

# ***DIABETES MELLITUS***

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**9<sup>th</sup> semester 😊**

# Topics to be discussed :

*1. INTRODUCTION*

*2. INCIDENCE*

*3. FACTORS THAT CONTRIBUTE TO  
HYPERGLYCEMIA*

*4. CLASSIFICATION*

*5. DEFINITION*

# INTRODUCTION

**Diabetes mellitus** (DM), commonly referred to as diabetes, is a group of metabolic diseases in which there are high blood sugar levels over a prolonged period of time

It results from pancreatic dysfunction caused by environment and genetic factors.

	<b>Normal Persons</b>	<b>Criteria for diagnosing diabetes</b>	<b>Criteria for diagnosing IGT</b>
<b>Fasting</b>	<110 mg/dl	>126 mg/dl	110-126 mg/dl
<b>1hr (peak) after glucose</b>	<160mg/dl	Not prescribed	Not prescribed
<b>2hr after glucose (rbs)</b>	<140 mg/dl	>200 mg/dl	140-199 mg/dl

# INCIDENCE...

- ✧ From 2012 to 2014, diabetes is estimated to have resulted in 1.5 to 4.9 million deaths each year.
- ✧ Diabetes at least doubles a person's risk of death. The number of people with diabetes is expected to rise to 592 million by 2035.
- ✧ The global economic cost of diabetes in 2014 was estimated to be 612 billion .

# FACTORS THAT CONTRIBUTE HYPERGLYCEMIA...

- Decreased insulin secretion
- Increased glucose production
- Decreased insulin action

# CLASSIFICATION

◆ Type 1 DM

◆ Type 2 DM

◆ Gestational diabetes

◆ Other types

--DRUG INDUCED

--DISEASE OF EXOCRINE PANCREAS

--GENETIC DEFECTS IN BETA CELL FUNCTION

--EXCESS ENDOGENEOUS PRODUCTION OF  
HORMONAL ANTAGONIST TO INSULIN

# TYPE 1 DIABETES



# INTRODUCTION

Type 1 diabetes is the third most common chronic condition in children and adolescents.

This condition affects 1 in every 400 to 600 children, and more than 13,000 children are newly diagnosed each year.

In 1995, more than 140,000 children and 85 adolescents were affected by this disorder.

while in 2015, the prevalence was estimated to be 1.67 cases per 1000 youth.

- Diabetes mellitus type 1 accounts for between 5% and 10% of cases of diabetes.
- Globally, the number of people with DM type 1 is unknown, although it is estimated that about 80,000 children develop the disease each year.

- The development of new cases vary by country and region; the lowest rates appears to be in Japan and China with approximately 1 person per 100,000 per year; the highest rates are found in Scandinavia where it is closer to 35 new cases per 100,000 per year.
- The United States and northern Europe[contradiction] fall somewhere in between with 8-17 new cases per 100,000 per year.

# DEFINITION

**Diabetes mellitus type 1** ( type 1 diabetes, or T1D; formerly insulin-dependent diabetes or juvenile diabetes) is a form of diabetes mellitus that results from the autoimmune destruction of the insulin-producing beta cells in the pancreas. The subsequent lack of insulin leads to increased blood and urine glucose.

**The classical symptoms are:**

- polyuria (frequent urination)
- polydipsia (increased thirst)
- polyphagia (increased hunger) and
- weight loss.

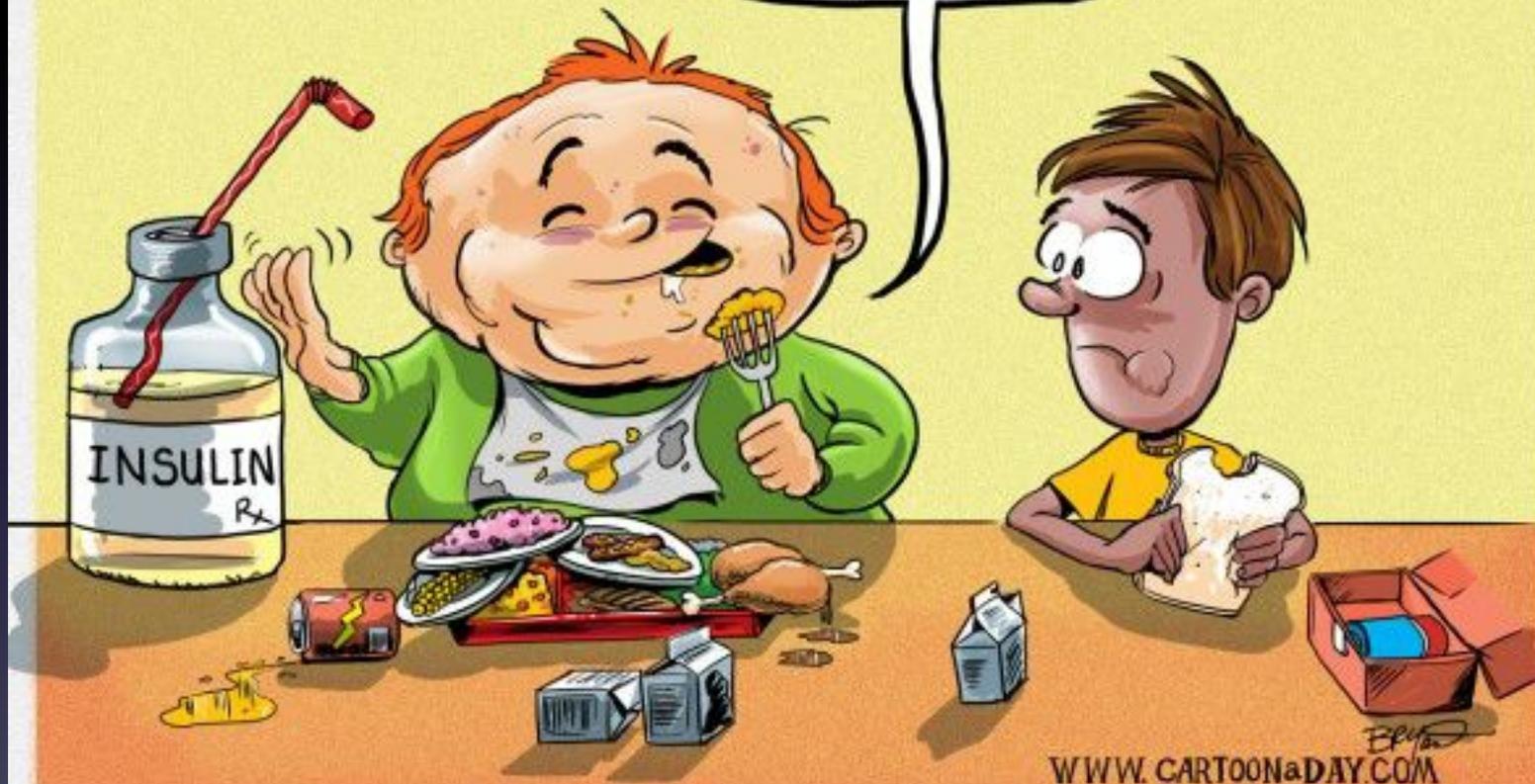
## Type 1 diabetes

- occurs when the beta cells of the pancreatic islets of Langerhans, which are responsible for insulin production, are progressively destroyed by the immune system.
- The body's ability to produce insulin becomes progressively impaired until eventually no insulin is produced.

- The insulin deficiency results in decreased insulin utilization and increased hepatic glucose production leading to hyperglycemia.
- In addition, there is an increased breakdown of adipose tissue leading to ketonemia and eventual diabetic ketoacidosis (DKA) that, if left untreated, is potentially fatal.

NATION FACES RISING RATES  
OF TYPE 2 DIABETES

I'M LEARNING TO  
MANAGE MY TYPE  
2 DIABETES WITH  
INSULIN!



WWW.CARTOONADAY.COM

## Type 2

### *Diabetes mellitus type 2*

- Is characterized by insulin resistance, which may be combined with relatively reduced insulin secretion.
- The defective responsiveness of body tissues to insulin is believed to involve the insulin receptor.
- However, the specific defects are not known. Diabetes mellitus cases due to a known defect are classified separately. Type 2 diabetes is the most common type.

**Type 2 diabetes** is due primarily to lifestyle factors and genetics.

- A number of lifestyle factors are known to be important to the development of type 2 diabetes, including obesity (defined by a body mass index of greater than thirty), lack of physical activity, poor diet, stress, and urbanization.
- Excess body fat is associated with 30% of cases in those of Chinese and Japanese descent, 60-80% of cases in those of European and African descent, and 100% of Pima Indians and Pacific Islanders.
- **Even those who are not obese often have a high waist-hip ratio.**

- In the early stage of type 2, the predominant abnormality is reduced insulin sensitivity.
- At this stage, hyperglycemia can be reversed by a variety of measures and medications that improve insulin sensitivity or reduce glucose production by the liver.

- **DIETARY FACTORS** also influence the risk of developing type 2 diabetes.
- Consumption of sugar-sweetened drinks in excess is associated with an increased risk.
- The type of fats in the diet is also important, with saturated fats and trans fatty acids increasing the risk and polyunsaturated and monounsaturated fat decreasing the risk.
- Eating lots of white rice appears to also play a role in increasing risk.
- **A lack of exercise is believed to cause 7% of cases.**

# *Gestational diabetes*

# Gestational diabetes

Gestational Diabetes



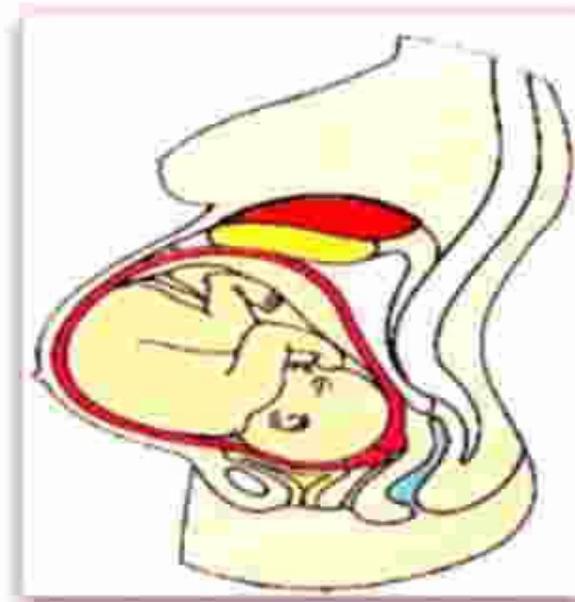
High blood glucose level in mother



Brings extra glucose to baby



Causes baby to put on extra weight



**Gestational Diabetes Mellitus (GDM)** is a condition in which women without previously diagnosed diabetes exhibit high blood glucose levels during pregnancy.

- ❖ Gestational diabetes mellitus (GDM) resembles type 2 diabetes in several respects, involving a combination of relatively inadequate insulin secretion and responsiveness.
- ❖ It occurs in about 2-10% of all pregnancies and may improve or disappear after delivery.
- ❖ However, after pregnancy approximately 5-10% of women with gestational diabetes are found to have diabetes mellitus, most commonly type 2.

- ❖ Gestational diabetes is fully treatable, but requires careful medical supervision throughout the pregnancy.
- ❖ Management may include dietary changes, blood glucose monitoring, and in some cases insulin may be required.
- ❖ Though it may be transient, untreated gestational diabetes can damage the health of the fetus or mother. Risks to the baby include macrosomia (high birth weight), congenital cardiac and central nervous system anomalies, and skeletal muscle malformations.

- ❖ Increased fetal insulin may inhibit fetal surfactant production and cause respiratory distress syndrome. A high blood bilirubin level may result from red blood cell destruction.
- ❖ In severe cases, perinatal death may occur, most commonly as a result of poor placental perfusion due to vascular impairment. Labor induction may be indicated with decreased placental function.
- ❖ A Caesarean section may be performed if there is marked fetal distress or an increased risk of injury associated with macrosomia, such as shoulder dystocia.



GLASBERGEN

**“Today I ate two bowls of dog food, a sandwich crust,  
some spaghetti that fell on the floor, half of your cat food,  
a wet tea bag, three bugs and the inside of a sneaker.  
How many grams of fat is that?”**

PLEASE CHECK THE DAY TO DAY CONSUMPTION OF CALORIES...!!

THANK YOU 😊