

Glucose - description, benefits, effect on the body and the best sources.

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Abstract. We have all heard this name more than once. Just remembering her makes your mouth feel sweet and your soul feel good. Glucose is found in many fruits and berries, and it can also be produced by the body on its own. In addition, glucose is also found in delicious grapes, thanks to which it received its second name - *foreign sugar* . The third name for glucose is *dextrose* . This term is often indicated in the composition of juices of foreign origin.

Key words: Glucose, general characteristics, daily requirement, digestibility, beneficial properties, signs of deficiency, signs of excess

Glucose-rich foods:

- Refined sugar
- Bee honey [1]
- Marmalade
- Gingerbread
- Sweet straw
- Dates [2]
- Pasta made from 1st grade flour
- Pearl barley
- Raisins (kishmish)
- Apple jam
- Fig [3]
- Oatmeal "Hercules"
- Wheat flour
- Corn [4]
- Buckwheat [5]

General characteristics of glucose

According to its chemical structure, glucose is a hexatomic sugar. In the article on carbohydrates [6], we already mentioned that the glucose unit is found not only in mono-, but also in di- and polysaccharides. It was discovered in 1802 by London physician William Prout. In the human and animal body, glucose is the main source of energy. In addition to fruits and vegetables, sources of glucose are: animal muscle glycogen and plant starch. Glucose is also present in the plant polymer that makes up all the cell walls of higher plants. This plant polymer is called cellulose.

Daily glucose requirement

The main function of glucose is to provide our body with energy. However, as you might guess, its quantity must have a specific figure. For example, for a person weighing 70 kg, the norm is 185 grams of glucose per day. In this case, 120 grams are consumed by brain cells, 35 grams by striated muscles,

and the remaining 30 grams are used to feed red blood cells. The remaining tissues of our body use fat sources of energy.

In order to calculate the body's individual need for glucose, it is necessary to multiply 2.6 g/kg by the actual body weight.

The need for glucose increases with:

Since glucose is an energetically active substance, the amount that a person should consume depends on his type of activity, as well as on his psychophysiological state.

The need for glucose increases if a person does work that requires a lot of energy. Such work includes not only digging and throwing operations, but also the implementation of computational and planning operations performed by the brain. Therefore, mental workers, as well as manual workers, require increased amounts of glucose [7].

However, we should not forget the statement of Paracelsus that any medicine can become poison, and any poison can turn into medicine. It all depends on the dose. Therefore, when increasing your glucose intake, do not forget about reasonable measures!

The need for glucose decreases when:

If a person is prone to diabetes, as well as with a sedentary lifestyle (not associated with mental stress), the amount of glucose consumed should be reduced. As a result of this, a person will receive the required amount of energy not from easily digestible glucose, but from fats, which, instead of forming reserves for a "rainy day," will be used for energy production.

Glucose digestibility

As mentioned above, glucose is found not only in berries and fruits, but also in starch, as well as muscle glycogen in animals.

At the same time, glucose, presented in the form of mono- and disaccharides, is very quickly converted into water [8], carbon dioxide and a certain amount of energy. As for starch and glycogen, in this case, it takes more time to process glucose. Cellulose, on the other hand, is not digested at all in the mammalian body. However, it plays the role of a brush for the walls of the gastrointestinal tract.

Beneficial properties of glucose and its effect on the body

Glucose is the most important source of energy for the body and also performs a detoxification function. Due to this, it is prescribed for all diseases in which the formation of toxins is possible, ranging from a common cold to poisoning. Glucose, obtained by hydrolysis of starch, is used in the confectionery industry and in medicine.

Interaction with essential elements

In the human body, glucose interacts with vitamins A [9] and C [10], water, and oxygen. In tandem with glucose, oxygen provides nutrition to red blood cells. In addition, glucose is highly soluble in water.

Signs of lack of glucose in the body

Our entire society can be divided into three groups. The first group includes the so-called sweet tooth. The second group consists of people who are indifferent to sweets. Well, the third group does not like sweets at all (out of principle). Some are afraid of diabetes, others are afraid of extra calories, etc. However, this restriction is only permissible for people who already have diabetes or are prone to it.

For the rest, I would like to say that since the main function of glucose is to provide our body with energy, its lack can lead not only to lethargy and apathy, but also to more serious problems. One of these problems is muscle weakness. It manifests itself in a general decrease in muscle tone throughout the body. And since our heart is also a muscular organ, a lack of glucose can cause the heart to be unable to perform its task.

In addition, with a lack of glucose, hypoglycemic disorders may occur, accompanied by general weakness, loss of consciousness, and disruption of the functioning of all body systems. As for diabetics, products containing long-absorbing glucose are preferable for them. These are all kinds of cereals, potatoes [11], beef and lamb.

Signs of excess glucose in the body

A sign of excess glucose may be high blood sugar. Normally it is in the range of 3.3 – 5.5. This fluctuation depends on the individual characteristics of the person. If your blood sugar level is above 5.5, you should definitely visit an endocrinologist. If it turns out that this jump was caused by increased consumption of sweets the day before (for example, you were at a birthday party and enjoyed a cake), then everything is in order. If your sugar levels are high regardless of the food you eat, you should consider visiting a doctor.

Glucose for beauty and health

As with everything else, in the case of glucose it is necessary to adhere to the golden mean. Excess glucose in the body can lead to excess weight [12] and diabetes, while deficiency can lead to weakness. For successful exercise, it is necessary to maintain optimal blood glucose levels. The most useful fast-absorbing glucose is found in honey, raisins, dates and other sweet fruits. Slow-absorbing glucose, necessary for long-term energy maintenance, is found in various cereals.

Literature

1. Tkacheva, N., & Eliseeva, T. (2023). Honey for human health – description of types (40+), features and beneficial properties of each, recommendations for use. *Journal of Healthy Eating and Dietetics*, (25). DOI: 10.59316/j.edaplust.2023.25.14
2. Yampolsky, A., & Eliseeva, T. (2020). Dates (*Phoenix dactylifera*). *Journal of Healthy Eating and Dietetics*, (14), 38-50. DOI: 10.59316/.vi14.89
3. Tarantul, A., & Eliseeva, T. (2021). Rice (lat. *Orýza*). *Journal of Healthy Eating and Dietetics*, (15), 61-74. DOI: 10.59316/.vi15.98
4. Eliseeva, T., & Yampolsky, A. (2019). Corn (lat. *Zéa máys*). *Journal of Healthy Eating and Dietetics*, 3 (9), 2-13. DOI: 10.59316/.vi9.46

5. Eliseeva, T., & Tkacheva, N. (2019). Buckwheat (lat. Fagopyrum). *Journal of Healthy Eating and Dietetics*, 1 (7), 34-44. DOI: 10.59316/.vi7.37
6. Eliseeva, T., & Shelestun, A. (2019). Carbohydrates - description, benefits, effect on the body and the best sources. *Journal of Healthy Eating and Dietetics*, 1(7), DOI: 10.59316/j.edpl.2018.7.8
7. Tkacheva, N., & Eliseeva, T. (2020). Eating under great mental stress. *Journal of Healthy Eating and Dietetics*, (11). DOI: 10.59316/j.edpl.2020.11.31
8. Eliseeva, T., & Shelestun, A. (2018). Water - description, benefits, effects on the body and the best sources *Journal of Healthy Nutrition and Dietetics*, 1(7). DOI: 10.59316/j.edpl.2018.7.9
9. Eliseeva, T., & Mironenko, A. (2018). Vitamin A (retinol) - description, benefits and where it is found. *Journal of Healthy Eating and Dietetics*, 3(9), 41-86. DOI: 10.59316/j.edpl.2018.3.5
10. Eliseeva, T., & Mironenko, A. (2018). Vitamin C (ascorbic acid) description, benefits and where it is found. *Journal of Healthy Eating and Dietetics*, 2 (4), 33-44. DOI: 10.59316/.vi4.19
11. Tarantula, A. (2018). Potatoes (Tuberous nightshade, Solánium tuberosum). *Journal of Healthy Eating and Dietetics*, (4), 22-32. DOI: 10.59316/.vi4.18
12. Lazareva, V., & Eliseeva, T. (2021). Nutrition for obesity. *Journal of Healthy Eating and Dietetics*, (16), DOI: 10.59316/j.edpl.2021.16.19

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