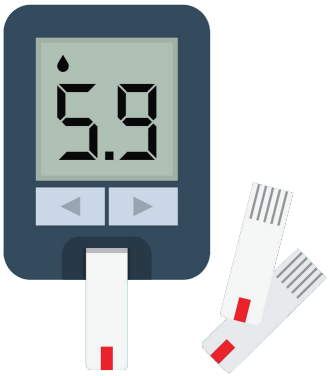
DIABETES



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DIABETES

WHAT IS DIABETES?

Diabetes is a chronic health condition that is characterized by high blood glucose levels. Under normal conditions, the body uses sugar (glucose) to produce energy that is required to perform essential and daily functions. Sugar is mainly obtained from a variety of food sources such as bread, fruits, starchy vegetables, and milk. To convert sugar into energy, it is the responsibility of a hormone known as insulin that acts as a key by helping sugar particles pass from the blood into the cell. Insulin is produced by the pancreas, a gland that is located underneath the liver and behind the stomach. When the pancreas is unable to produce insulin, produces it in smaller amounts (not enough for the body's needs), or the body is not responding well to the insulin's action (a phenomenon known as insulin resistance), this leads to diabetes. As a result, the sugar cannot be used by the body and remains in the blood in high levels which is known as "hyperglycaemia".

TYPES OF DIABETES

1 TYPE 1 DIABETES

This type is more common in children but can occur at any age; it is not caused by weight gain or eating large amounts of sugar. In this case, the insulin is completely deficient because the pancreas is not able to produce it. It is believed that the immune cells, particularly lymphocytes, attack the pancreas and destroy all cells that are responsible of secreting insulin. Consequently, the sugar accumulates in the blood and cannot reach cells to produce energy; this leads to high blood sugar levels and the appearance of diabetes symptoms.

2 TYPE 2 DIABETES (T2DM)

This type is more common in adults after the age of 40 years but, unfortunately, it has started to develop recently in children due to unhealthy eating habits and sedentary lifestyles. Type 2 diabetes is strongly influenced by being overweight, obese, and physically inactive. The pancreas in T2DM of diabetes is still able to produce insulin, but the amount is not enough for the body's needs, or the body cells are not able to use it (insulin resistance) or both scenarios may result in impaired glucose regulation.

3 GESTATIONAL DIABETES

This usually occurs in women during the second trimester of pregnancy (most common between weeks 24 and 28) due to the hormonal changes and insulin resistance; it usually disappears after childbirth. However, it remains a risk factor that may lead to type 2 diabetes in the future.

4 MODY

Maturity Onset Diabetes of the Young (MODY) is not as common as the aforementioned types. It is caused due to an error in one gene that the affected person inherited from one or both parents. MODY is classified into many subtypes that can be managed by lifestyle interventions, sugar (glucose) lowering medications, or insulin injections. Because it can be transmitted to some of the offspring, medical investigation of children of affected parents is recommended to detect children who may carry this gene.

CAUSES

TYPE 1: This type is mainly caused by genetic and immunologic factors that CANNOT be prevented. It accounts for 10% only of all diabetes cases.

TYPE 2: The main cause of type 2 diabetes in not fully understood, but there are some risk factors that may lead to it such as overweight and lack of physical activity. Also, aging, family history, smoking, and some medications, such as corticosteroids, may lead to type 2 diabetes. There are specific risk factors in women such as previous history of diabetes during pregnancy (gestational diabetes) or polycystic ovarian syndrome. This type occurs in 90% of all diabetes cases.



NOTE: Diagnosis is commonly made by coincidence because many people cannot feel any of these symptoms. Regular medical checkups are essential for those who are at risk of developing diabetes to prevent any late detection of the condition.

SPECIFIC SYMPTOMS IN TYPE 1 DIABETES

- Involuntary urination (bed wetting)
- Fast shallow breath with fruity odour which is an indication of critical condition known as diabetic ketoacidosis that needs immediate medical attention.



DIAGNOSIS

There are three lab test results that are required for a proper diagnosis by the physician:

LAB TEST	NORMAL	PRE-DIABETES	DIABETES
Fasting glucose	Less than **5.6** mmol/L (< **100** mg/dL)	**5.6 – 6.9** mmol/L (**100 – 125** mg/dL)	**7** mmol/L or greater (≥ **126** mg/dL)
2 hours after meal	Less than **7.8** mmol/L (<**140** mg/dL)	**7.8 – 11** mmol/L (**140 – 199** mg/dL)	**11.1** mmol/L or greater (≥ **200** mg/dL)
HbA1c	Less than **5.7%**	**5.7% - 6.4%**	**6.5%** or greater

TREATMENT

TYPE 1: Until this day, this type cannot be cured or prevented. People with type 1 diabetes need injectable insulin therapy for survival. There are some medical centers that offer pancreatic transplant for those who have severe diabetes complications, such as kidney failure or recurrent low blood sugar (hypoglycaemia).

TYPE 2: This type can be managed by lifestyle modifications, with or without the addition of glucose lowering medications; some of which can be taken orally and others that can be injected, or by adding insulin therapy to the treatment regimen. In Dasman Diabetes Institute, there is a specialized remission clinic offering services for newly diagnosed patients with type 2 diabetes by implementing lifestyle interventions that can lead to diabetes remission.

DIABETES COMPLICATIONS

1. ACUTE COMPLICATIONS: such as low blood glucose levels (hypoglycaemia) in both type 1 and 2 diabetes, as well as diabetes ketoacidosis when blood sugar levels are extremely high (this condition has been discussed in other pamphlet). These complications can be prevented by regular monitoring of blood sugar and compliance to the treatment plan.

2. LONG-TERM DIABETES COMPLICATIONS: these may include heart and blood vessels disease, kidney disease, eye disorders which may cause vision loss, neuropathy, and diabetic foot that may lead to amputation. Fortunately, it is possible to prevent or delay diabetes long-term complications and enjoy a normal active healthy life by following the treating doctor's and diabetes-care team's instructions. The diabetes-care team include a diabetes educator, dietitian, pharmacist, ophthalmologist, dentist, podiatrist, and fitness instructor. It is important to be compliant with medical appointments, lab tests, and perform regular foot, eye, and teeth examinations. Adopting a healthy lifestyle is exceptionally important in addition to previously mentioned precautions.

GENERAL ADVICE TO CONTROL DIABETES AND PREVENT COMPLICATIONS

There are some basic actions that should be taken by all people with diabetes, whether type 1 or 2, to maintain good health and to prevent/delay diabetes related complications.

THESE ACTIONS MY INCLUDE:

1. Follow a healthy and balanced diet
2. Regular physical activity, preferably on daily basis for at least 30 minutes. Exercise improves insulin resistance which helps in maintaining normal blood glucose levels
3. Quit smoking
4. Regular blood sugar monitoring, especially for insulin users
5. Medication and insulin compliance as directed by the treating doctor
6. Regular follow up with the treating doctor and medical tests

Type 1 diabetes cannot be prevented but it is possible to prevent or delay type 2 diabetes by following a healthy lifestyle that includes:



DIABETES AND DRIVING

It is a must for all people treated with insulin injections or medications that stimulate the pancreas to closely monitor their blood sugar levels before driving their vehicles. This is extremely important to prevent hypoglycaemia while driving. Hypoglycaemia can be life-threatening if it occurs on the road and may cause serious injuries for those travelling with you, in other vehicles, and to pedestrians.

NOTES

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