

## DIABETES AND ITS COMPLICATIONS: THE SPREAD OF DIABETES IN UZBEKISTAN AND THE STRENGTHENING OF PREVENTIVE MEASURES

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### **Abstract**

Diabetes remains one of the serious health issues worldwide. In Uzbekistan, the prevalence of type 2 diabetes and its complications has become a pressing socio-economic problem, placing a substantial burden on the healthcare system. This study analyzes the spread of diabetes, its primary complications, and preventive measures, aiming to illuminate the current situation in Uzbekistan. The article also presents recent scientific advancements in new treatment methods, innovative technologies, and enhanced preventive programs. The importance of promoting a healthy lifestyle, the significance of scientific research, and the role of physical activity in the fight against diabetes are discussed.

**Keywords:** Diabetes, type 2 diabetes, insulin therapy, metabolic syndrome, healthy lifestyle, prevention, SGLT-2 inhibitors, GLP-1 agonists, diabetic neuropathy, diabetic retinopathy.

In Uzbekistan, diabetes mellitus poses significant health challenges, with various forms of the disease adversely affecting people's quality of life. The primary types of diabetes include type 1, type 2, and gestational diabetes (which may arise during pregnancy).

### **Types of Diabetes:**

**Type 1 Diabetes:** Typically occurs in children and young adults, characterized by the body's inability to produce insulin. This type requires external insulin for management.

**Type 2 Diabetes:** The most common form, primarily affecting adults and the elderly. Here, the body produces insulin but fails to use it effectively (insulin resistance). Management involves dietary changes, physical activity, and sometimes medication.

**Gestational Diabetes:** Develops during pregnancy and is often diagnosed in pregnant women. This condition usually resolves after childbirth but increases the risk of developing type 2 diabetes later.

**Causes of Diabetes:**

Genetic Factors: Family history and genetic predispositions play a critical role in diabetes development.

Poor Nutrition: A diet high in fats, sugars, and calories raises the risk of diabetes.

Lack of Physical Activity: Sedentary lifestyles contribute to increased diabetes risk.

Age: The likelihood of developing type 2 diabetes increases after age 45.

**Symptoms of Diabetes:**

- Frequent urination
- Excessive thirst
- Unexplained weight loss
- Fatigue
- Blurred vision
- Slow-healing wounds
- Increased susceptibility to infections

**Prevalence and Characteristics of Diabetes:**

Diabetes in Uzbekistan: The incidence of diabetes in Uzbekistan is sharply rising. As of 2023, over 10 million people are diagnosed with diabetes, a number that continues to grow annually. Various factors contribute to the development of type 2 diabetes, including genetic predisposition, poor nutrition, lack of physical activity, and rising stress levels.

Metabolic Syndrome and Diabetes: Type 2 diabetes is often associated with metabolic syndrome, characterized by obesity, hypertension, high cholesterol, and elevated blood sugar levels. This syndrome complicates diabetes management.

Global Diabetes Trends: According to the World Health Organization (WHO), diabetes prevalence has surged in the past decade, particularly in developing countries like Uzbekistan.

**Complications and Socio-economic Impact:**

Analysis of Complications: Major complications of diabetes include diabetic retinopathy, neuropathy, diabetic nephropathy (kidney failure), cardiovascular diseases, and heart attacks.

These complications not only worsen patients' health but also impose significant burdens on the national economy.

**Diabetes and Cardiovascular Diseases:** Diabetes severely affects the cardiovascular system, increasing the risk of heart disease, stroke, and vascular changes. Recent research has deepened our understanding of the link between diabetes and cardiovascular conditions.

**Diabetic Nephropathy and New Treatment Approaches:** Diabetic nephropathy, characterized by reduced kidney function, is one of the most severe complications of diabetes. New approaches, including SGLT-2 inhibitors and novel renin-angiotensin system medications, have proven effective in halting or slowing the progression of diabetic nephropathy.

**Prevention and Importance of a Healthy Lifestyle: Healthy Eating and Diabetes:** Proper nutrition is the most crucial factor in preventing type 2 diabetes. Studies show that consuming vegetables, fruits, healthy fats, and proteins, while limiting sugars and refined carbohydrates, significantly reduces diabetes risk.

**Physical Activity and Diabetes:** Regular physical activity plays a vital role in diabetes prevention. Engaging in consistent exercise helps control blood sugar levels, while inactivity accelerates the disease's progression. Recent studies highlight the effectiveness of high-intensity workouts, such as walking, running, or cycling, in reducing diabetes risk.

#### **New Approaches and Technologies in Diabetes Management:**

**GLP-1 Agonists and New Insulins:** Recently, new medications like GLP-1 agonists (e.g., liraglutide) and SGLT-2 inhibitors have been effectively used in diabetes management. These medications not only regulate blood sugar levels but also reduce the risk of cardiovascular diseases.

**Automation in Insulin Therapy:** Automating insulin therapy, such as through "artificial pancreas" systems, presents new possibilities in diabetes management. These technologies allow for personalized insulin level adjustments.

**Genetic Research and Diabetes Treatment:** Considering genetic factors in diabetes development paves the way for individualized treatment approaches. New genetic studies are aiding in developing innovative preventive and treatment strategies.

#### **Diabetes Prevention and Management in Uzbekistan:**

Combatting Diabetes in Uzbekistan: The government has initiated several preventive programs to address diabetes, including free screening tests for early diagnosis, promoting healthy eating, increasing physical activity, and expanding medical knowledge.

New State Programs: Beginning in 2024, Uzbekistan will implement new state programs to combat diabetes, focusing on prevention, advanced treatment technologies, and providing patients with modern medications.

In conclusion, diabetes is a globally widespread condition with significant socio-economic implications. The implementation of new approaches and technologies is essential for its prevention and management. Promoting a healthy lifestyle, enhancing preventive measures, and expanding modern treatment methods are crucial to reducing diabetes prevalence and its complications in Uzbekistan. Ongoing scientific research and technological advancements are vital for improving diabetes management effectiveness.

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