin resistant
 - Treated with healthy eating, activity, medications and/or insulin

- Gestational diabetes
 - Diabetes that occurs during pregnancy
 - May go back to normal blood glucose levels after the baby is delivered

What type of diabetes do I have?

You have type 1 diabetes. Eating the wrong kinds of foods or being inactive does not cause type 1 diabetes. We do not know why people develop type 1 diabetes.

Some theories are:

Genetic:

- An inherited or genetic factor may cause type 1 diabetes

Autoimmunity:

- A viral infection may trigger the body to attack itself including the pancreas which is the organ that stores the insulin in your body.

What is happening when I have type 1 diabetes?

Symptoms can come on very quickly and these can include:

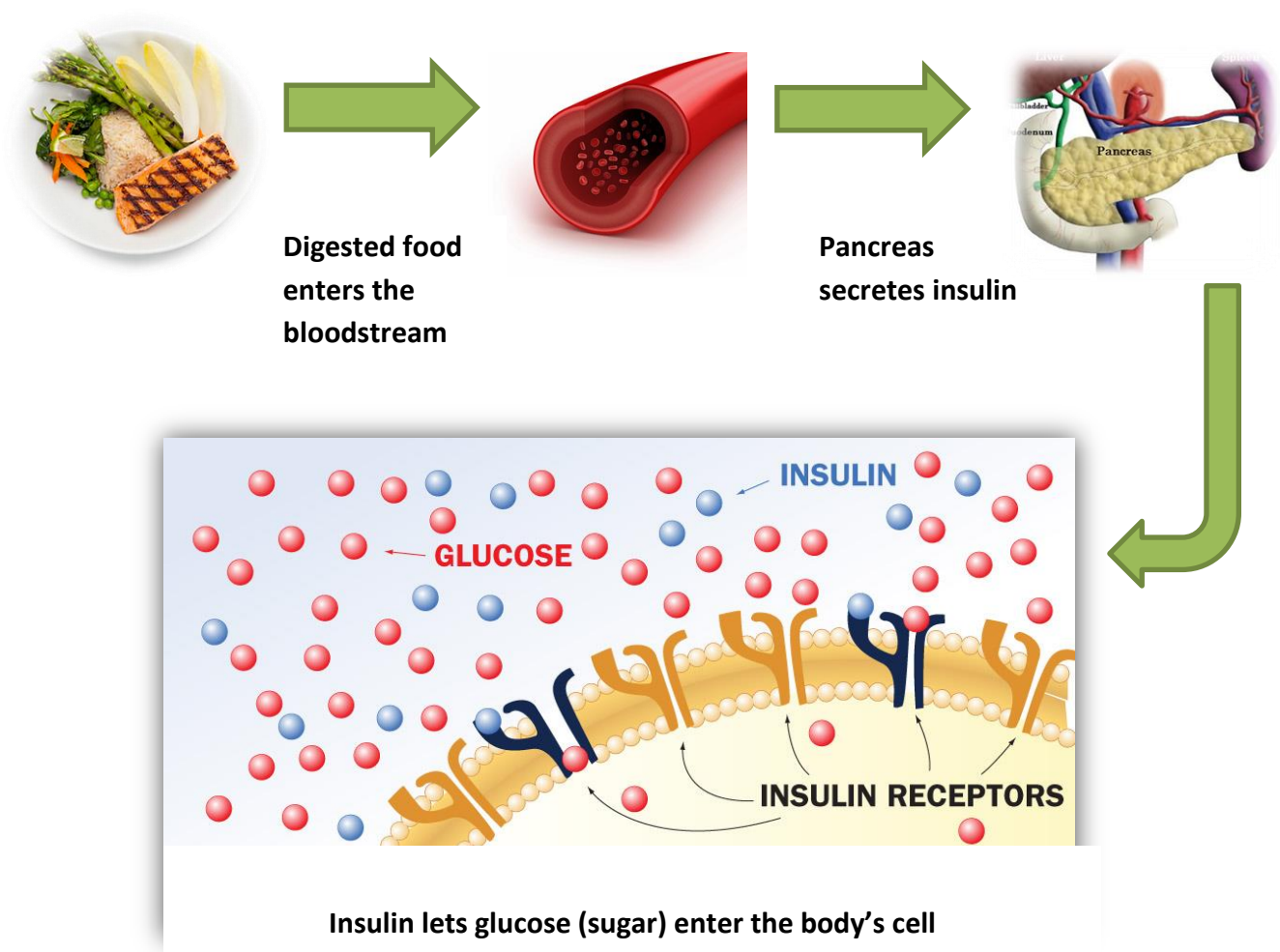
- Increased thirst
- Frequent urination
- Extreme hunger
- Unplanned weight loss
- Irritability and other mood changes
- Fatigue
- Blurred vision

All of these symptoms are related to high blood glucose levels.

Why are my blood glucose levels going too high?

When you eat, your body breaks food down into glucose. The glucose enters your blood and is carried to the cells in your body. The glucose enters the cells by a hormone called insulin produced in the pancreas.

Glucose is used for energy or is stored for later use.



When you have type 1 diabetes, your body does not make insulin and therefore, the glucose cannot enter the cells. When the glucose cannot enter the cells in the body, it begins to build up in the blood.

How do I manage my type 1 diabetes?

Five components to manage type 1 diabetes are:

1. Take insulin everyday
2. Test blood glucose regularly
3. Eat a healthy diet
4. Keep active
5. Know what to do in special situations – low blood glucose and high blood glucose

Your type 1 diabetes handbook is your reference for these five components.

Taking Insulin Injections

Why do I need insulin?

When you have type 1 diabetes, your body no longer produces insulin. You need to replace this insulin by taking insulin injections. Most people with type 1 diabetes require four injections per day.

If you do not take insulin, glucose builds up in the blood which can cause many health issues.

The build-up of extra glucose in the blood stream causes your kidneys to work hard to get rid of it, and as a result, you urinate more. Because you are losing extra water from your body, you can become very thirsty and drink more fluids.

Since glucose is not available in your cells for energy, you may feel very tired and fatigued.

What insulin will I need?

You will require two types of insulin:

- Basal insulin
- Bolus insulin

What is basal insulin?

Basal insulin also known as background insulin keeps blood glucose levels stable during times of fasting and in-between meals. Intermediate or long acting insulin is your basal insulin

What is bolus insulin?

Bolus insulin, also known as rapid insulin, keeps blood glucose levels in control after a meal. Rapid insulin needs to act quickly to match blood glucose levels rising after meals.

Types of Insulin

Type	Appearance	Begins to work	Works the hardest	How long it lasts
Rapid-Acting	Clear	4-20 minutes	0.5-2 hours	3-5 hours
Long-Acting	Clear	90 minutes	Continuous	16-42 hours

You will learn more information about your specific insulin and how to inject insulin using an insulin pen.

Tips for insulin and pen care

- Keep the pen you are currently using at room temperature
- Store insulin away from heat and strong light
- Never allow your insulin to be exposed to temperatures above 30°C or below 0°C
- Store unopened pens of insulin in the refrigerator
- Store opened pens of insulin that you are using at room temperature, and then discard. Check with your healthcare provider how long your insulin pen can remain at room temperature

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- Store used pen needles in a special sharps container obtained from the pharmacy. When full, return to the pharmacy for disposal. Never throw them in the garbage, blue box or flush down a toilet. They are considered biohazardous waste and they may cause injury to others and contribute to environmental problems

Does my insulin dosage stay the same?

The amount of insulin a person needs is not always the same. Insulin adjustments may be needed because of:

- Appetite change
- Stress
- Menstruation
- Menopause
- Activity
- Illness
- Pregnancy
- Travel

How will I know how much insulin to give?

Check your blood glucose more frequently during these times to help you adjust your insulin dose. You and your healthcare provider can determine what works best for you.

Testing Blood Glucose Levels

Why should I test my blood glucose?

Testing your blood glucose helps you know what is happening in your body.

You can track your blood glucose patterns. This information will help you to manage your diabetes.

Remember to discard your used lancets in a special sharps container obtained from the pharmacy.

What are my target blood glucose levels?

The amount of glucose in the blood is measured in millimoles per litre (mmol/L).

Keeping your blood glucose levels within the target range will keep you feeling well and will reduce your risk of developing other health problems related to diabetes.

See chart below for the blood glucose targets. Talk to your diabetes health care team about the target that is right for you.

Target Blood Glucose Fasting or Before Meals	Target Blood Glucose Two Hours After Meals	Target A1C
4.0 – 7.0 mmol/L	5.0 – 10.0 mmol/L	7% or less

You can expect your blood glucose to rise 2.0 – 3.0 mmol/L two hours after eating.

What is the A1C (Glycated Hemoglobin)?

The A1C:

- Is a blood test done at the laboratory
- Measures how much glucose is attached to a red blood cell
- Gives an indication of your blood glucose levels for the past three months
- Target level is 7% or less. Higher A1C levels put you at risk for developing health problems caused by high blood glucose levels

Eating a Healthy Diet

Do I have to be on a special diet because I have diabetes?

No. Like anyone, it is important to ensure you are eating a healthy diet that includes:

- fruit
- vegetables
- whole grains
- low fat milk and milk alternatives
- lean meats, poultry, fish
- small amounts of healthy fats such as oils, nuts and seeds



Choose a variety of foods for good health.

Do I have to eat three meals and three snacks every day?

No. Eating regularly (every 4-6 hours) can help you get all the nutrients your body needs to keep you healthy. A strict eating schedule is not needed.

What foods raise my blood glucose?

Carbohydrate containing foods raise your blood glucose values.

Carbohydrate containing foods are:

1. Starch and grain products
2. Fruit and fruit juices
3. Milk and milk alternatives
4. Extras such as sugar, honey

Do I avoid carbohydrate?

No. Carbohydrate is an important fuel your body needs. You want to identify which foods have carbohydrate and then determine how much rapid insulin to take when having the carbohydrate containing foods.

How much carbohydrate can I have?

Two methods help you determine the amount of carbohydrate.

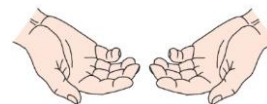
1. Portion Method

A simple way to track carbohydrates is to:

- limit grains and starches to the size of your fist and $\frac{1}{4}$ of your plate
- limit fruit serving to the size of your fist
- limit milk to 250 mL or 1 cup
- select diet pop rather than regular pop

Use these pictures to help you choose healthy servings from each of the food groups.

Vegetables – Choose as much as you can hold in both hands
(Provides 1 to 2 cups)



Grains and starches – Choose an amount up to the size of a small fist or a tennis ball
(Provides $\frac{1}{2}$ to 1 cup)



Fruit – Choose an amount up to the size of a small fist or a tennis ball
(Provides $\frac{1}{2}$ cup to 1 cup)



Meat and Alternatives – Choose an amount up to the size of the palm of your hand and the thickness of your little finger
(Provides 2 to 3 ounces)



Fats – Limit fat to an amount the size of the tip of your thumb
(Provides 1 teaspoon)



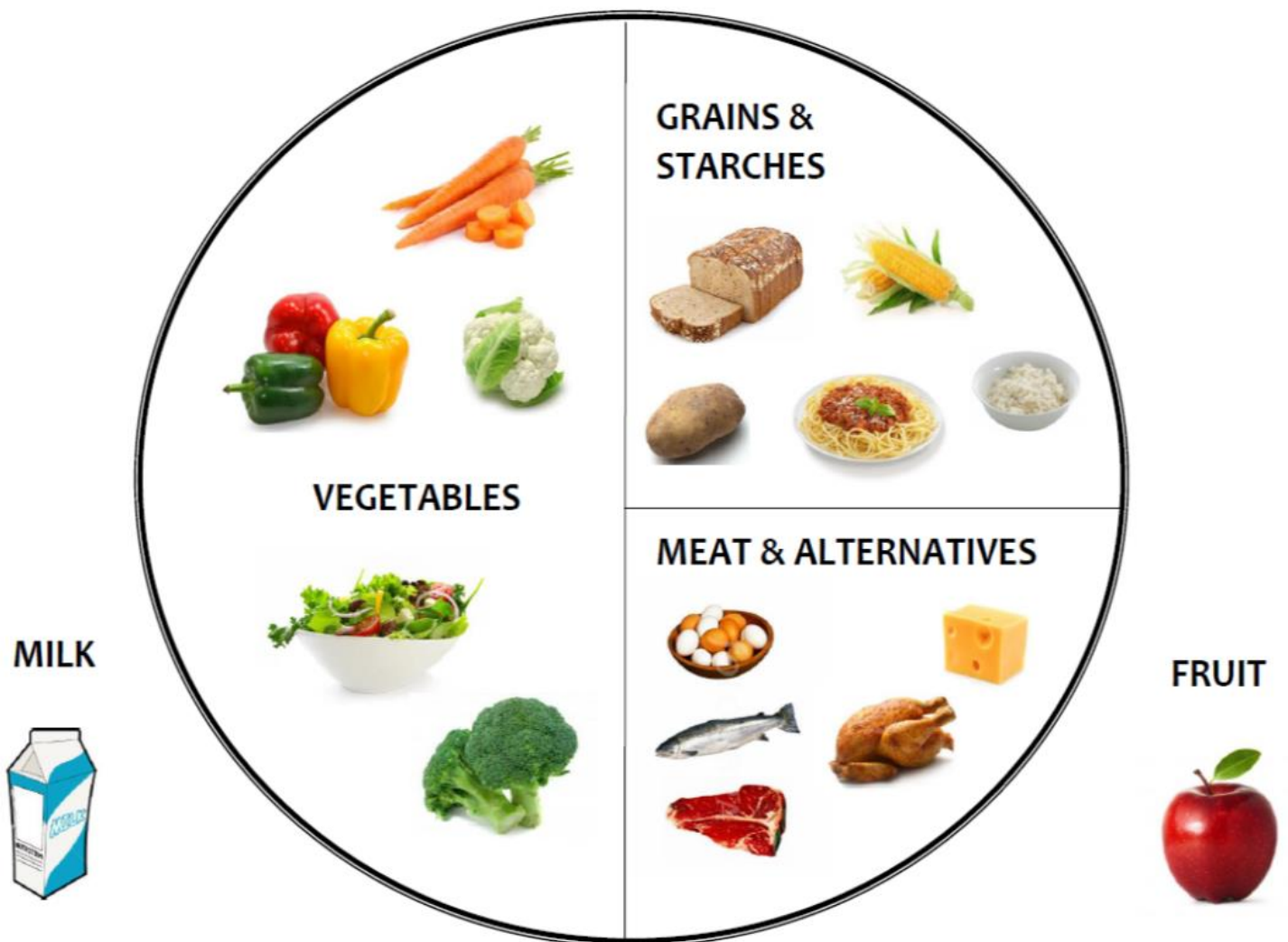
Healthy Plate

What do healthy serving sizes look like on my plate?

The dinner plate below illustrates healthy portions.

Complete your meal with a serving of low-fat milk or milk alternatives and a piece of fruit.

Milk or milk alternatives and fruit can be used as a snack



If the previous method does not keep your blood glucose within target levels, carbohydrate counting may help.

2. Carbohydrate Counting

This method provides flexibility with your food choices. You and your dietitian determine how much carbohydrate is best for you at each meal and snack. This may be the same from meal to meal or may be different depending on your needs. Knowing how much carbohydrate you are eating will help you determine how much rapid insulin you need.

What resources will help me with carbohydrate counting?

- Food charts that indicate carbohydrate amounts
- Food labels
- Nutrition information available from the internet, phone apps

NOTES:

Carbohydrate Portions

1 cup = 250 mL

½ cup = 125 mL

The following portion sizes each give 15 grams of carbohydrate which is 1 carbohydrate choice:

Grains & Starches	Fruits	Milk & Alternatives	Other Choices
1 slice bread or small roll	1 medium apple, pear	1 cup milk	1 tbsp (3 tsp sugar)
¼ of a 4 ½ inch bagel	1 small banana	1 cup soy beverage	½ small muffin
½ English muffin	1 cup blueberries	¾ cup plain yogurt	3 plain cookies
½ cup dry cereal	1 cup melon	½ cup ice cream	1 tbsp jam, jelly or honey
¾ cup hot cereal	2 cups strawberries, raspberries	½ cup milk pudding (no sugar added)	
⅓ cup cooked rice	1 cup or 1 large peach	¾ cup artificially sweetened yogurt	
½ cup cooked pasta	2 medium kiwis	½ cup frozen yogurt	
½ cup corn, 1 small cob	15 cherries, grapes		
½ cup cooked quinoa	½ medium mango		
7 soda crackers	¾ cup pineapple		
1 – 6" Roti, chapatti	2 medium apricots		
1 – 6" tortilla	2 tablespoons raisins		
2 small cookies	2 medium clementines		
½ cup mashed potato	2 medium mandarins		
½ medium potato	1 medium orange		
½ cup sweet potato	½ cup applesauce		
3 cups popcorn	2 medium plums		
½ cup beans, (kidney, white), <i>cooked</i>	2 medium prunes		
½ cup lentils (dhal), <i>cooked, thick</i>	½ cup apple or orange juice		
1 cup lentils (dhal), <i>cooked, thin</i>			
½ medium naan			
1 medium dosa			
1 medium idli			

Balance each meal with Protein and Vegetables

How to count grams of carbohydrate on a food label?

1. Look at the Nutrition Facts on the food label

2. Look for serving size at the top of the Nutrition Facts table

- The information in the table is based on this serving size

3. Look for the carbohydrate grams

- Carbohydrate grams include fibre, sugar and starch
- Starch is not always listed
- Fibre does not raise your blood sugar

4. Subtract the fibre grams from the carbohydrate grams.

Nutrition Facts	
Valeur nutritive	
Per 1 cup (250 mL) pour 1 tasse (250 mL)	
Calories 110	% Daily Value*
	% valeur quotidienne*
Fat / Lipides 0 g	0 %
Saturated / saturés 0 g	0 %
+ Trans / trans 0 g	
Carbohydrate / Glucides 26 g	
Fibre / Fibres 0 g	0 %
Sugars / Sucres 22 g	22 %
Protein / Protéines 2 g	
Cholesterol / Cholestérol 0 mg	
Sodium 0 mg	0 %
Potassium 450 mg	10 %
Calcium 30 mg	2 %
Iron / Fer 0 mg	0 %
*5% or less is a little, 15% or more is a lot	
*5% ou moins c'est peu, 15% ou plus c'est beaucoup	

This equals the amount of carbohydrate that will affect your blood sugar

How will I know how much rapid insulin to take?

You will work with your health care team to determine an insulin to carbohydrate ratio. This is a guide to determine how many units of insulin to cover a certain amount of carbohydrate.

For example:

1:10 insulin to carbohydrate ratio means 1 unit of insulin for 10 grams of carbohydrate

What about other food groups?

Meat and alternatives (chicken, fish, eggs and cheese) are sources of protein. These foods do not directly raise your blood glucose values. Large portions may affect your blood glucose values.

Fats (butter, margarine, nuts, oils, seeds) do not turn into glucose into your body. Large portions of fat may slow down the way your food is digested and absorbed and may have an impact on your blood glucose values.

What about alcohol?

Alcohol:

- can cause blood sugar levels to increase or decrease
- is acceptable in moderation for most people

What are the alcohol recommendations?

If you drink alcohol, Diabetes Canada recommends:

Men: No more than 3 drinks per day (no more than 15 drinks per week)

Women: No more than 2 drink per day (no more than 10 drinks per week)

One drink is:

- 5 oz (150 mL) of wine (12% alcohol)
- 1.5 fl oz (45 mL) alcohol spirits (40% alcohol, e.g. rye, rum, vodka)
- 12 oz (360 mL) beer (5% alcohol)



Precautions with Alcohol

- Discuss alcohol use with your health care provider
- Drink alcohol only when your blood sugar levels are well controlled
- Drink alcohol with food and not on an empty stomach. There is a risk of hypoglycemia (low blood glucose) with alcohol and insulin that can be delayed up to 24 hours
- Check your bedtime and morning blood glucose values for low blood glucose if having alcohol the previous evening
- Always have a treatment for low blood glucose with you such as four glucose tablets or $\frac{2}{3}$ cup regular pop
- Wherever you are, make sure someone with you knows your signs and symptoms of low blood glucose and how to treat it so they can help you
- Do not take extra insulin to compensate for the carbohydrate in alcohol
- Limit drinks with higher sugar content like liqueurs, sweet wines, and coolers as these can raise your blood glucose levels
- Be responsible when drinking alcohol

Keeping Active

Why do I have to keep active?

Keeping active can:

- Improve your blood sugar level
- Improve your mood, sleep patterns and energy level
- Manage stress



Each person reacts differently to activity. Physical activity may lower blood glucose, but intense exercise may raise blood glucose due to stress hormones being released.

Check your blood glucose level before, during and after the exercise to learn what changes occur.

You may notice higher or lower blood glucose levels for many hours after the activity.

Once you know how exercise changes your blood glucose, you may not need to test as frequently.

Diabetes takes some extra planning to avoid low blood glucose. Extra food or reducing your insulin helps prevent low blood glucose. Take extra food before, during or after the exercise depending on the time of the day, length and intensity of the exercise.

Special Situations in Diabetes

What special situations affect my diabetes?

Special situations that need attention are:

1. Low blood glucose (hypoglycemia)
2. High blood glucose (hyperglycemia)
3. Sick Days

What is low blood glucose (hypoglycemia)?

Low blood glucose is when your blood glucose is **less than 4 mmol/L**. It is also called **hypoglycemia**. When you take insulin, you are at risk of having a **low blood glucose**.

How do I feel when my blood glucose is low?



- headache
- fast heartbeat
- sweating
- trembling
- tingling
- dizziness
- hunger
- anxiety
- confusion
- nausea
- blurry vision
- irritability
- difficulty concentrating
- difficulty speaking
- drowsiness

Not all symptoms will be present. You may have other or no symptoms.

If you have one or more of these symptoms, test your blood glucose to see if it is less than 4 mmol/L.

If your blood glucose is less than 4.0 mmol/L, you need to treat it **right away**. If left untreated, your symptoms could get worse and you could pass out.

If you are not able to test your blood glucose, treat your symptoms right away.

How do I treat low blood glucose?

Step 1

1. Stop what you are doing
2. Eat or drink 15 grams of fast-acting carbohydrate

Choose **one** of these:

- 4 DEX4™ glucose tablets (1 tablet = 4 g carbohydrate)
- 3 teaspoons or 1 tablespoon or 3 packets of table sugar (may be dissolved in water)
- 1 tablespoon (15mL) of honey
- 2/3 cup (150 mL) of regular pop (not sugar free or diet)
(If you have **Kidney Disease**, use non-cola regular pop)
- 2/3 cup (150 mL) of fruit juice (orange juice works slower)
(If you have **Kidney Disease**, use apple juice)
- 6 LifeSavers™ (1 = 2.5 g of carbohydrate)

Step 2

1. Sit down and rest for 15 minutes. Check your blood glucose level again.
2. If your blood glucose is still less than 4.0 mmol/L or if the symptoms of low blood glucose do not go away after 15 minutes, repeat Step 1.
3. If symptoms persist despite retreatment seek medical attention immediately.

If your next meal is more than one hour away, eat a snack with 15 grams of carbohydrate and a protein source. This will help maintain your blood glucose level until your next meal.

For example:

Starch: 7 soda crackers OR 1 slice of bread

AND

Protein: 1 oz (30 g) of cheese or 2 tablespoons (30 mL) of peanut butter or 1 egg

What can I do if I can't treat my low blood glucose because I am too disoriented?

You may require another individual to inject **glucagon** that will help your body provide glucose to raise your blood glucose levels.

Why is this important?

- Severely low glucose levels may result in a person with diabetes not being able to swallow or becoming unconscious
- Glucagon is used to treat hypoglycemia emergencies
- A friend or family member should know where the glucagon kit is and how to give glucagon in times of such emergencies

What is glucagon?

- Glucagon is a hormone that quickly raises your blood glucose level in an **emergency** by releasing stores of glucose from the liver
- People in regular contact with a person with diabetes should become familiar with when and how to use glucagon before an emergency arises.
- A prescription from the doctor is needed to obtain a Glucagon Emergency Kit from the pharmacy

Glucagon may not work if a person has:

- two alcoholic drinks in the previous few hours
- long periods of time without food intake
- liver disease

Diabetes and Driving

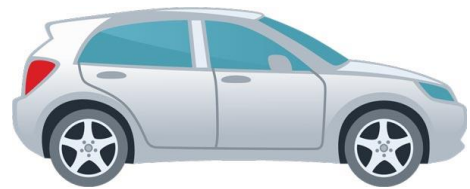
When you take insulin or some types of pills for diabetes, you are at risk of having a **low blood glucose at any time**. These medications may lower your blood glucose quickly.

If you have a low blood glucose while driving, you are a danger to yourself and others. A low blood glucose which is less than 4.0 mmol/L is also called hypoglycemia.

Your blood glucose should be **over 5.0 mmol/L to drive**.

Remember: “Over 5 to Drive”

What do I need to do before I drive?



Always test your blood glucose just before driving:

- If your blood glucose is **over 5.0 mmol/L**, you can drive.
- If your blood glucose is 4.0-5.0 mmol/L, eat a snack with 15 grams of carbohydrate and a protein source to raise and keep your blood glucose over 5.0 mmol/L.

For example:

Starch: 7 soda crackers OR 1 slice of bread

AND

Protein: 1 oz (30 g) of cheese or 2 tablespoons (30 mL) of peanut butter or 1 egg

- If your blood glucose is **less than 4.0 mmol/L** or you have one or more of the symptoms of a low blood glucose, you need to raise your blood glucose quickly by following **Steps 1, 2 and 3 on the next page**.

How do I treat low blood glucose?

Step 1

If you are driving, stop the vehicle in a safe location, and remove the keys from the ignition.

Step 2

Eat or drink 15 grams of fast-acting carbohydrate.

Choose **one** of these:

1. 4 DEX4™ glucose tablets (1 tablet = 4 g carbohydrate)
2. 3 teaspoons or 1 tablespoon or 3 packets of table sugar (may be dissolved in water)
3. 1 tablespoon (15mL) of honey
4. 2/3 cup (150 mL) of regular pop (not sugar free or diet)
(If you have **Kidney Disease**, use non-cola regular pop)
5. 2/3 cup (150 mL) of fruit juice (orange juice works slower)
(If you have **Kidney Disease**, use apple juice)
6. 6 LifeSavers™ (1 = 2.5 g of carbohydrate)

Step 3

DO NOT drive. Wait 15 minutes. Check your blood glucose again:

- If your blood glucose is still **4.0 mmol/L or less** or your symptoms have not gone away, repeat Step 2.
- If your blood glucose is over 4.0 mmol/L, eat a snack with 15 grams of carbohydrate and a protein source to raise and keep your blood glucose over 5.0 mmol/L.

For example:

Starch: 7 soda crackers OR 1 slice of bread

AND

Protein: 1 oz (30 g) of cheese or 2 tablespoons (30 mL) of peanut butter or 1 egg

- Once your blood glucose is over 5.0 mmol/L, then you can drive.



After you treat low blood glucose, always wait at least 45 minutes before you drive. You need time to fully recover and be able to drive safely.

What should I do if I have symptoms of low blood glucose while I am driving?

If you feel that your blood glucose is low:

- Stop the vehicle in a safe location
- Remove the keys from the ignition
- Test your blood glucose
- Treat a low blood glucose by doing Step 2 and Step 3
- Wait at least 45 minutes before driving

Before driving, have these supplies available in your car:

- Quick sugar (glucose tablets, lifesavers, juice, regular pop)
- Nonperishable snacks (granola, arrowroots, crackers)
- Always travel with your blood glucose monitor and testing supplies.
- Do not store your monitor and supplies in the vehicle. Hot or cold temperatures can affect your blood glucose reading.

What is high blood glucose (hyperglycemia)?

Hyperglycemia is when your blood glucose is above your target range.

Illness, infection, stress, certain medications or not enough insulin can cause hyperglycemia.

You may feel:	You may have:
<ul style="list-style-type: none">• Hungry• Extreme thirst• Fatigue• Weak	<ul style="list-style-type: none">• Frequent urination• Blurred vision

If you have symptoms, check your blood glucose level, and make sure to check it before every meal for the next 2 days.

Some people who have hyperglycemia have no symptoms at all.

You may only know you have hyperglycemia from your blood glucose testing. The occasional high reading is not a concern.

When your blood glucose is above your target range for more than week, even if you are not sick, contact your doctor or diabetes health care team to work on ways to lower your blood glucose.

What should I do when I'm sick?

When you get sick, your blood glucose level may be more difficult to keep in control.

Your blood glucose may go too high or too low.



Be prepared **before** you get sick and know what to do!

1. Check your blood glucose.

- Check and record your blood glucose more often (e.g. every 4 hours)

2. Keep taking your insulin

3. Keep drinking fluids and eating (if possible)

- If you are sick and unable to tolerate fluid, you may become dehydrated. Check with your healthcare provider if you are concerned.

If you are unable to eat your usual meals/snacks, use this as a simple guide:

SUGAR-CONTAINING FLUIDS Try having 1 serving of these fluids every 1-2 hours (Each provides 15 grams of carbohydrates)	SUGAR-FREE FLUIDS Try having 1 cup of these fluids every hour
▪ ⅓ cup (150 mL) regular pop	▪ Water
▪ ⅓ cup (150 mL) juice	▪ Diet pop
▪ 1 popsicle	▪ Tea
▪ ½ cup regular Jello®	▪ Clear soup or broth

When you can tolerate more solid type foods try:

1 cup chicken noodle soup	1 slice toast/bread	1 small banana
2-3 plain cookies	1 cup plain yogurt	$\frac{3}{4}$ cup hot cereal
$\frac{1}{2}$ cup applesauce	$\frac{1}{3}$ cup rice	7 soda crackers
4 Melba Toast		

Each choice above provides 15 g carbohydrate.

What can happen if my blood glucose levels remain elevated?

Your body will break down fat and protein for alternative fuel, as your body cannot get glucose.

When fat is burned, ketones are produced. Large amounts of ketones are toxic to your body and can cause weakness, weight loss, stomach pain, rapid breathing, nausea and vomiting.

If high amounts of ketones remain in your body, **diabetic ketoacidosis or DKA** can happen.

Diabetic ketoacidosis or DKA is a very serious medical condition that may require hospitalization.

Causes

- Not taking any or enough insulin
- Taking expired insulin
- Not taking more insulin if ill or very stressed
- Injection areas that are used too often causing the insulin to not be absorbed properly

Signs

Diabetic ketoacidosis usually develops over hours or days. Watch for:

- Ketones in blood
- Symptoms of high blood glucose levels
- Loss of appetite with abdominal pain, nausea and vomiting
- Leg cramps, a flushed appearance, headache, dry tongue and sore throat
- Deep, heavy breathing
- A sweet “fruity” breath
- Drowsiness that leads to unconsciousness over time

You are in danger of diabetic ketoacidosis if you:

- Feel sick especially with stomach pains, vomiting or nausea
- Have a high blood sugar level greater than 14 mmol/L, and have blood ketones

Can I prevent diabetic ketoacidosis?

You can prevent diabetic ketoacidosis if correct steps are taken quickly. They are:

1. Blood Glucose Testing

Check your blood glucose more often (every 4 hours) when blood glucose levels are above 14 mmol/L

2. Ketone Testing

Check for ketones in blood. A special meter is needed to test blood ketones. Test for ketones every 4 hours. Check that your ketone strips have not expired before using

3. Insulin

Continue to take your insulin

4. Keep Hydrated

Drink water and sugar free fluids to keep hydrated

Your health team will discuss with you sick day guidelines and prevention of DKA.

Appendix

Where can I get more information and support?

Here are some websites and mobile apps to consider:

Websites:

www.diabetes.ca	Diabetes Canada
www.diabetes.org	American Diabetes Association
www.jdrf.ca	Juvenile Diabetes Research Foundation
www.t1thinktank.com	Type 1 Diabetes Think Tank Network
www.connectedinmotion.ca	Connected in Motion
www.behavioraldiabetes.org	Behavioral Diabetes Institute
www.eatrightontario.ca	Eat Right Ontario
www.dietitians.ca	Dietitians of Canada

Mobile Apps

(to help with carbohydrate counting):

My Fitness Pal

Calorie King



We are grateful to Hamilton Health Sciences and Credit Valley Hospital for sharing their patient education materials.
We have used some information from their resources in this booklet.