

Type 2 Diabetes
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Introduction of disease

Type 2 diabetes is when the body fails to produce or use adequate insulin, leading to high sugar levels that worsen over time. The pancreas produces a hormone called insulin, which helps manage glucose levels in the blood. Various factors contribute to type 2 diabetes, such as genetics, lifestyle choices (like an unhealthy diet or lack of exercise), obesity, and some medical conditions (like metabolic syndrome). Although traditionally diagnosed in adulthood, more and more children and teens are diagnosed with type 2 diabetes due to rising obesity rates. According to the Centers for Disease Control and Prevention (2019), over 34 million Americans have diabetes, and 90-95% have type 2 diabetes.

Etiology

The development of type 2 diabetes is influenced by a complex interplay of genetic and environmental factors. Genetic predisposition plays a significant role, as specific genes can impact insulin production, function, and glucose processing in the body. Insulin resistance, a key factor in type 2 diabetes, occurs when cells become less responsive to the effects of insulin. This leads to compensatory mechanisms where the pancreas produces more insulin, eventually resulting in insulin deficiency. Insulin resistance can cause various factors such as genetics, obesity, lack of physical activity, and hormonal imbalances. Obesity, in particular, is a significant risk factor for type 2 diabetes, such as extra body fat, especially in the abdominal region, can promote insulin resistance and disrupt glucose metabolism. It is essential to note that this is a simplified description of the complex etiology of type 2 diabetes, and further research is ongoing to understand better the contributing factors and mechanisms involved.

Additionally, adipose tissue releases pro-inflammatory substances called adipokines, which can