



## Information of Diabetes

### 1. What is Diabetes?

Insulin is a hormone produced by the pancreas. It helps the broken-down glucose to enter the cells and provide body heat. If the insulin is insufficient or unable to function, the glucose in the blood cannot fully enter the cells. When this happens, the glucose concentration in the blood increases, and some of it could excrete in the urine.

### 2. How to diagnose diabetes?

If there are no symptoms of hyperglycemia, two or two of the first three of the following can diagnose diabetes:

- (1) If HbA1C is  $\geq 6.5\%$ .
- (2) If blood sugar level is  $\geq 126$  mg/dL (7 mmol/L), after fasting for at least 8 hours.
- (3) If GTT (Glucose Tolerance Test) with 75g intake, results in glucose level  $\geq 200$  mg/dl at the second hour.
- (4) If the patient presents symptoms like extreme hunger, increased thirst, frequent urination, unexplained weight loss, or blood glucose level over 200 mg/dl.

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### 3. Risk Factors of diabetes.

- (1) Having diabetes in the family.
- (2) Prediabetes. Which refer to:
  - A. Glucose intolerance (decreased ability to tolerate glucose, which means glucose can increase blood sugar). Diagnosed if the blood sugar value is 140-199mg/dl in the second hour of the oral glucose tolerance test(OGTT).
  - B. High fasting blood sugar: the fasting blood sugar value is 100-125mg/dl.
  - C. Glycated hemoglobin(HbA1C): 5.7-6.4mg/dl.
- (3) Age  $\geq$  40.
- (4) Overweight (BMI  $\geq$  24) or waist circumference more than 90cm for males and 80cm for females.
- (5) Lack of exercise.
- (6) People who have hypertension or hyperlipidemia.
- (7) Women who have never had blood sugar problems but occurs to have high blood sugar during pregnancy (so-called Gestational diabetes).
- (8) Women who have given birth to a newborn weighing more than four kilograms.

Furthermore, smoking, drinking, and high blood pressure may easily lead to diabetes.



#### 4. Type of Diabetes.

(1) Diabetes mellitus type 1 (insulin-dependent diabetes mellitus):

This type of diabetes is related to genetic and environmental factors.

It occurs when the pancreas cannot secrete or can secrete only very little insulin. Hence, glucose cannot enter the cells and accumulates in the blood. Diabetes type 1 mainly affects young subjects, such as infants and teenagers.

(2) Diabetes mellitus type 2 (non-insulin-dependent diabetes mellitus):

This type of diabetes occurs when the insulin secreted is not enough, or its quality is poor. Liver, fat, and muscle resistance to insulin can cause it too. Diabetes type 2 is frequent in middle-aged and elders, and it is often combined with hypertension, hyperlipidemia, and obesity.

(3) Gestational diabetes:

During pregnancy, blood sugar levels may rise. Although they can normalize after labor, it is crucial to follow up with the patient.

(4) Other types of diabetes:

Some types of diabetes can find their cause in pancreatic diseases, endocrine diseases, or drug side effects.

#### 5. What are the symptoms of diabetes?

In the early stage of the onset, most patients have no symptoms. It is not easy to find out except by a blood sugar test. It is essential to keep the disease under control, or blood sugar will rise over time, and severe symptoms will appear.

With the advanced stage come symptoms such as extreme hunger, increased thirst, frequent urination, unexplained weight loss, slow wound healing, and fatigue.



## 6. What are the complications of diabetes?

If patients do not keep their blood sugar within the ideal range, they will experience serious complications that can end in disability and death too. These complications include:

### (1) Microvascular disease.

#### A. Ophthalmopathy

Retinopathy can lead to vision loss or, in severe cases, to blindness.

#### B. Nephropathy

Kidneys rely on many small blood vessels to filter the waste in the blood. Elevated blood sugar causes pathological changes in this filtering system.

#### C. Neuropathy

Some patients may become insensitive. They can experience limb tingling and numbness that usually begins at the tips of the toes or fingers.

### (2) Macrovascular disease.

Arteriosclerosis in the brain, heart and peripheral blood vessels is the first cause of hypertension, heart disease, and strokes.

## 7. How to control diabetes?

### (1) Diet control.

A healthy diet is the first method to control diabetes. The patient should follow a balanced diet therapy to control blood sugar and maintain health.

### (2) Exercise.

Regular exercise can benefit patients' bodies in many ways.

First, it decreases blood sugar thanks to the more efficient use of insulin.

Second, it reduces body fat.

Last but not least, it lowers blood pressure.

### (3) Medication.

When diet control and exercise cannot bring blood sugar back to normal, it is necessary to resort to oral hypoglycemic agents or insulin shots. Please, remember to follow the doctor's prescription about the time and the amount. Do not make adjustments by yourself.

## 8. Self-care for diabetes.

- (1) Balance your diet.
- (2) Follow your doctor's instructions for the medication.
- (3) Do frequent exercise.
- (4) Keep your blood sugar under control.
- (5) Pay attention to your oral hygiene and go for regular dental checkups. High blood sugar can stimulate the growth of microorganisms, which can cause cavities, periodontal disease, and gingivitis.
- (6) Check your feet daily, and trim the toenails neatly. Wear soft leather, well-fitting, and low-heeled shoes.
- (7) Get an eye exam frequently.
- (8) Avoid excessive dryness of the skin. If your wounds do not heal well, seek medical attention as soon as possible.
- (9) Reduce cardiovascular risk factors as much as you can. The best ways to do so are: to lose weight, quit smoking (including electronic cigarettes), and avoid second-hand smoke.

## 9. Conclusion.

Diabetes is a chronic disease, and we do not have a cure for it. Thus, to live peacefully with it, please monitor your blood sugar, balance your diet, exercise regularly, follow the therapy given by your doctor, and reduce risk factors (lose weight and quit smoking).



## 10. References

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Let's take the test to make sure you understand

1. In the early stages of diabetes, most patients have no symptoms unless their blood sugar is tested.

YES  NO  UNKNOWN

2. The first method used to control diabetes is Diet control.

YES  NO  UNKNOWN

3. You can adjust the dosage of diabetes medication based on your own measured blood sugar.

YES  NO  UNKNOWN

4. Diabetes can control through blood sugar monitoring, Diet control., regular exercise, regular take medication.

YES  NO  UNKNOWN

5. With the advanced stage come symptoms such as extreme hunger, increased thirst, frequent urination, unexplained weight loss, slow wound healing, and fatigue.

YES  NO  UNKNOWN