

# Understanding Diabetes Mellitus

## 1. Introduction

Diabetes Mellitus is a chronic metabolic disorder characterized by high blood sugar levels (hyperglycemia) due to insufficient insulin production or improper insulin utilization by the body. If left untreated, it can lead to severe complications affecting multiple organs.

## 2. Types of Diabetes

- Type 1 Diabetes: An autoimmune condition where the immune system attacks insulin-producing beta cells in the pancreas. Commonly diagnosed in children and young adults.
- Type 2 Diabetes: The most common type, occurring due to insulin resistance. Usually linked to obesity and lifestyle factors.
- Gestational Diabetes: Develops during pregnancy and may increase the risk of Type 2 diabetes later.

## 3. Causes & Risk Factors

- Genetic factors - Family history of diabetes increases risk.
- Obesity & sedentary lifestyle - Excess weight and lack of physical activity contribute to insulin resistance.
- Poor diet - High intake of processed foods, sugary beverages, and unhealthy fats.
- Hormonal changes - Such as those during pregnancy (gestational diabetes).
- Pancreatic diseases - Conditions like pancreatitis affecting insulin production.

## 4. Common Symptoms

- Excessive thirst (polydipsia)
- Frequent urination (polyuria)
- Unexplained weight loss

- Extreme fatigue and weakness
- Blurred vision
- Slow healing of wounds
- Tingling or numbness in hands and feet

## 5. Diagnosis & Tests

- Fasting Blood Sugar (FBS) - Measures blood sugar levels after 8-hour fasting.
- Oral Glucose Tolerance Test (OGTT) - Blood sugar levels are tested before and after consuming a glucose solution.
- HbA1c Test - Provides an average blood sugar level over the past 2-3 months.
- Random Blood Sugar Test - Measures glucose levels at any time of the day.

## 6. Treatment Options

- Lifestyle Modifications:
  - Healthy diet: Low-carb, high-fiber, and balanced meals.
  - Regular exercise: At least 30 minutes of physical activity daily.
  - Weight management: Losing even 5-10% of body weight can improve insulin sensitivity.
- Medications:
  - Type 1 Diabetes - Requires insulin therapy (short-acting, long-acting insulin).
  - Type 2 Diabetes - Managed with oral medications like Metformin, Sulfonylureas, SGLT2 inhibitors, or insulin if needed.
- Advanced Treatments:
  - Insulin Pumps - Delivers insulin continuously for better glucose control.
  - Pancreatic Islet Transplantation - Experimental treatment for Type 1 diabetes.

## 7. Complications of Diabetes

- Cardiovascular diseases (heart attack, stroke)
- Diabetic neuropathy (nerve damage, numbness)
- Diabetic retinopathy (eye damage, blindness risk)
- Kidney disease (nephropathy) - May lead to kidney failure
- Foot ulcers & infections - Can require amputation in severe cases

## 8. Prevention Strategies

- Maintain a healthy diet rich in whole grains, lean proteins, and vegetables.
- Engage in regular physical activity like walking, cycling, or yoga.
- Monitor blood sugar levels regularly, especially if at risk.
- Avoid smoking and excessive alcohol consumption.
- Maintain a healthy weight to reduce insulin resistance.

## 9. Conclusion

Diabetes Mellitus is a manageable condition with the right lifestyle choices, medications, and regular monitoring. Early diagnosis and effective management can help prevent severe complications and improve quality of life.