



Diabetes

Diabetes is considered as one of the most common diseases in the Middle East. In addition, it may cause many other diseases and complications. To control this disease and get the best results in treatment we compiled this complete reference for diabetic patients to improve their disease management and to improve health quality.

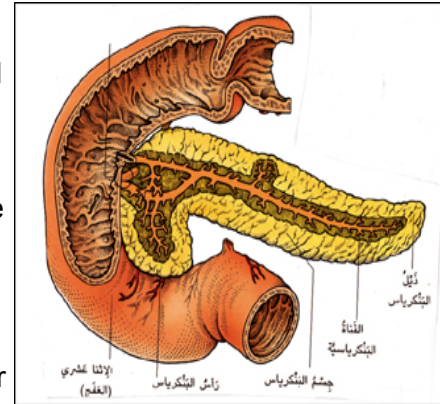
How does our body use sugar in normal cases?

During eating and fasting:

When we eat, the food is digested to glucose, which transfers to the blood.

With the help of insulin glucose enters different body tissues to be used as energy in the biological activities, or to store it.

Most extra glucose is stored in the liver as Glycogen. In case of fasting (during sleep, or between meals), the body uses the stored energy. The insulin and glucose work together to allow the body cells to use the energy from the food we eat. The food glucose increases the level of sugar in the blood, and the insulin decreases the level of sugar by helping it to enter to the body cells. The pancreas produces sufficient quantities of insulin, after taking food to help the produced glucose to enter body tissues and prevent a high blood sugar level after eating.



1. During sleep:

To provide the body by the energy (during sleep) requires releasing the glucose stored in the liver accurately. In normal cases, the liver starts to break down the Glycogen to release it as glucose in the blood stream. The liver can also produce glucose from simple compounds stored in different parts of the body example: in the muscles. A small quantity of insulin is important for this operation to be processed in the right and effective way. There are other hormones that help control glucose quantities released from liver.

What is diabetes?

Diabetes is the name given to a group of conditions where there is too much glucose (sugar) in the blood. This happens because the pancreas gland that is responsible for making and secreting insulin, cannot make insulin or the insulin it makes is not enough or does not work properly.

Types of diabetes:

There are two types of diabetes:

1. **Type 1:** This used to be called insulin dependent or juvenile diabetes. However, this was confusing as many adult people with type 2 diabetes need insulin to manage their diabetes. Type 1 diabetes appears in most cases in children, teenagers and young adults. The cause is that the pancreas in the body is not capable of producing any insulin or may produce very small quantities, which is not enough.

In this case, a patient has to use injectable insulin to maintain normal sugar levels in the body.



2. **Type 2:** This used to be called non-insulin dependent diabetes or mature-onset diabetes. It is more common and affects older patients (patients with 40 years and older). However, nowadays more and younger people, even children are getting diabetes. It is related to obesity and it may be genetic. In this type, the pancreas secretes insulin but because the body is resistant to its action. This means that the insulin is not working as well as it should and the pancreas makes more. Eventually it cannot make enough to keep the glucose balance right. Accordingly, the patient needs to take oral drugs as prescribed by the physician to help the pancreas to secrete more insulin. In the end even this might not be enough and the patient has to take insulin injections. Losing weight and following a healthy lifestyle may delay the need for tablets and/or insulin.

Symptoms of diabetes:

In type 1 diabetes, symptoms are often sudden and can be life-threatening; therefore it is mostly diagnosed quite quickly. In type 2 diabetes, many people have no symptoms at all, while other signs can go unnoticed, being seen as part of "getting older". Therefore, by the time symptoms are noticed, complications of diabetes may already be present.

Diabetes symptoms appear with high increase in sugar level in the blood, because the cells are not capable of using sugar due to decrease the insulin level in the blood or the body's inability to use available insulin properly. The body tries to rid itself of the excess of sugar in the blood by excreting it in the urine and this contributes to some of the symptoms.

Common symptoms include:

1. Feeling thirstier than usual and passing more urine. .
2. Unexplained weight loss (type 1).
3. Gradually putting on weight (type 2)
4. Feeling hungry although eating habits are increased.
5. Mood swings
6. Feeling tired and lethargic
7. Itching skin infections, urinary tract infections
8. Having cuts or wounds that heal slowly
9. Feeling dizzy
10. Blurred vision.

Diabetic ketoacidosis:

Without enough insulin, the body's cells cannot use glucose (blood sugar) for energy. To make up for this, the body begins to burn fat instead. This leads to the accumulation of dangerous chemical substances in the blood called ketones, which then also appear in the urine.

1. Sugar and ketones appear in urine.
2. Fast and deep breathing and smell of acetone appears while exhaling.
3. Body dryness.
4. Decreased blood pressure in known cases.
5. Loss of consciousness.

Diabetes during pregnancy:

Sugar levels may increase during pregnancy then return to normal after delivery. It may appear again after 1 year to 5 years post delivery as type 2 diabetes in 20% of pregnant women who had diabetes during pregnancy.



High blood sugar level (hyperglycemia):

High blood sugars above the normal level ($>126\text{mg/dL}$) can develop over many hours or days. It is possible for your blood sugar level to be too high without you immediately noticing it. Symptoms may vary from one person to the next.

Symptoms of increased blood sugar level (hyperglycemia)

Thirst



General malaise



Loosing appetite



Increased urination



Blurred vision



Loosing weight (type1)



Feet numbness



Causes of high blood sugar:

- Not taking your diabetes medication
- Not following your diet.
- Stress or being sick
- Not exercising properly.

What to do?

1. Drink a lot of sugar free liquids like water and unsweetened tea
2. Check your blood sugar regularly
3. Check for ketones if you have a very high blood sugar
4. Contact your doctor



Low blood sugar level (hypoglycemia):

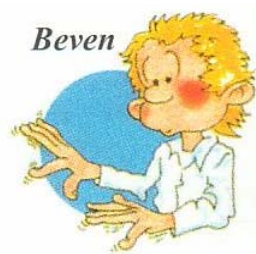
The blood sugar level is considered low if it is less than 50 mg/dL with or without symptoms.

Symptoms of low blood sugar level

Hunger



Tremor



Blurred vision



Sweating



Feeling sleepy



Headache



These symptoms must be taken seriously and not be ignored because if low blood sugar levels continue for a while it may cause convulsions and unconsciousness.

Causes of low blood sugar:

1. Increased insulin dose.
2. Decreased intake of food.
3. Increased muscle activity (more than regular muscle activity – strenuous exercise)

What to do?

1. Drink half a glass of sweetened? juice or take small piece of sweet.
2. When you feel better, eat 1/2 bread with 1/2 glass low fat yogurt or milk.



Diabetes complications:

Diabetes complications happen as a result of continuously high blood sugar levels. These complications are:

1. Eye disorders: Diabetes can damage the small blood vessels at the back of the eye. This can lead to loss of vision, even blindness

2. Nerve disorders: . Nerve damage in the arms, legs and feet can cause numbness, tingling sensations and even loss of feeling. You might therefore not realize that you have hurt your feet because you cannot feel the pain.

3. Kidney disorders: Diabetes can damage the small blood vessels in the filtering system of the kidney. This is a painless process and over time the kidney loses its ability to remove waste products (urea and creatinine) from your blood and these waste products build up in the blood.



The damage is made worse by high blood pressure, another complication of diabetes that causes the narrowing of blood vessels. The heart then has to pump harder to get the blood through the vessels.

1. Blood vessels disorders: Uncontrolled diabetes causes the build up of fats and cholesterol in the blood. The fat and cholesterol stick to the inside of the blood vessels and this causes them to narrow, leading to high blood pressure. In some instances, like the vessels that supply the heart muscles and the brain with oxygen and nourishment, they can become totally blocked. The end result may be a heart attack or a stroke.

Diabetes treatments:

There are two types of treatment to decrease blood sugar levels:

- Tablets: They are given orally.
- Insulin: It is given by injection.

Controlling diabetes:

Diabetes is a chronic disease which cannot be treated but can be controlled and its complications can be prevented. The following factors are very important to achieve treatment goals:

1. Firstly: continuous health education.
2. Secondly: good diet.
3. Thirdly: exercises and active movement.
4. Fourthly: diabetes medications.
5. Fifthly: self-control and regular checkups.



Food advice for diabetic patients:

1. Have a variety of food daily including carbohydrate containing foods like fruit, vegetables and starches. Consult with you doctor or dietitian about the quantities of protein rich foods like meat, milk and other dairy products you are allowed to have.
2. Make sure to have your meals and snacks at regular timings with the same quantities.
3. Do not omit a meal to avoid disturbing the balance between insulin and blood sugar level.
4. Limit fats from animal sources in your meals because increasing this kind of fat in your food will increase the chance of having high blood cholesterol and heart disease..
5. You do not have to eat the same kinds of food every meal every day. A dietitian can help you in deciding your daily requirement from different food types. She/he will explain to you a list of suitable food alternatives to suit your lifestyle and preferences..

General recommendations for the diabetic patient:

1. Do not stop your medications without consulting the physician.
2. Take your medications on time, have regular meals and regular checkups.
3. Carry a card that identifies that you are a diabetic patient and what your medications are.
4. Always carry a small snack or sweets with you.
5. Do suitable exercise especially walking and jogging.
6. Depend on yourself in measuring your blood sugar level by using home test.
7. Stop smoking if you are smoker.
8. Maintain your body and feet cleanliness.
9. Visit your doctor and diabetic consultant regularly.
10. Make sure to have your eyes tested and teeth checked annually by an ophthalmologist and dentist.