Diabetes Mellitus

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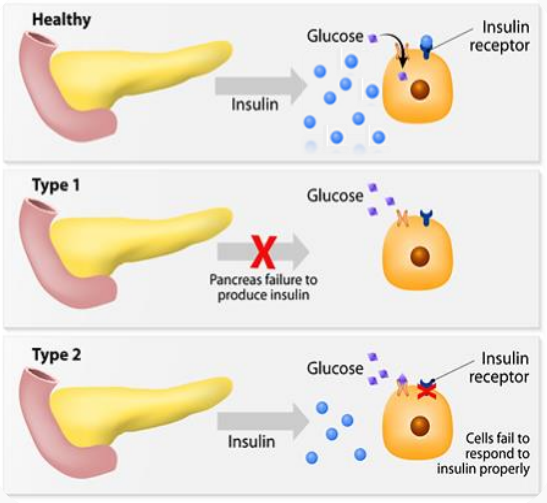
Diabetes is marked by high levels of glucose (sugar) in the blood. The body changes most of the food that you eat into glucose. Glucose is transported by blood to various parts of the body that use glucose for energy i.e. your brain, muscles. When you have diabetes, the glucose remains stuck in the blood and cannot get into the parts of the body where it is needed. Therefore, it accumulates in the blood. When you don't have diabetes, glucose easily leaves blood and enters parts of the body where it is needed to be used as energy.

What prevents glucose from leaving the blood and entering the various parts of the body?

Usually, when your body detects that the level of glucose in the blood is rising it produces insulin which acts like a key and "unlocks" the parts of the body so glucose can enter and be used for energy. If you don't have enough or don't have any insulin, the glucose builds up in the body. Overtime, if glucose is not lowered by the body it results in diabetes.

When you have diabetes:

- Your body doesn't make *any* insulin **OR**
- Your body doesn't make *enough* insulin (insulin deficiency) **OR**
- The body and cells are unable to respond to and use insulin properly (insulin resistance)



Different types of diabetes mellitus

1. Gestational diabetes (GDM) – diabetes first diagnosed in pregnant women.

2. Type 1 diabetes (T1DM) – Beta cells of the pancreas are destroyed by an autoimmune reaction. This results in a total lack of insulin. T1DM usually appears suddenly and is usually diagnosed in children and younger people under age 30. At diagnosis, an individual must start using insulin injections to control their glucose levels.

3. Type 2 diabetes (T2DM) – the body is still able to produce some insulin, but the body does not always respond to and use this insulin properly (insulin resistance). At diagnosis, an individual will use oral medication or purely diet and lifestyle to control their glucose levels. If blood glucose cannot be controlled by oral medication along with diet and lifestyle changes, insulin injections may be added later on.

4. Prediabetes – blood glucose levels are higher than normal but are not high enough for a diagnosis of diabetes. People with pre-diabetes are at increased risk for developing T2DM.

Risk factors for T2DM

Family history (genetics)
Overweight/obesity
Older age
History of gestational or pre-diabetes
Certain medications e.g. corticosteroids
Incorrect diet and physical inactivity

Know your numbers

	Goal
HbA1C	<7%
Fasting blood glucose	4.0-7.0 mmol/L
Post prandial (2 hours after a meal)	5.0-10.0 mmol/L

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Complications of diabetes

Short term

Hypoglycaemia is when blood glucose levels fall below 3.9 mmol/L. It is a common and life-threatening complication requiring immediate attention. Reasons for hypoglycaemia include skipping meals, excessive exercise or taking too much insulin or other blood glucose lowering medication. To treat hypoglycaemia, 15–20g of glucose should be ingested. This is equivalent to ½ a glass coke or fruit juice / 3-4 teaspoons of sugar dissolved with a little water / 3 Super-C sweets / 1 tablespoon of honey. The 15/15 rule should be followed: take 15g of simple carbohydrates and recheck blood glucose in 15 minutes. If blood glucose is still below 3.9 mmol/L repeat the above step. If the above treatment has worked, slowly digestible carbohydrates (e.g. bread) and protein (e.g. milk, cheese, cold meat) must be taken for prolonged restoration of blood glucose.

Hyperglycaemia is when blood glucose levels are raised above 10 mmol/L. If not managed it can result in hyperglycaemic emergencies i.e. diabetic ketoacidosis (DKA) or hyperosmolar hyperglycaemic state (HHS). DKA and HHS can be precipitated by failure to adhere to insulin regime, infection, stroke, heart attack or dehydration. They require hospital admission for treatment.

Symptoms of high blood glucose levels

Frequent urination
Blurry vision
Excessive thirst
Excessive hunger
Unexplained weight loss
Increased fatigue

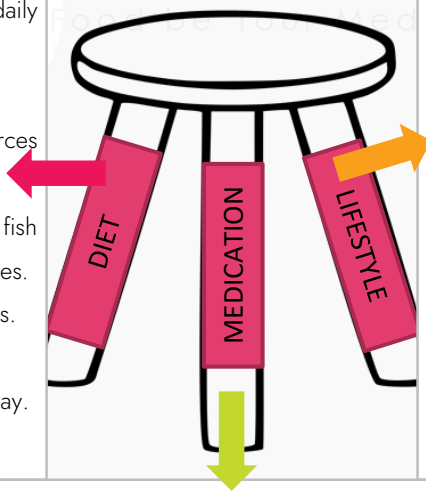
Long term

If you do not adequately control your blood glucose levels over a long period of time it can result in:

- Kidney failure
- Heart attack and strokes
- Peripheral vascular disease
- Nerve damage
- Permanent damage to your vision and ultimately blindness
- Difficulty to fight off infection and for wounds to heal which could lead to amputation of all or part of your limbs
- Sexual dysfunction

How do I manage my diabetes?

Eat a variety of vegetables and fruits on a daily basis.
Consume unrefined carbohydrates.
Eat more lean meats and plant-based sources of protein.
Focus on fats and oils from plants and fish such as olive oil, nuts, salmon and sardines.
Avoid sugar, sugary foods and beverages.
Limit intake of salt and salty foods.
Aim to drink 10-12 glasses of water per day.
Consume alcohol in moderation.



Achieve a healthy weight.
Exercise on most days of the week – focusing on a combination of aerobic, resistance and flexibility exercise.
Go for regular check-ups with your doctor.
Test your blood glucose levels on a daily basis and keep record of it.
Avoid smoking and alcohol.

Take your medication as prescribed by your doctor.
Take your medication on a daily basis.

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