

Comparative Analysis of Blood Sugar for Certain Body Parameters

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Abstract: In the modern world, there is an ambiguous position regarding the influence of sugar on the human body. On the one hand, it has been proven that excess sugar in the diet is harmful to health and leads to a number of diseases. On the other hand, sugar, which produces carbohydrates, is a key link in the existence of most living organisms.

Keywords: blood sugar, glucometer, insulin, diabetes mellitus.

Introduction: In the modern world, there is an ambiguous position regarding the influence of sugar on the human body. On the one hand, it has been proven that excess sugar in the diet is harmful to health and leads to a number of diseases. On the other hand, sugar, which produces carbohydrates, is a key link in the existence of most living organisms. [II]

One of the functions of every cell in the body is the ability to absorb glucose; this substance keeps our body and organs in good shape, being a source of energy that regulates all metabolic mechanisms. The harmonious distribution of sugar in the blood depends entirely on the work of the pancreas, which releases a special hormone insulin into the blood. [I]

Sugars are synonymous with carbohydrates, a name that comes from the fact that many of the first discovered carbohydrates had a sweet taste.

Simple sugars and carbohydrates that do not have complex structural connections, firstly, are quickly eliminated from the body, and secondly, they give it a lightning-fast boost of energy. In this connection, sweets are a useful product specifically for students, since any sweet products contain sugars, which are carbohydrates, and they, in turn, participate in the construction of cell membranes and proteins, and in the formation of hormones. And most importantly, sweets are one of the main sources of energy for the development of the body. Sugar and starch stimulate the brain and cause the appearance of a certain “neuro-conductor”, which they call serotonin. The effect of serotonin is similar to the effect of a tranquilizer, which allows not only to calm the excited brain, but also to reduce cravings for sweets and starchy foods.

Sugar entering the body increases the level of glucose in the blood, so the pancreas begins to intensively produce insulin, which can lead to diabetes mellitus, which is “a disease of the endocrine system that occurs when there is insufficiency of insulin in the human body, which leads to disruption of carbohydrate metabolism, and subsequently all other types of exchange [II]

Sugar homeostasis and consumption require complex hormonal and neural control to maintain proper energy balance in the body. Added sugar to processed foods leads to metabolic, cardiovascular and nervous disorders. [IV]

When food enters the body, the pancreas produces insulin. But if you eat too much sugar and the body stops responding properly to insulin, the pancreas begins to produce even more insulin. Eventually the pancreas will become overworked and fail, and blood sugar levels will rise, leading to type 2 diabetes and heart disease. [III]

Food affects blood sugar levels. In addition to them, the cause of the imbalance can be the psychological state of a person; stress or excessively violent emotions, they significantly increase the glucose level. And regular physical activity, housework, and walking help reduce it.

In addition, the blood glucose level can change under the influence of pathological factors. For example, elevated sugar levels can be caused by diseases of the gastrointestinal tract, pancreas and liver, as well as hormonal imbalances. [V]

The goal is to study changes in blood sugar levels under various parameters and body conditions.

Material and methods: To study changes in blood sugar, we conducted a study in which 32 students voluntarily participated. The analysis was carried out using a glucometer; blood sugar tests were taken under various conditions (on an empty stomach, after physical activity, after drinking cola and sugar-containing drinks) of the body.

Results and methods: 32 medical students took part in the blood sugar test. Among the respondents, 56.2% were girls and 43.8% were boys. The analysis showed that people who took the test on an empty stomach with a weight category of 60-70 kg had an average of 4.45 mmol/l blood sugar. It has also been recorded that people who consume a normal amount of carbohydrates in their diet, but weigh from 39-50 kg, have 2.5 mmol/l blood sugar, which confirms the dependence of blood sugar on a person's body weight. The second condition for comparative analysis is physical activity. The analysis was carried out in two stages, the first before physical activity. 2nd after physical activity. The role of physical activity was going up and down stairs and squatting. The indicators of the first glucose measurement were 4.5-5 mmol/l, and the 2nd measurement, sugar decreased by 0.5-1 mmol/l and amounted to 3-3.5 mmol/l, which means physical activity contributed to the absorption of glucose and its use in form of energy.

The third parameter for analysis was the intake of cola and other sugar-containing drinks. And this time, blood sugar increased by 1-1.5 mmol/l and amounted to 5.5-6 mmol/l, which explains the fact that insulin does not have time to dissolve the large amount of sugar entering the body. Thus, a person who frequently drinks cola and sugar-containing drinks can develop diabetes mellitus at a high risk.

Conclusion: Our analysis showed that lack of physical activity and consumption of sugar-containing foods can cause problems such as excess weight and diabetes.

To avoid such problems, people need to maintain a healthy lifestyle, proper nutrition, and also avoid junk food.

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