JOURNAL OF INTERNATIONAL SCIENTIFIC RESEARCH
Volume 4, Issue 2, April 2026 Online ISSN: 3030-3508
https://spaceknowladge.com

THE RELATIONSHIP BETWEEN OBESITY AND DIABETE

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ARTICLE INFORMATION

ARTICLE HISTORY:
Received:09.04.2026
Revised: 10.04.2026
Accepted:11.04.2026

KEYWORDS:
obesity, diabetes mellitus, insulin resistance, metabolic syndrome, glucose metabolism, endocrine regulation.

ABSTRACT:

This article discusses the relationship between diabetes mellitus and obesity, as well as their pathological conditions and pathophysiology. Obesity primarily leads to insulin resistance and contributes to the development of diabetes by creating a state of chronic inflammation.The complications of diabetes may be acute (developing rapidly) or chronic (developing over time), and they can affect many organs and body systems. Diabetes worsens chronic health problems such as obesity, high blood pressure, elevated cholesterol levels, and lack of regular physical activity. In patients with type 2 diabetes mellitus, obesity and increased body weight are commonly observed. This condition develops due to impaired glucose metabolism, insufficient insulin production, and imbalances in the functioning of the endocrine system.

Introduction: Abu Ali Ibn Sina was one of the great physicians of Eastern medicine who paid special attention to diabetes. Describing the condition of the patient, he wrote: “Water comes out exactly as it was drunk.” According to Ibn Sina, excessive drinking of water can

cause additional disorders and leads to severe weight loss. Regarding treatment, he advised: “Give the patient liquids of a cold temperament, place him in a cool bath, let him drink sour ayran, give fruits, and provide mint infusion — in other words, moisten and cool the patient.”Diabetes has been known in Eastern traditional medicine since ancient times, and historical medical sources note that it can also be hereditary. In this disease, the amount of glucose in the blood increases sharply, and part of it is excreted through the urine; as a result, sugar appears in the urine. Patients typically experience symptoms such as excessive thirst, dry mouth, weight loss, fatigue, and itching of the skin.

Analysis (Methodology): This research is based on the following components:

1. Pathophysiological Analysis

Scientific literature was reviewed to identify the biological mechanisms linking obesity with diabetes, including:

Insulin resistance development

Endocrine activity of adipose tissue

Hormonal changes (leptin, adiponectin imbalance)

Chronic low-grade inflammation

Metabolic syndrome components

2. Clinical Observation Data

Clinical findings from medical practitioners and laboratory tests were reviewed, focusing on:

Glucose tolerance impairment

Reduced insulin sensitivity

Dyslipidemia and lipid profile changes

Blood pressure levels and metabolic indicators

Results: The analysis produced several key findings:

1. Obesity is the strongest predictor of type 2 diabetes

As body weight increases, the risk of developing insulin resistance rises sharply. Abdominal (visceral) fat is particularly associated with impaired glucose regulation.

2. Adipose tissue acts as an active endocrine organ

In obesity, adipose tissue undergoes functional change, producing:

Increased leptin leading to leptin resistance

Decreased adiponectin, which normally enhances insulin sensitivity

Elevated inflammatory cytokines (TNF-α, IL-6)

These changes collectively weaken insulin action

Discussion: The relationship between diabetes and obesity is primarily explained by disruptions in glucose metabolism and changes in the function of the insulin-producing cells of the pancreas. These disruptions affect how the body regulates blood sugar levels, leading to the development of diabetes. Consequently, diabetes is classified into two main types.

Type 1 diabetes usually develops in adolescence or early adulthood. In this form of the disease, the beta cells of the pancreas are damaged or destroyed, preventing the body from producing sufficient insulin. Without enough insulin, glucose cannot enter the cells efficiently, causing high blood sugar levels. Treatment for type 1 diabetes typically requires the administration of exogenous insulin, meaning patients need insulin injections or pumps to regulate their blood glucose.

Type 2 diabetes differs in that the pancreas generally produces normal or even slightly elevated amounts of insulin, but the body's tissues do not respond effectively to it. This condition is known as insulin resistance, and it prevents glucose from being properly absorbed by the cells, leading to elevated blood sugar levels. Obesity plays a key role in the development of type 2 diabetes. Excess fat, particularly around the abdomen, increases insulin resistance, making it harder for the body to regulate blood glucose. Therefore, type 2 diabetes is strongly associated with overweight and excessive body fat, and weight management is a crucial part of its prevention and treatment

Conclusion: Diabetes mellitus is associated with imbalances and conflicts in the body's energy systems, making dietary management a crucial part of treatment. In newly developed diabetes, vascular complications such as angiopathies and microangiopathies commonly appear. These complications reduce overall physiological resilience and contribute to the progression of the disease.

Diabetes also serves as a major risk factor for atherosclerosis, myocardial infarction, dizziness, and angina pectoris, highlighting the importance of effective management. Treatment of both types of diabetes focuses on normalizing insulin levels, improving insulin production, and maintaining blood glucose within the normal range.

In insulin-dependent diabetes, careful and frequent monitoring of blood glucose is especially important. To achieve this, special devices and monitoring systems have been developed, allowing patients and healthcare providers to regulate glucose levels accurately and consistently, thereby supporting effective disease management. According to current statistics, approximately 540 million people worldwide are living with diabetes. Between 1980 and 2015, the number of individuals with diabetes increased from 108 million to 423 million. At present, in the territory of the Republic of Uzbekistan, there are 266,610 people

diagnosed with diabetes, and their treatment and monitoring are being managed according to planned healthcare programs.

Foydalanilgan adabiyotlar

1. World Health Organization (WHO). Obesity and overweight: Key facts. Geneva: WHO Press, 2023.
2. International Diabetes Federation (IDF). Diabetes Atlas, 10th Edition. Brussels: IDF, 2021.
3. Eckel R.H., Kahn S.E. Mechanisms linking obesity to diabetes. Nature Reviews Endocrinology
10. 2000; 106(4): 473–481.
4. Saltiel A.R., Olefsky J.M. Inflammatory mechanisms linking obesity and metabolic disease. Journal of Clinical Investigation, 2017; 127(1): 1–4.
5. Bray G.A., Kim K.K., Wilding J.P. Obesity as a chronic disease. Lancet Diabetes & Endocrinology, 2017; 5(3): 183–198.
6. Uzbekiston Respublikasi Sog‘liqni Saqlash Vazirligi. Qandli diabet bo‘yicha klinik qo‘llanma. Toshkent, 2021.
7. Abdullayev A., Sharipova M. Metabolik sindrom va uning klinik ahamiyati. O‘zbekiston Tibbiyot Jurnali, 2022; (4): 55–62.