UNIVERSITY OF EMBU

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SENSITIZATION ON TYPES OF DIABETES MELITUS

Diabetes mellitus(DM) is a metabolic disorder in which there is a large amount of glucose in the blood. It results from the inability of the body to utilize glucose.

The hormone insulin moves sugar from the blood into the cells to be stored or used for energy. With diabetes mellitus, the body either doesn't make enough insulin or can't effectively use the insulin it does make.

TYPES OF DIABETES MELITUS

- **Type 1: Insulin Dependent Diabetes Mellitus**
- **Type 2: Non- Insulin Dependent Diabetes Mellitus**

Type 1 DM: Type1 DM occurs mostly in the young adults and children though and it can occur at any age. In this condition, the body does not produce insulin. The patient requires to be treated with insulin. It occurs as an autoimmune disorder.

Type 2 DM: The type2 diabetes is very common and it accounts for 90 – 95% of total DM cases. This type of diabetes mainly affects adults and in these days it has begun developing in children too. There exists a strong correlation between physical inactivity and obesity with the development of this type of Diabetes. We will focus mainly on Type 2 diabetes, because it's the most common.

Type 2 diabetes is primarily the result of two interrelated problems:

- Cells in muscle, fat and the liver become resistant to insulin. Because these cells don't interact in a normal way with insulin, they don't take in enough sugar.
- The pancreas is unable to produce enough insulin to manage blood sugar levels.

Exactly why this happens is unknown but there are known risk factors.

SYMPTOMS OF DIABETES

Symptoms include:

- Frequent urination(polyuria)
- Unusual thirst(polydipsia)
- Increased appetite(polyphagia)
- Rapid weight loss in type 1 and obesity in type 2
- Numbness and tingling in the hands and feet
- Loss of consciousness
- Slow healing wounds

RISK FACTORS

- **Weight.** Being overweight or obese is a main risk.
- **Fat distribution.** Storing fat mainly in your abdomen — rather than your hips and thighs — indicates a greater risk. Your risk of type 2 diabetes rises if you're a man with a waist circumference above 40 inches (101.6 centimeters) or a woman with a measurement above 35 inches (88.9 centimeters).
- **Inactivity.** The less active you are, the greater your risk. Physical activity helps control your weight, uses up glucose as energy and makes your cells more sensitive to insulin.
- **Family history.** The risk of type 2 diabetes increases if your parent or sibling has type 2 diabetes.
- **Blood lipid levels.** An increased risk is associated with low levels of high-density lipoprotein (HDL) cholesterol — the "good" cholesterol — and high levels of triglycerides.
- **Age.** The risk of type 2 diabetes increases as you get older, especially after age 45.

- **Prediabetes.** Prediabetes is a condition in which your blood sugar level is higher than normal, but not high enough to be classified as diabetes. Left untreated, prediabetes often progresses to type 2 diabetes.
- **Pregnancy-related risks.** Your risk of developing type 2 diabetes increases if you developed gestational diabetes when you were pregnant or if you gave birth to a baby weighing more than 9 pounds (4 kilograms).
- **Polycystic ovary syndrome.** Having polycystic ovary syndrome — a common condition characterized by irregular menstrual periods, excess hair growth and obesity — increases the risk of diabetes
- **Areas of darkened skin, usually in the armpits and neck.** This condition often indicates insulin resistance.

DIAGNOSIS

1. Fasting and Random blood sugar testing

The below table explains about the level of blood sugar in a normal range and also in the diabetic range:

	Normal	**Diabetes**
Fasting blood sugar	3.5- 5.6mmol/L	7.0mmol/L and above
Random blood sugar	Below 11.1 mmol/L	11.1 mmol/L and above
Two-hour glucose tolerance test	Below 7.0 mg/dl	7.0mg/dl and above

2. **HbA1c testing in diagnosing of diabetes**

How the Test Works

The sugar in your blood is called glucose. When glucose builds up in your blood, it binds to the hemoglobin in your red blood cells. The A1c test measures how much glucose is bound.

Red blood cells live for about 3 months, so the test shows the average level of glucose in your blood for the past 3 months. The test can be repeated again after 3 months from the initial testing.

If your glucose levels have been high over recent weeks, your hemoglobin A1c test will be higher.

- **HbA1c below 42 mmol/mol (6.0%):** Non-diabetic
- **HbA1c between 42 and 47 mmol/mol (6.0–6.4%):** Impaired glucose regulation (IGR) or Prediabetes
- **HbA1c of 48 mmol/mol (6.5%) or over:** Type 2 diabetes

How often you'll need the test after that depends on several things, like:

- The type of diabetes you have
- Your blood sugar control
- Your treatment plan
- You'll probably get tested once a year if you have prediabetes, which means you have a strong chance of developing diabetes.
- You may get tested twice each year if you have type 2 diabetes, you don't use insulin, and your blood sugar level is usually in your target range.
- You could get it three or four times each year if you have type 1 diabetes.
- You may also need the test more often if your diabetes plan changes or if you start a new medicine.
- It's not a fasting test. You can take it any time of day, before or after eating

TREATMENT FOR DIABETES

- While there's currently no known cure of both types of diabetes there are distinct ways to keep diabetes under control. The treatments for diabetes are designed to aid the body in controlling the levels of sugar in the blood.

The things that you need to do if you are diagnosed with diabetes mellitus:

- Request a referral to a dietitian or to an educator of diabetes who is certified
- Obtain a prescription for the testing supplies and glucometer
- Make changes in your life style. These include:
    i. Start an exercise program
    ii. Choose healthy food
    iii. Enhance the intake of fiber
    iv. Reduce the size of food portion
- Limit the intake of sweets in your diet
- Test your blood sugar as prescribed
- Adhere to prescribed medication