



**DIABETES AND YOU:  
MANAGE YOUR LIFESTYLE.  
REDUCE YOUR RISK.**



**HEART &  
STROKE  
FOUNDATION**

# Did you know?

Diabetes is a risk factor for heart disease and stroke.

Approximately 1.8 million Canadians live with diabetes.

These simple steps will help reduce your diabetes risk:

- Lead a healthy lifestyle
- Eat a healthy diet
- Get regular physical activity
- Be smoke-free

Many people with diabetes live long, happy and productive lives. So can you!

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# Will diabetes put you at risk of heart disease and stroke?

Diabetes is a serious condition. It can strike anyone, anywhere at any age. Diabetes increases the risk of heart disease and stroke. In fact, the majority of people (approximately 80%) with diabetes will die from heart disease and stroke. Diabetes is also the leading cause of blindness, kidney failure and non-traumatic amputation.

In Canada, the number of people with diabetes is growing every year, and they're getting younger. Approximately 1.8 million Canadians, or 5.5% of the population, were diagnosed with diabetes in 2005. That number is expected to climb to 2.4 million Canadians by 2016.

Though these statistics are cause for concern, there is also good news. Lifestyle changes can reduce your risk of the most common type of diabetes – type 2 diabetes – by 60%. While there are no safe and effective ways to prevent less common types of diabetes, a healthy lifestyle can reduce the risk of developing heart disease, stroke and other complications of diabetes.

# What is diabetes?

Diabetes develops when the body has a problem with a hormone called insulin. Insulin helps move sugar (known as glucose) in food from the blood into the cells of the body where it can be used for energy. The pancreas produces insulin. If it can't make enough insulin, or if the body's cells do not respond properly to the effects of insulin (called insulin resistance), glucose builds up and damages blood vessels in the body. Damaged blood vessels can cause problems such as heart disease, stroke, kidney disease (nephropathy), eye damage (retinopathy) and nerve damage (neuropathy).

## THERE ARE 3 TYPES OF DIABETES:

**TYPE 1** occurs in about 10% of cases. When cells in the pancreas that make insulin are destroyed, the body has no, or very little, insulin to move glucose from blood into body cells.

**TYPE 2** occurs in about 90% of cases. In type 2 diabetes, the pancreas usually doesn't produce enough insulin to meet the body's needs. In some instances, body cells can't use insulin properly.

**GESTATIONAL DIABETES** (diabetes during pregnancy) occurs in about 2 to 4% of pregnant women. In the Aboriginal population, gestational diabetes occurs more frequently (in about 8% to 18% of pregnant women). This form of diabetes usually goes away after giving birth, however, both mother and baby are at an increased risk of developing diabetes later in life.



# What is prediabetes?

Prediabetes is when blood glucose levels are almost as high as with diabetes. It is sometimes called Impaired Glucose Tolerance (IGT) or Impaired Fasting Glucose (IFG).

Prediabetes does not mean you have diabetes. However, it may indicate an increased risk for developing diabetes in the future. If you are told you have prediabetes, talk with your doctor about how frequently your blood glucose should be tested.

Making healthy lifestyle choices, such as controlling weight, eating a healthy diet and being physically active can help prevent developing diabetes.

# Who is at risk of diabetes and who should be tested?

Type 1 diabetes is usually diagnosed in people under 30, most often in children and teenagers. It's usually caused by an autoimmune reaction – the body attacks its own pancreatic cells for unknown reasons. This reduces the amount of insulin produced by the body. It is not caused by eating too much sugar. There is no safe and effective prevention of type 1 diabetes at this time.

Type 2 diabetes is more common in people over the age of 40. But, unfortunately, it is now being seen in younger people, even children. Most of these children are from ethnic groups that are at higher risk of developing type 2 diabetes particularly the Aboriginal, Hispanic, African and Asian populations.

People over 40 should have their fasting blood glucose checked every three years to screen for diabetes. If you have one or more of the following risk factors for diabetes, then your blood glucose should be checked more frequently. Also, all pregnant women should be screened between 24 and 28 weeks gestation or earlier if they have one or more of the following risk factors.

## RISK FACTORS OF TYPE 2 DIABETES INCLUDE:

- Being over 40 years of age
- Having a close relative (mother, father, sister brother) with type 2 diabetes
- Being a member of specific ethnic populations that are at increased risk of type 2 diabetes. These include Aboriginal, South Asian, Asian, African and Hispanic people
- Having prediabetes or slightly high blood glucose levels, but not high enough to be diagnosed with diabetes
- Having vascular disease (disease of the blood vessels)
- Having had gestational diabetes (diabetes during pregnancy)
- Having given birth to a large baby (a baby larger than 4 kg or 9 lb)
- Having high blood pressure
- Having high blood cholesterol
- Being overweight
- Having abdominal obesity (a large waistline)
- Having polycystic ovary syndrome
- Having schizophrenia
- Having acanthosis nigricans (darkened patches of skin or skin folds in areas such as the arm pit)

While you can't change your age or genetic background, you can eliminate or control many risk factors through a healthy lifestyle and if needed, medications. Reducing risk factors will decrease your chances of developing type 2 diabetes and the complications of heart disease and stroke.

## REDUCE THE RISK OF DIABETES

These simple steps will help reduce your diabetes risk.

- 1 Lead a healthy lifestyle
- 2 Eat a healthy diet
- 3 Get regular physical activity
- 4 Be smoke-free



# What is a healthy diet?

You can reduce your risk of diabetes and heart disease by following a healthy diet.

*Canada's Food Guide* recommends the number of servings from each food group that you should have every day to provide all of the nutrients your body needs. Visit [healthcanada.gc.ca/foodguide](http://healthcanada.gc.ca/foodguide) to view and download a copy *Canada's Food Guide*.

A healthy diet is low in fat, especially saturated and trans fats, and salt. It includes a variety of vegetables and fruit, whole grains and high fibre foods.

**To learn more about healthy eating, read our booklets *Eat Well. Live Longer* and *Heart-Healthy Eating Guide for Your Family* and visit [heartandstroke.ca/healthyliving](http://heartandstroke.ca/healthyliving).**

Following a healthy diet can help you achieve and maintain a healthy weight, lower your blood cholesterol and blood pressure, reduce your waist size, and improve glucose intolerance in prediabetes. It's up to you to make the change to a heart-healthy lifestyle.



# How much physical activity do you need?

Active living is a key ingredient of good health at all stages of life. The Heart and Stroke Foundation recommends that Canadian adults, including those with diabetes, be active 150 minutes per week, in bouts of 10 minutes or more.

If you've been inactive for a while, you need to gradually increase your activity level. Speak to your healthcare provider before starting a fitness program more vigorous than walking.

Making physical activity a habit is one way to decrease the threat of diabetes in young people. The Canadian Society for Exercise Physiology's *Physical Activity Guidelines for Children and Youth* recommend that inactive children and youth should achieve 60 minutes of moderate-to vigorous-intensity activity.

Examples of moderate-intensity activities include: biking, playground activities and skating.

Examples of vigorous-intensity activities include: running, swimming and rollerblading.

**To learn more about physical activity, read our brochure *Getting Active for Life* or visit [csep.ca/guidelines](http://csep.ca/guidelines) for *Canadian Physical Activity Guidelines for Children, Youth, Adults and Older Adults*.**

Just like a healthy diet, daily physical activity can reduce your risk for diabetes by helping to achieve and maintain a healthy weight, lower blood cholesterol and blood pressure, reduce your waist size, and improve glucose intolerance in prediabetes.

# Are you at an unhealthy weight?

Being overweight is unhealthy for many reasons. If you are carrying extra pounds, losing only 5% of body weight can reduce your chance of going from prediabetes to type 2 diabetes by as much as 60%. Losing weight will also help reduce your blood pressure and blood cholesterol, both independent risk factors for diabetes.

The body mass index (BMI) and waistline measurement are good ways to assess the risk of weight-related problems. One way to determine if your weight is putting you at risk is to calculate your BMI. Keep in mind that BMI only applies to healthy adults (ages 18 to 65). The BMI does not apply to infants, children, teens, pregnant or nursing women, older adults (over 65 years) or extremely muscular people.

You can calculate your BMI by dividing your weight in kilograms by the square of your height in metres or by using the chart on the following page.

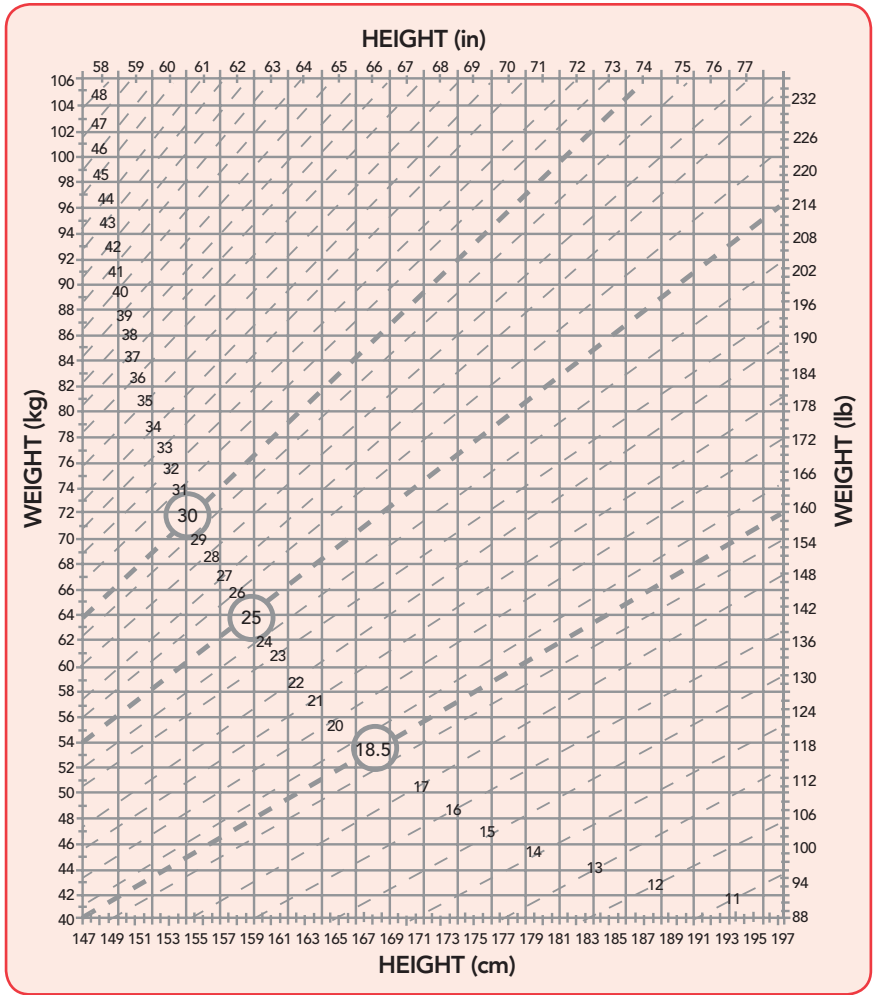
## FORMULA

$$\text{BMI} = \frac{\text{WEIGHT (KG)}}{[\text{HEIGHT (M)} \times \text{HEIGHT (M)}]}$$



To estimate your BMI, locate the point on the BMI calculator chart where your height and weight intersect. Read the number on the dashed line closest to this point. For example, if you weigh 69 kg and are 173 cm tall, you have a BMI of about 23, which is within the healthy range of 18.5 to 24.9.

Find your BMI in the chart below to assess your risk of developing health problems.



Source: Health Canada, Canadian Guidelines for Body Weight Classification in Adults. Ottawa: Minister of Public works and Government Services Canada; 2003.

## HEALTH RISK CLASSIFICATION ACCORDING TO BODY MASS INDEX (BMI).

Classification	BMI Category (kg/m <sup>2</sup> )	Risk of developing health problems
Underweight	<18.5	Increased
Normal Weight	18.5 - 24.9	Least
Overweight	25.0 - 29.9	Increased
Obese Class I	30.0 - 34.9	High
Obese Class II	35.0 - 39.9	Very high
Obese Class III	$\geq 40.0$	Extremely high

Source: Health Canada, Canadian Guidelines for Body Weight Classification in Adults. Ottawa: Minister of Public works and Government Services Canada; 2003.



Carrying excess weight around the middle also increases your risk of diabetes, heart disease, high blood pressure and high blood cholesterol. In general, a man whose waist measures more than 102 cm (40 inches) or a woman whose waist measures more than 88 cm (35 inches) is at an increased risk for health problems. For Chinese and South Asian people, waist measurements are smaller. A Chinese or South Asian man is at increased risk for health problems with a waist measurement of more than 90 cm (35 inches). For a Chinese or South Asian woman, increased risk starts at a measurement of more than 80 cm (32 inches).

### WAIST CIRCUMFERENCE\* BY GENDER AND ETHNICITY

Waist Circumference* by Gender and Ethnicity	Male	Female
European/Caucasian, Sub-Saharan Africans, Eastern Mediterranean, Middle Eastern	102 cm (40 in)	88 cm (35 in)
South Asian, Malaysian, Asian, Indian, Chinese, Japanese, Ethnic South and Central Americans	90 cm (35 in)	80 cm (32 in)

\*Waist circumference measurements do not apply to pregnant or breast-feeding women or people under the age of 18 or over the age of 65.

To learn more about measuring your waist, visit [heartandstroke.ca/healthywaists](http://heartandstroke.ca/healthywaists).

Of course, taking off excess weight is only effective if the weight stays off. Long-term success for weight loss requires:

- Slow weight loss of about 0.5 to 1 kg (1 to 2 pounds) per week
- Commitment to a healthy diet for the long term, avoiding fad diets
- Portion size control
- Daily physical activity
- Learning to cope with stress in ways other than eating

To learn more about achieving and maintaining a healthy weight, read our brochure *Your Health, Your Weight* or visit [heartandstroke.ca/healthyliving](http://heartandstroke.ca/healthyliving).

# When medication may be necessary

For some people, medication may be necessary to control or eliminate predictable risk factors for diabetes such as high blood pressure and high blood cholesterol. If your doctor has prescribed medications, it's vital that you take them as directed. Remember, it's still necessary to follow a healthy lifestyle while taking medications.



# Reducing your risk of heart disease and stroke when you have diabetes

Even people with type 1 or 2 diabetes can lower their chances of getting heart disease or stroke by controlling blood sugars through a healthy diet, physical activity, medications and insulin.

**For people with diabetes,** a doctor should decide a good blood glucose target, after considering a number of factors, such as the type of diabetes and the age of the patient. By maintaining blood glucose at the target level, the risk of heart disease and stroke and other complications of diabetes can be reduced.

**For the best blood glucose control,** follow a healthy diet based on *Canada's Food Guide*. The guide recommends a consistent amount of carbohydrate foods (carbohydrates are the nutrients in food which enters your blood as glucose) spaced throughout the day. A registered dietitian can help you plan and follow a personalized diet that you can enjoy, and will still help you achieve your target blood glucose level.

**Remember, regular physical activity is good for everyone.** Being physically active helps people with diabetes improve their physical fitness and energy, decrease blood cholesterol and maintain weight loss. Moderate to high levels of physical activity are directly linked to lower rates of illness and death in both men and women with either type 1 or 2 diabetes. For more information on nutrition, physical activity and diabetes visit the Canadian Diabetes Association's web site at [diabetes.ca](http://diabetes.ca).



**For people with type 1 diabetes,** it is very important to follow a healthy lifestyle to reduce risks of heart disease and stroke, and other complications of diabetes. People with this disease will need to take insulin regularly for the rest of their lives, or until a cure is found. People with type 1 diabetes need to work with their healthcare provider and diabetes healthcare team (doctor, nurse and dietitian, and other team members) to manage their diabetes, meet their target blood glucose levels and minimize their risk for complications.

**For type 2 diabetes,** your doctor might want you to try to make lifestyle changes for two to three months before considering medication. That might be all you need to reach your target blood glucose level. If your blood glucose is too high, or the lifestyle changes aren't enough to control your blood glucose, then your doctor will start you on blood glucose lowering medications.

When your blood glucose levels are not adequately controlled by medications alone, you may need to start on insulin. Whether you are on medications or insulin to manage your diabetes, it is still important that you follow a healthy lifestyle to reduce the risk of heart disease and stroke and other complications of diabetes. Work with your healthcare provider and diabetes healthcare team to establish a plan that works for you.



# You can do it!

Remember, every journey starts with one small step. If you are at high risk for diabetes, do what you can to minimize the threat. If you have diabetes, do all you can to manage it. That might include making significant lifestyle changes that may be difficult at first. Start by setting specific goals that are realistic and attainable. For guidance and support, use the resources in your community, including your healthcare provider, the Canadian Diabetes Association ([diabetes.ca](http://diabetes.ca)), the Canadian Society for Exercise Physiology ([csep.ca](http://csep.ca)), the Heart and Stroke Foundation ([heartandstroke.ca](http://heartandstroke.ca)), Health Canada ([healthcanada.gc.ca](http://healthcanada.gc.ca)), Dietitians of Canada ([dietitians.ca](http://dietitians.ca)), your local public health office, and your local library. Enlist your family and friends to help you whenever possible.

**Many people with diabetes live long, happy and productive lives. So can you!**



# Take the first steps toward a longer, healthier life!

Be aware of your risk factors and learn how to reduce your risk of heart disease and stroke. Visit [heartandstroke.ca/risk](http://heartandstroke.ca/risk) and take My Heart&Stroke Risk Assessment™. Get a personalized risk profile and a customized action plan for healthy living that includes tips, tools, recipes and much more. It's quick, free and confidential.



Millions of Canadians will develop some form of heart disease or stroke over their lifetime - and some at a much too early age. As a leading funder of heart and stroke research in Canada, the Heart and Stroke Foundation continues to find the answers that lead to earlier diagnoses, better treatments and new insights into how to prevent and manage these diseases. To protect your health and the health of those you love, the Foundation also provides the most up-to-date healthy living information to Canadians, based on the most current, evidence-based research.



To find out more about Heart and Stroke Foundation prevention or disease-related information, and to learn how you can offer much-needed support in your community, visit

**[heartandstroke.ca](http://heartandstroke.ca)**

or call

**1-888-HSF-INFO (473-4636)**

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