



Detection of Pre-Diabetes

For Prelims: Detection of Pre-Diabetes, [ICMR](#), [Diabetes](#), [WHO](#), [NCD](#),

For Mains: Impacts of Non-Communicable Diseases.

Why in News?

According to a study, funded by [ICMR \(Indian Council of Medical Research\)](#), one in five healthy individuals has the glucose metabolism of a **Prediabetic**.

- The researchers used **Continuous Glucose Monitors (CGMs) to detect Pre-Diabetes**. Continuous glucose monitoring automatically tracks blood glucose levels throughout the day and night, which can help make more informed decisions on how to balance food, physical activity, and medicines.

What are the Key Highlights of the Study?

- **Prevalence:**
 - 101 million (11.4%) people in India have [diabetes](#) and **136 million (15.3%) people have prediabetes**.
 - There is almost no rural and urban divide when it comes to the prevalence of prediabetes.
 - Prediabetes levels were found to be **higher in states where the current prevalence of diabetes was low**.
- **Conversion Rate:**
 - Conversion to diabetes from Prediabetes is very fast in India; more than 60% of people with prediabetes can **end up converting to diabetes in the next five years**.
 - Moreover, almost 70 % of India's population lives in villages. So, if the prevalence of diabetes **increases by even 0.5 to 1%**, the absolute numbers will be huge.

What are the Recommendations?

- **Tracking Prediabetes:**
 - In India, identifying individuals at risk of prediabetes **has traditionally relied on the oral glucose tolerance test**. However, the study suggests the **existence of a stage before prediabetes**, labeled impaired glucose homeostasis.
- **The Oral Glucose Tolerance Test (OGTT):**
 - The OGTT is a test that **measures how the body handles glucose after a meal**. It can detect abnormalities in blood sugar levels before fasting levels return to normal.
 - The test helps diagnose diabetes and prediabetes.
 - If the **fasting value is above 126 mg/dl** and the **two-hour value post-fasting is above 200 mg/l** in the oral glucose tolerance test, then it is defined as **diabetes**.
 - If the fasting values are **between 100-125** and **two-hour values are in the range of 140-199**, then the patient is classified to be in the **pre-diabetic stage**.

- Fasting values **below 100** and two-hour values of **less than 140** are labelled as normal.

What is the Importance of Early Detection?

- Early detection of diabetes is crucial, as it allows for **timely intervention and reduces the risk** of complications. However, the cost of CGMs poses a challenge in India, where many pre diabetics may face economic constraints.
- While CGMs can improve nutrition and sugar levels, their affordability remains a concern.
 - As per the [World Health Organization \(WHO\)](#), more than 50% of individuals with diabetes are unaware of their condition, highlighting the need for accessible and cost-effective screening methods.

What is Diabetes?

▪ About:

- Diabetes is a [Non-Communicable Disease \(NCD\)](#) that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces.

▪ Types of Diabetes:

◦ Type 1 Diabetes:

- It is also known as **juvenile diabetes** (as it mostly affects children of age 14-16 years), this type occurs **when the pancreas makes little or no insulin**.
 - Insulin is a hormone the body uses to allow sugar (glucose) to enter cells to produce energy.
- It is predominantly diagnosed in children and adolescents. Although the prevalence is less, it is much more severe than type 2.

◦ Type 2 Diabetes:

- It affects the way the **body uses insulin**. While the body still makes insulin.
- Type 2 diabetes **can occur at any age, even during childhood**. However, this type of diabetes occurs most often in middle-aged and older people.

◦ Gestational Diabetes:

- This type occurs in women during pregnancy **when the body sometimes becomes less sensitive** to insulin. Gestational diabetes does not occur in all women and usually resolves after giving birth.

▪ Impacts of Diabetes:

- It affects the five major organs namely, Kidney, Heart, Blood vessels, Nervous System, and Eyes (retina).

▪ Factors Responsible:

- Factors that lead to increase in diabetes are an unhealthy diet, lack of physical activity, harmful use of alcohol, overweight/obesity, tobacco use, etc.

▪ Initiatives to Tackle Diabetes:

- **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS).**
- [World Diabetes Day](#)
- [Global Diabetes Compact](#)

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