

# Type 2 Diabetes:

## What you can do to prevent diagnosis



The number of people living with diabetes has increased dramatically in the past 20 years. In Ontario, 1,169,000 people have been diagnosed with either type 1 or type 2 diabetes in 2010<sup>1</sup>. People from some ethnic groups including Hispanic, Asian, South Asian or African are more likely to develop Type 2 diabetes<sup>2</sup>.

Type 2 diabetes can be prevented if you make changes to your eating habits, weight and physical activity.

### What is diabetes?

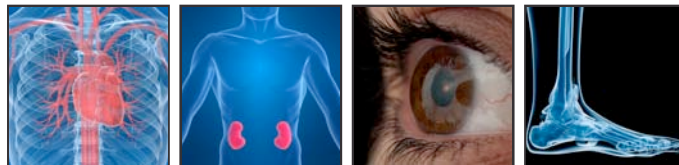
Diabetes is a condition that occurs when you have too much **glucose** or sugar in your blood. It cannot be cured but it can be prevented or managed.



### Why is diabetes a problem?

If diabetes is not treated or well managed, it can cause serious problems or complications such as:

- heart disease and stroke
- kidney disease
- eye disease
- nerve damage.



### What causes diabetes?

When you eat, your body breaks down the foods into **glucose**, which is a form of sugar. Glucose is used as energy or stored for later use. After you digest food, glucose enters your blood. Your body controls the levels of glucose with help from **insulin**, a hormone that is made in an organ called the pancreas. Insulin is a hormone that helps your body control the level of glucose (sugar) in your blood. Insulin lowers blood glucose by helping to move glucose into the body's cells, where it is used as fuel.

Diabetes is a condition that develops if your body stops making insulin (Type 1 Diabetes), doesn't make enough insulin or doesn't use insulin properly (Type 2 Diabetes). Since insulin affects the glucose/sugar levels in your blood, when you have diabetes, you will have higher levels of glucose. When this happens, you get too much glucose or sugar in your blood and glucose cannot enter the cells to be used as energy.

### Pre-diabetes

People with pre-diabetes have higher than normal levels of blood sugar that is not yet categorized as diabetes. They are at risk of developing type 2 diabetes but it can be prevented or delayed by making healthy food choices and by keeping active. Pre-diabetes can be diagnosed by your health care provider.

# Three Types of DIABETES

There are three types of diabetes:

- gestational
- type 1
- type 2

BLOOD SUGAR



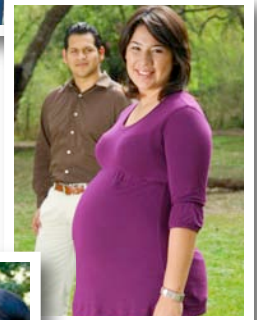
## Gestational Diabetes

About 4% of pregnant women develop gestational diabetes, which means they have high blood glucose during pregnancy. It is a temporary condition that ends after the baby is born. If a pregnant woman is diagnosed with gestational diabetes, both she and her child are at higher risk of developing diabetes in the future.



## Type 1 Diabetes

Type 1 diabetes usually begins before the age of 30. It develops suddenly when the pancreas does not make insulin or makes very little insulin. About 10% of people with diabetes have type 1. We don't know the cause. You can't stop it from happening and it is not caused by eating too much sugar. It can be managed with healthy eating and exercise and patients must use medication to control their diabetes.



## Type 2 Diabetes

Type 2 is the most common form of diabetes. It affects nearly one million people in Ontario. Type 2 diabetes usually develops in adults over 40 but more and more children are being diagnosed. It is caused when the body cannot make enough insulin or cannot use the insulin it makes properly. There are several factors that can increase your risk of developing type 2 diabetes. You can control many of these risk factors. Diabetes can be prevented by changing your food choices, maintaining a healthy weight and increasing your physical activity level.



## High-Risk Groups

Some people are more likely to develop diabetes than others. New immigrants to Canada are at high risk for diabetes compared with long-term residents of Ontario. People from countries in South Asia, the Pacific Islands, Latin America, the Caribbean and Africa have a higher risk of developing diabetes. Women who are recent immigrants from these areas have an equal or higher risk of getting diabetes than men.<sup>3</sup>



# Am I at risk?

## Check each item that applies to you:

There are some risk factors that you can't control. Check each item that applies to you:

- My family background is Caribbean, African, Hispanic, South Asian or East Asian.
- I have a parent, brother or sister with diabetes.
- I had gestational diabetes when I was pregnant.
- I gave birth to a baby who weighed over 4 kilograms (9 pounds) at birth.
- I have been diagnosed with any of the following conditions:
  - Polycystic ovary syndrome
  - Acanthosis nigricans (darkened patches of skin)
  - Schizophrenia.<sup>4</sup>

There are some risk factors that you can control.

Check each item that applies to you:

- I have high blood pressure.
- I am overweight, especially around the waist.
- I have high cholesterol or other fats in my blood.
- I have higher than normal glucose levels in my blood.
- I have health problems that are linked to diabetes such as diabetes eye, nerve or kidney problems.<sup>5</sup>

## How do I know if I have diabetes?

- Review the list of risk factors
- Talk to your health care provider about your risk for developing type 2 diabetes and about prevention strategies.
- Ask your health care provider to check your blood glucose, blood pressure and blood cholesterol



## Can I prevent diabetes?

Type 1 diabetes cannot be prevented. But Type 2 diabetes can be prevented. People at high risk for type 2 diabetes can prevent the disease if they lose as little as 5% of their body weight,<sup>6</sup> exercise for 150 minutes per week (i.e. by walking 30 minutes 5 days a week) and by making healthy food choices.

You should:

- find out if you are at risk
- lose a small amount of weight/maintain a healthy weight
- be more physically active, eat healthy regular, balanced meals and snacks.



## Be more active!

Physical activity may help you prevent type 2 diabetes. It does this by:

- lowering blood sugar level by improving your body's ability to use insulin.
- lowering blood pressure.
- helping you to lose weight and keep it off.<sup>7</sup>



# Make a plan for Physical Activity

Check each item that applies to you:

Choose an activity you enjoy. Start slowly—5 to 10 minutes a day. Any amount of physical activity will help, but to have even greater health benefits, it's important to increase activity to reach a goal of 150 minutes a week. For example, some people set goals of 30 minutes a day, 5 days a week or just over 20 minutes every day. Decide what works best for you. If you don't exercise regularly now, check with your health care provider before you begin.

Aerobic exercises work your heart and lungs and carry oxygen to your muscles. Examples include walking, skating, climbing stairs, dancing.

Set a goal that is easy and fun to do. Be specific and choose a time to do the activity. If you need support, find a friend or family member to do the activity with you. Here are some examples:

- I will walk around the block on Monday, Wednesday and Friday.
- I will dance to 3 songs with my children after dinner every week night.

The next step is to build your muscles. Simple exercises can increase your strength. Do sit-ups, push-ups, climb stairs, dig in the garden.

Keep track of your activities so that you see your progress. Write them on the calendar or make a goal sheet like this:

Day	Activity	How Long	Did I Reach This Goal?
Monday	Aquafit class	30 minutes	
Tuesday	Dance with children	3 songs	
Thursday	Walk from subway	10 minutes	



## Healthy eating - Why does it help?

To successfully prevent type 2 diabetes, you need to understand how the foods you eat and nutrition affect your body. Although blood glucose levels go up and down throughout the day it is important to know how to keep blood sugars stable.

Things that **lower** blood glucose include:

- eating regular balanced meals and snacks.
- having moderate to vigorous exercise for 150 minutes each week (or 30 minutes a day, 5 times a week).

**BLOOD SUGAR**



Blood glucose may increase when food, activity and medications are not balanced or when you are sick or under stress.

**BLOOD SUGAR**



# Healthy eating - Make a plan

## Choose more:

- high fibre foods like:
  - whole grain rotis, breads, cereals, brown rice, beans and lentils, dahl, fresh, colourful fruit and vegetables (fresh or frozen) such as broccoli, spinach, sweet potato, mango and carrots
- lean meats such as chicken, fish, low fat milk, yogurt, soy beverage, and tofu
- water.

## Limit:

- sweet foods – they raise your blood glucose and can lead to weight gain.
- high fat foods, especially those high in saturated fats or containing trans fats. They can cause you to gain weight. A healthy weight helps control blood glucose levels and is healthier for your heart.
- alcohol is high in calories and may contribute to weight gain.<sup>8</sup> Limit alcohol use to no more than one to two drinks per day.

Canada's **Food Guide** can help you and your family know what type of food you need each day and how much food you need, depending on your age and gender.



## Healthy eating- How to plan

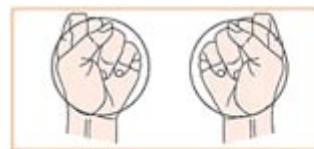
### The Plate Method<sup>9,10</sup>

Use your dinner plate. Divide it down the middle. Cut one of the sides in half again to create 3 sections.



### Handy Portion Guide<sup>11</sup>

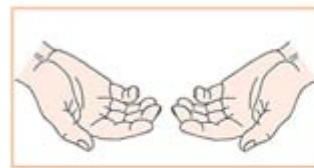
Use your hand as a way of measuring each type of food. Quantities are listed in the picture.



**CARBOHYDRATES** (grains and starches): Choose an amount the size of your 2 fists. For fruit, use 1 fist.



**PROTEIN:** Choose an amount the size of the palm of your hand and the thickness of your little finger.



**VEGETABLES:** Choose as much as you can hold in both hands. Choose low-carbohydrate vegetables (e.g. green or yellow beans, broccoli, lettuce).



**FAT:** Limit fat to an amount the size of the tip of your thumb.

The two methods work well together. For example, the Handy Portion Guide shows you that food you choose for the Grains and Starch section of your plate should be the size of your fist.

## Vegetables

You need to eat at least 2 kinds of vegetables such as broccoli, spinach or carrots to fill half a plate or two fists. Eat at least one dark green and one orange vegetable each day.

Eat at least one dark green and one orange vegetable each day. Choose dark green vegetables such as broccoli, romaine lettuce and spinach. Eat orange vegetables such as carrots, sweet potatoes and winter squash.



## Grains and Starches

You get carbohydrates or starches from grains, bread, rice, pasta, fruit and vegetables like corn, potatoes and yams. Foods in this group provide energy and fibre for your body and help you feel full. Choose foods that are higher in fibre, such as whole grain breads and cereals, rice, noodles and sweet potatoes. Choose an amount that fills about one quarter of your plate, or an amount the size of your fist for each grain, starch or fruit.



## Meat and Alternatives

Meat and alternatives provide protein, which helps to build tissues and muscles. It's important to remember that most protein sources also contain fat. Choose protein sources that are lower in fat. Good sources of protein include fish, lean meats, skinless chicken, eggs or tofu and beans or lentils.

Choose portions that are about the size of one quarter of your plate, or the size of your palm and the thickness of your little finger.



## Milk and Alternatives

Milk and fortified soy products help build strong bones. Choose lower fat milk and milk products such as skim, 1% or 2% milk, low-fat soy, rice or almond milk, as well as yogurt with less than 2% milk fat.



## Fat and Oil

You can lower the amount of fat you eat by using butter, margarine, oils and salad dressings in amounts that are the size of the tip of your thumb. Cook in low-fat ways. Steam, broil, bake, barbecue, roast or poach foods instead of frying. Use vegetable oils such as canola, olive and soybean.



**Finish the meal with a piece of fruit or a 1/2 cup fruit salad.**



## Tips for Meal-planning

- Eat regular, balanced meals.
  - Eating 3 meals a day can help control blood glucose levels.
  - Eat meals 4 to 6 hours apart.
- Eat at the table rather than in front of a screen (TV or computer).
- Eat slowly.
  - It takes your brain about 20 minutes to know that your stomach is full.
- Choose healthy, balanced portions (see the Plate Method or Handy Portions Guide).
- Drink water if you are thirsty. Regular pop and fruit juice raise blood glucose levels.
- Eat small snacks like pre-cut vegetables or fruit to control hunger.

## Healthy Meals For Your Culture

Do your meals fit the Healthy Meal plan? By making simple changes to recipes that you use already, you can increase the amount of fibre and vegetables you eat and reduce the salt, fat and calories.

# Make Simple Changes

## Reduce Fat, Salt and Sugar

- Bake, boil, steam or poach instead of frying with fat.
- Switch to lean cuts of meat or vegetarian alternatives.
- Reduce salt by choosing no sodium or low-sodium products and rinsing canned beans and vegetables.
- Reduce the amount of sugar in recipes.
- Make smaller baked goods (muffins, cookies, biscuits).

## Include more:

- vegetables
- whole grains
- high fibre foods
- legumes, tofu
- balance between food types.

## Make a plan!

- Review the list of risk factors for diabetes.
- If you have any symptoms, talk to your health care provider.
- Be more active. Choose an activity you enjoy.
- Start slowly—5 to 10 minutes a day.
- Plan a healthy menu for the week.
- Keep track of your progress.
- Learn more about preventing diabetes.

**The next few pages show tips for planning healthier meals. They show examples of different ways of eating but they may not list food that you and your families eat. Look at them to get ideas about how to make simple changes to create healthier meals.**



# Tips for Planning East Asian Meals

## Make Simple Changes

### Reduce Fat, Salt and Sugar

- Bake, boil, steam or poach instead of frying with fat.
- Switch to lean cuts of meat or vegetarian alternatives.
- Reduce salt by choosing no sodium or low-sodium products and rinsing canned beans and vegetables.
- Reduce the amount of sugar in recipes.
- Make smaller baked goods.



### Include more:

- vegetables
- whole grains
- high fibre foods
- legumes, tofu
- balance between food types.

Instead of...	Try Simple Changes...	Healthier choice
1 bowl pork broth with Chinese herbs	Reduce fat- skim fat from soup	1 bowl pork broth with Chinese herbs (fat-skimmed off)
Stir fried beef with broccoli and cashews	Reduce fat- Choose lean meat, more vegetables	Stir fried chicken with broccoli and carrots
1 cup bok choy stir-fried in 2 tbsp. peanut oil	Remove fat	1 cup bok choy steamed
2 bowls rice with soy sauce	Reduce salt Reduce portions	1 bowl rice with no sodium or low sodium soy sauce
Moon cake	Switch	1 small orange
1 can cola	Switch	Plain tea



# Tips for Planning South Asian Meals

## Make Simple Changes

### Reduce Fat, Salt and Sugar

- Bake, boil, steam or poach instead of frying with fat.
- Switch to lean cuts of meat or vegetarian alternatives.
- Reduce salt by choosing no sodium or low-sodium products and rinsing canned beans and vegetables.
- Reduce the amount of sugar in recipes.
- Make smaller baked goods.



### Include more:

- vegetables
- whole grains
- high fibre foods
- legumes, tofu
- balance between food types.

Instead of...	Try Simple Changes...	Healthier choice
2 potato parathas	Reduce fat Switch to whole grains	2 whole wheat chapati
1 cup spinach paneer	Add more spinach, reduce paneer	1 cup spinach paneer
½ cup potato curry	Switch to protein and vegetable	½ cup tomato dahl
½ cup raita	Reduce fat	½ cup low fat yogurt raita
2 gulabjaman	Eat smaller portions Add fruit more often Add balance	1 gulabjaman ½ mango
1 cup salty lassi	Remove salt Reduce fat	½ cup low fat yogurt
3 tsp. oil used in cooking	Reduce fat	2 tsp. oil used in cooking

# Tips for Planning Hispanic Meals

## Make Simple Changes

### Reduce Fat, Salt and Sugar

- Bake, boil, steam or poach instead of frying with fat.
- Switch to lean cuts of meat or vegetarian alternatives.
- Reduce salt by choosing no sodium or low-sodium products and rinsing canned beans and vegetables.
- Reduce the amount of sugar in recipes.
- Make smaller baked goods.



### Include more:

- vegetables
- whole grains
- high fibre foods
- legumes, tofu
- balance between food types.

Instead of...	Try Simple Changes...	Healthier choice
¾ cup refried beans with chorizo sausage and cheese	Reduce fat	¾ cup boiled beans with peppers and low fat cheese
3 corn tortillas	Reduce carbohydrates	2 corn tortillas
½ cup canned tomato salsa	Reduce salt	½ cup tomato, avocado, pepper, cilantro salsa
1 banana	Add more variety Add balance	½ cup fresh fruit salad
8 oz coffee with 3 oz milk	Reduce fat	8 oz coffee with 3 oz low fat milk

# Tips for Planning Caribbean and African Meals

## Make Simple Changes

### Reduce Fat, Salt and Sugar

- Bake, boil, steam or poach instead of frying with fat.
- Switch to lean cuts of meat or vegetarian alternatives.
- Reduce salt by choosing no sodium or low-sodium products and rinsing canned beans and vegetables.
- Reduce the amount of sugar in recipes.
- Make smaller baked goods.



### Include more:

- vegetables
- whole grains
- high fibre foods
- legumes, tofu
- balance between food types.

## Caribbean Meal

Instead of...	Try Simple Changes...	Healthier choice
2 fried eggs	Reduce fat	2 boiled eggs
2 fried eggs	Reduce fat	1 sausage
2 buttermilk biscuits with honey	Reduce fat and carbohydrates	2 slices whole wheat toast
½ fried plantain with brown sugar	Switch	1 cup cubed cantaloupe
1 Tbsp. margarine	Reduce portion	1 tsp. margarine
8 oz coffee with 3 t. sugar	Reduce sugar	coffee with 1 t. sugar

## African Meal

Instead of...	Try Simple Changes...	Healthier choice
3 fried sambusa stuffed with ground beef and spices	Reduce fat Switch to vegetables	2 sambusa with onions, green pepper, carrots, spinach
3 lamb kebabs in spiced yogurt sauce	Reduce fat	2 chicken kebabs in low fat yogurt
½ cup fried rice with vegetables and spices	Remove fat, boil	½ cup boiled rice with spices
½ cup watermelon juice	Switch	½ cup plain tea
1 piece Halwa	Reduce portions Add fruit	½ piece Halwa 1 guava

# Endnotes

- <sup>1</sup> Canadian Diabetes Association. *The Cost of Diabetes in Ontario*. Available: <http://www.diabetes.ca/documents/get-involved/cost-of-diabetes-ontario.pdf> Accessed April 2011.
- <sup>2</sup> Choi B.C.K., Shi F. "Risk factors for diabetes mellitus by age and sex: Results of the national population health survey." *Diabetologia* 2001;44(10):1221-1231.
- <sup>3</sup> Creatore, M.I., Moineddin, R., Booth, G., Manuel, D.H., DesMeules, M., McDermott, S., Glazier, R.H. (2010). "Age- and sex-related prevalence of diabetes mellitus among immigrants to Ontario, Canada." *CMAJ*, 182(8): 781-789.
- <sup>4</sup> Canadian Diabetes Association. *Are you at risk?* Available: <http://www.diabetes.ca/Files/are-you-at-risk.pdf> Accessed April 2011.
- <sup>5</sup> Ibid.
- <sup>6</sup> Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. "Canadian Diabetes Association 2008 clinical practice guidelines for the prevention and management of diabetes in Canada." *Can J Diabetes*. 2008;32(suppl 1):p. s 17. Available: <http://www.diabetes.ca/files/cpg2008/cpg-2008.pdf> Accessed April 2011.
- <sup>7</sup> Stand up to Diabetes. Queen's Printer for Ontario, 2009. <http://www.health.gov.on.ca/en/ms/diabetes/en/preven>
- <sup>8</sup> Fraser Health Diabetes Educators. *On the Road to Diabetes Health. An Information Booklet for People with Type 1 or Type 2 Diabetes*. January 2010. [http://www.fraserhealth.ca/your\\_health/conditions\\_&\\_diseases/diabetes/](http://www.fraserhealth.ca/your_health/conditions_&_diseases/diabetes/)
- <sup>9</sup> American Diabetes Association. *Create your Plate*. <http://www.diabetes.org/food-and-fitness/food/planning-meals/create-your-plate/#>
- <sup>10</sup> National Nutrition Committee, Canadian Diabetes Association. *Just the Basics. Healthy Eating for Diabetes Management and Prevention*. Toronto, ON: Canadian Diabetes Association; 2002. [http://www.rd411.com/diabetes\\_center/articles/images/pht\\_11pat\\_1.jpg](http://www.rd411.com/diabetes_center/articles/images/pht_11pat_1.jpg)
- <sup>11</sup> Canadian Diabetes Association. *Beyond the Basics: Meal Planning for Healthy Eating, Diabetes Prevention and Management* Canadian Diabetes Association, 2005. <http://www.diabetes.ca/files/plan%20your%20portions.pdf>