

# Health topics

## Diabetes Mellitus

### Type 2



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#### What is Diabetes Mellitus Type 2?

Type 2 diabetes is a chronic (lifelong) disease marked by high levels of sugar (glucose) in the blood, due to a problem in the way your body uses insulin.

Type 2 diabetes is the most common form of diabetes.

#### What causes it?

When you have Type 2 diabetes, the body (fat, liver, and muscle cells) does not respond correctly to insulin. This is called insulin resistance. As a result blood sugar does not get into cells to be stored for energy.

When sugar cannot enter cells, abnormally high levels of sugar build up in the blood. This is called hyperglycaemia. High levels of blood sugar often trigger the pancreas to produce more and more insulin, but it is not enough to keep up with the body's demand.

People who are overweight are more likely to have insulin resistance, because fat interferes with the body's ability to use insulin.

Type 2 diabetes usually occurs gradually. Most people with the disease are overweight at the time of diagnosis. However, Type 2 diabetes can also develop in those who are thin, especially the elderly.

#### What are the symptoms?

**Often, people with Type 2 diabetes have no symptoms at all. If you do have symptoms, they may include:**

- ✦ Blurred vision
- ✦ Erectile dysfunction
- ✦ Fatigue
- ✦ Frequent or slow-healing infections
- ✦ Increased appetite
- ✦ Increased thirst
- ✦ Increased urination

Family history and genetics play a large role in Type 2 diabetes. Low activity levels, poor diet, and excess body weight (especially around the waist) significantly increase your risk for Type 2 diabetes.

#### How is it diagnosed?

**Type 2 diabetes is diagnosed with the following blood tests:**

- ✦ Fasting blood glucose level -- diabetes is diagnosed if higher than 7.0mmol/l on two occasions.
- ✦ Hemoglobin A1C test -- this test has been used in the past to help patients monitor how well they are controlling their blood glucose levels. In 2010, the American Diabetes Association recommended that the test be used as another option for diagnosing diabetes and identifying pre-diabetes. Levels indicate:
  - o Normal: Less than 5.7%
  - o Pre-diabetes: Between 5.7% - 6.4%
  - o Diabetes: 6.5% or higher
- ✦ Oral glucose tolerance test -- diabetes is diagnosed if glucose level is higher than 11.1mmol/l after 2 hours
- ✦ Random (non-fasting) blood glucose level -- diabetes is suspected if higher than 11.1mmol/l and accompanied by the classic symptoms of increased thirst, urination, and fatigue (this test must be confirmed with a fasting blood glucose test)

## How can Diabetes Mellitus Type 2 affect my health?

After many years, diabetes can lead to serious problems with your eyes, kidneys, nerves, heart, blood vessels, and other areas in your body.

**The risk of long-term complications from diabetes can be reduced. If you control your blood glucose and blood pressure, you can reduce your risk of death, stroke, heart failure, and other complications. Reduction of HbA1c by even 1% can decrease your risk for complications by 25%.**

**In general, complications include:**

- ❖ Cataracts
- ❖ Damage to blood vessels that supply the legs and feet (peripheral vascular disease)
- ❖ Diabetic retinopathy (eye disease)
- ❖ Foot sores or ulcers, which can result in amputation
- ❖ Glaucoma
- ❖ High blood pressure
- ❖ High cholesterol
- ❖ Kidney disease and kidney failure (diabetic nephropathy)
- ❖ Macular oedema
- ❖ Nerve damage, which causes pain and numbness in the feet, as well as a number of other problems with the stomach and intestines, heart, and other body organs (See: Diabetic neuropathy)
- ❖ Stroke
- ❖ Worsening of eyesight or even blindness

**Other complications include:**

- ❖ Erection problems
- ❖ Infections of the skin, female genital tract, and urinary tract

## Treatment

The immediate goal of treatment is to lower high blood glucose levels. The long-term goals of treatment are to prevent diabetes-related complications.

The primary treatment (and also possible prevention) for type 2 diabetes is exercise and diet.

Some people with type 2 diabetes find they no longer need medication if they lose weight and increase activity. When they reach their ideal weight, their own insulin and a careful diet can control their blood glucose levels.

If diet and exercise do not help maintain normal or near-normal blood glucose levels, your doctor may prescribe medication. Since these drugs help lower your blood sugar levels in different ways, your doctor may have you take more than one type.

If you continue to have poor blood glucose control despite lifestyle changes and taking medicines by mouth, your doctor will prescribe insulin. Insulin must be injected under the skin using a syringe or insulin pen device. It cannot be taken by mouth.

It is not known whether hypoglycaemia medications taken by mouth are safe for use in pregnancy. Women who have Type 2 diabetes and take these medications may be switched to insulin during pregnancy and while breastfeeding.

Since those with diabetes have a much higher chance of developing heart disease, kidney disease, and other medical problems, they may need to take certain medicines to treat these problems or prevent them from happening.

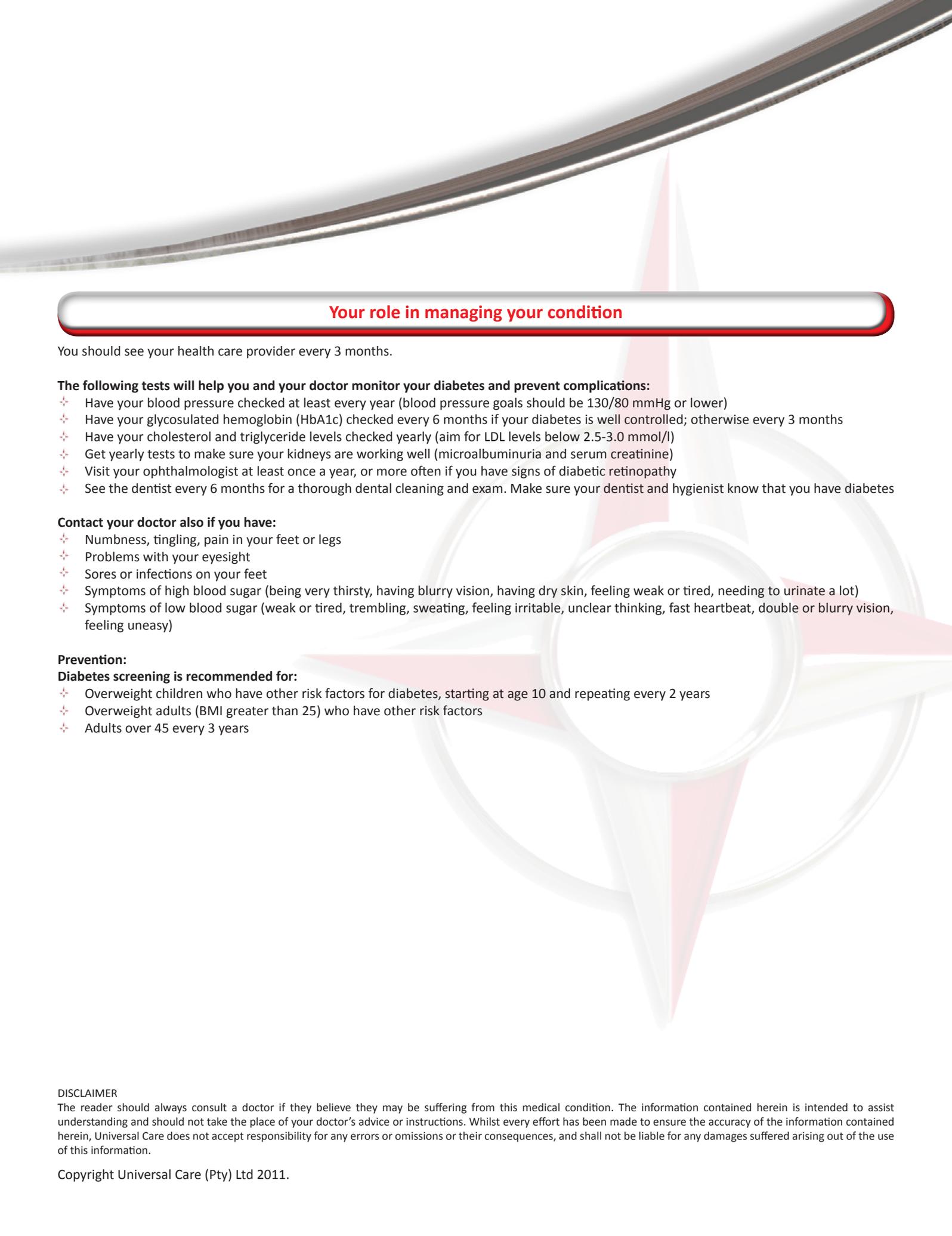
**An ACE inhibitor (or ARB) is often recommended:**

- ❖ As the first choice medicine for treating high blood pressure in persons with diabetes
- ❖ For those who have signs of early kidney disease

Statin drugs are usually the first choice to treat an abnormal cholesterol level. Aim for LDL cholesterol level less than 3.0mmol/l (less than 2.5mmol/l in high-risk patients)

**Aspirin to prevent heart disease is most often recommended for persons with diabetes who:**

- ❖ Are 40 or older
- ❖ Have a history of heart problems
- ❖ Have a family history of heart disease
- ❖ Have high blood pressure or high cholesterol
- ❖ Smoke



## Your role in managing your condition

You should see your health care provider every 3 months.

### The following tests will help you and your doctor monitor your diabetes and prevent complications:

- ❖ Have your blood pressure checked at least every year (blood pressure goals should be 130/80 mmHg or lower)
- ❖ Have your glycosylated hemoglobin (HbA1c) checked every 6 months if your diabetes is well controlled; otherwise every 3 months
- ❖ Have your cholesterol and triglyceride levels checked yearly (aim for LDL levels below 2.5-3.0 mmol/l)
- ❖ Get yearly tests to make sure your kidneys are working well (microalbuminuria and serum creatinine)
- ❖ Visit your ophthalmologist at least once a year, or more often if you have signs of diabetic retinopathy
- ❖ See the dentist every 6 months for a thorough dental cleaning and exam. Make sure your dentist and hygienist know that you have diabetes

### Contact your doctor also if you have:

- ❖ Numbness, tingling, pain in your feet or legs
- ❖ Problems with your eyesight
- ❖ Sores or infections on your feet
- ❖ Symptoms of high blood sugar (being very thirsty, having blurry vision, having dry skin, feeling weak or tired, needing to urinate a lot)
- ❖ Symptoms of low blood sugar (weak or tired, trembling, sweating, feeling irritable, unclear thinking, fast heartbeat, double or blurry vision, feeling uneasy)

### Prevention:

#### Diabetes screening is recommended for:

- ❖ Overweight children who have other risk factors for diabetes, starting at age 10 and repeating every 2 years
- ❖ Overweight adults (BMI greater than 25) who have other risk factors
- ❖ Adults over 45 every 3 years

#### DISCLAIMER

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