ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

THE EFFECT OF CARBOHYDRATE DEFICIENCY AND EXCESS ON THE HUMAN BODY

Murtazayeva Xadicha Nuriddinovna

Teacher of Termez branch Tashkent medical academy

Abdugafforova Dilchehra Abdusalomovna

Student of Termez branch of Tashkent Medical Academy

Eshilova Sevinch Sharofiddinovna
Student of Termez branch of Tashkent Medical Academy

Toshmurodova Gulchehra Pulatovna

Student of Termez branch of Tashkent Medical Academy

Annotation. This article examines the role of carbohydrates in human health and analyzes the physiological consequences of their deficiency and excess. It highlights that a lack of carbohydrates can lead to energy deficiency, reduced nervous system activity, ketosis, and other negative conditions. Furthermore, it substantiates the link between excessive carbohydrate intake and diseases such as obesity, insulin resistance, and diabetes mellitus. The article scientifically justifies the importance of moderate and balanced carbohydrate consumption.

Key words: carbohydrates, energy source, glucose, deficiency, excess, ketosis, hypoglycemia, obesity, insulin, diabetes mellitus, metabolism, healthy nutrition, brain function.

Main part: Carbohydrates (carbs) are one of the main macronutrients necessary for human life. They are used by cells as a source of energy and participate in all vital processes of the body. Carbohydrates ingested through food are absorbed into the blood in the form of glucose and delivered to all tissues. However, carbohydrates are not only useful in the body, but their excess or deficiency can also lead to negative consequences. Therefore, this article will extensively cover the effects of carbohydrate deficiency and excess on the human body. When carbohydrates are not enough in the body, several important physiological processes are disrupted. This condition occurs especially as a result of long-term dieting, starvation, malnutrition, or the complete exclusion of carbohydrates from food. Energy deficiency:

Glucose is the main source of energy for cells in the body, and is especially necessary for brain function. When carbohydrates are insufficient, a person feels constantly tired, weak, and lethargic. Physical and mental activity decreases. Ketosis: When carbohydrates are scarce, the body switches to using fat as its main source of energy. This leads to the formation of ketone bodies. Ketosis can be beneficial if it is short-term, but if it lasts for a long time, symptoms such as headache, nausea, and bad breath appear. Hypoglycemia: Hypoglycemia occurs when blood glucose levels drop sharply. This condition can cause dizziness, tremors, rapid heartbeat, and even fainting. Protein breakdown: When

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

carbohydrates are not enough, the body is forced to break down proteins for energy. This leads to a decrease in muscle mass and worsens overall health. Excessive consumption of carbohydrates is also harmful to the body. Negative conditions occur especially when simple (fast-absorbing) carbohydrates are consumed in large quantities - sugar, white bread, sweet drinks. Obesity: Excess carbohydrates are stored in the body as fat. In the long term, this leads to obesity. Obesity increases the risk of cardiovascular disease, hormonal disorders, and other diseases. Insulin resistance and type 2 diabetes:

Constantly high glucose levels reduce the body's sensitivity to insulin. This leads to the development of type 2 diabetes. This condition is especially common in people with a sedentary lifestyle. Cardiovascular diseases: Excess sugar and carbohydrates increase the risks of heart disease, high cholesterol, and hypertension. Disruption of intestinal flora: Excessive consumption of sugary products leads to a decrease in the number of beneficial bacteria, which causes problems in the digestive system. Carbohydrates play an indispensable role in human life. Their balance in the body plays an important role in maintaining health. A carbohydrate deficiency can lead to conditions such as energy deficiency, decreased brain function, ketosis, and hypoglycemia.

Conversely, an excess of carbohydrates increases the risk of obesity, diabetes, heart disease, and metabolic syndrome. Therefore, consuming carbohydrates in moderation from quality, wholesome sources is the foundation of a healthy lifestyle.

Effects of Carbohydrate Deficiency (Hypoglycemia)

Carbohydrate deficiency usually occurs in cases of insufficient food intake, severe diets, improper intake of diabetic medications, or excessive physical exertion.

Main consequences:

✓ Energy deficiency: Fatigue, muscle weakness, decreased performance.
✓ Central nervous system disorders: Dizziness, tremors, fainting, decreased concentration.
✓ Hypoglycemic coma: In severe cases, fainting and a life-threatening condition.
✓ Ketosis and acidosis: The body begins to break down fats as an alternative source of energy, which leads to the accumulation of ketone bodies.
✓ Immune deficiency: Against the background of energy deficiency, the immune system weakens.

Effects of excess carbohydrates (hyperglycemia)

Excessive consumption of carbohydrates, especially simple (fast-digesting) carbohydrates such as sugar, leads to a number of problems.

Main consequences:

✓ Overweight and obesity: Unnecessary excess energy is stored as fat.
✓ Insulin resistance and type 2 diabetes: Persistently high glucose levels reduce insulin sensitivity.

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

✓ Metabolic syndrome: A condition characterized by arterial hypertension, dyslipidemia, and obesity.
✓ Inflammatory processes: Chronic hyperglycemia alters the immune response.
✓ Candidiasis and infections: High glucose in the blood serves as a breeding ground for microorganisms.
✓ Tooth enamel erosion: Excessive consumption of simple sugars leads to caries.

Conclusion: Carbohydrates are essential for the body, but it is important to consume them in moderation. A deficiency can lead to energy deficiency and stunted growth, while an excess can lead to obesity, diabetes, and cardiovascular disease. A healthy diet and physical activity are key factors in preventing carbohydrate metabolism disorders. Carbohydrates are the main source of energy for the human body. They are found in large quantities in the daily diet and their amount directly affects the functioning of the body. Deficiency or excess of carbohydrates can cause various physiological and pathological conditions. This article analyzes the effects of carbohydrate deficiency and excess on the human body.

References:

1. Karimov Sh.R., Tursunov B.O., Rahimov A.A. “Odam anatomiyasi va fiziologiyasi.” – Toshkent: O‘zR Oliy va o‘rta maxsus ta’lim vazirligi, 2020.
2. Salimov A. va boshqalar. Biokimyo. – Toshkent: O‘zbekiston Fanlar Akademiyasi nashriyoti, 2019.
3. G’ulomov S. va boshqalar. “Oziqlanish fiziologiyasi.” – Toshkent: Tibbiyot nashriyoti, 2021.
4. Guyton A.C., Hall J.E. Textbook of Medical Physiology. – 13th ed. – Philadelphia: Elsevier, 2016.
5. Nelson D.L., Cox M.M. Lehninger Principles of Biochemistry. – 8th ed. – W.H. Freeman and Company, 2021.
6. WHO (World Health Organization). Healthy diet: Fact sheet. – https://www.who.int/news-room/fact-sheets/detail/healthy-diet
7. Mayo Clinic. Carbohydrates: How carbs fit into a healthy diet. – https://www.mayoclinic.org/
8. Harvard T.H. Chan School of Public Health. The Nutrition Source: Carbohydrates. – https://www.hsph.harvard.edu/nutritionsource/carbohydrates/