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ВЗАИМОСВЯЗЬ ОЖИРЕНИЯ И УПОТРЕБЛЕНИЯ СОЛИ

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CORRELATION OF OBESITY AND SALT CONSUMPTION

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Резюме. Ожирение - это результат формирования избыточных жировых отложений. Стресс, наследственная предрасположенность, переедание и недостаточные физические нагрузки могут стать причиной ожирения. Избыточное потребление соли также может стать причиной развития этого заболевания, влияя на процесс синтеза эндогенной фруктозы, которая в свою очередь вызывает резистентность к лептину и отложение жира на печени, что ведет к развитию ожирения.

Ключевые слова: избыточный вес, ожирение, соль.

Resume. Obesity results from formation of excess body fat. Stress, hereditary predisposition, overeating and insufficient physical activity can cause obesity. Excessive salt intake can also cause the development of this disease, affecting the synthesis of endogenous fructose, which in turn causes leptin resistance and fat deposition on the liver, leading to the development of obesity.

Keywords: overweight, obesity, salt.

Relevance. According to the statistics of World Health Organization approximately 10-30% of people all over the world are overweight and obese, and the number of such people is growing every year. Obesity inevitably affects the health of people around the world. The solution to this problem is an important step towards improving the general level of public health.

Aim: the main aim of this work is to study the mechanisms of the influence of salt on the development of obesity, as well as on the pathogenesis of the disease. Other challenging objectives include determining the level of awareness of young people in our country in the field of concern, analyzing the daily diet for the amount of salt and studying the methods of obesity prevention.

Materials and methods. To open up the issue, various national and foreign resources, statistical information dating from 1980 to the present time were studied. Sociological surveys were conducted among university students in Minsk to learn about their awareness of the causes of obesity and prevention methods, and to consider their opinions on nutrition.

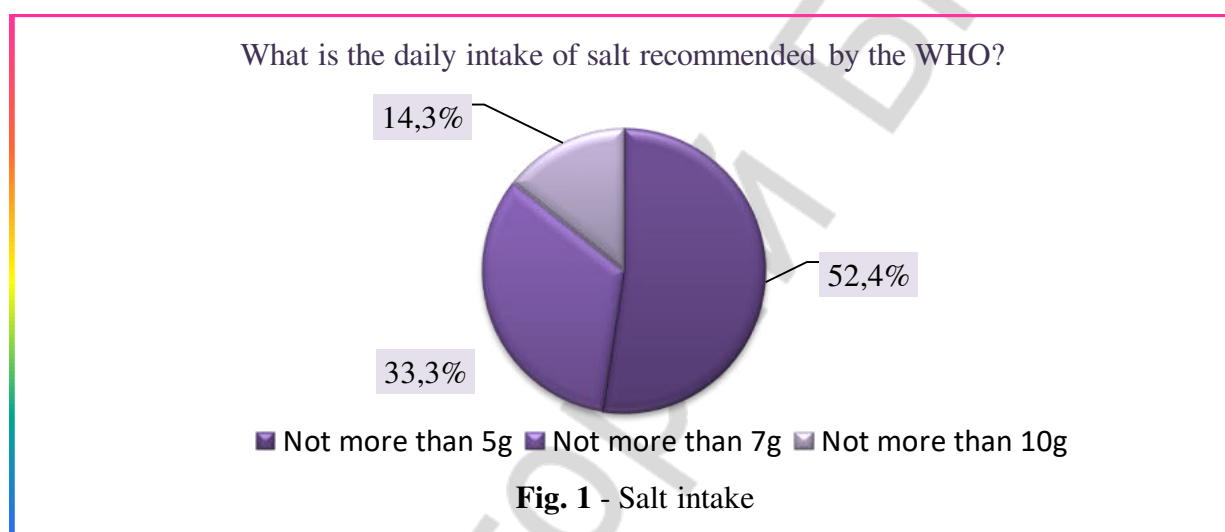
Results and their discussion. According to the statistics of the World Health Organization approximately 10-30% of people all over the world are overweight and obese, and the number of such people is growing every year.

Overweight and obesity result from abnormal or excessive body fat that can be harmful to human health. From 1975 to 2016, the number of obese people worldwide tripled. According to the research of the Ministry of Health of Belarus and the WHO in 2017, 25.4% of Belarusians are obese, and 60.6% are overweight [1].

Elevated BMI is one of the main risk factors for noncommunicable diseases, such as cardiovascular diseases, diabetes, disorders of the musculoskeletal system and some oncological diseases. Doctors in New Orleans are also reporting that a high number of COVID-19 patients who develop complications are overweight or obese.

Obesity in children increases the likelihood of premature death and disability in adulthood. In addition to the increased risk in the future, obese children also suffer from shortness of breath, fractures, predisposition to hypertension, early signs of cardiovascular diseases, insulin resistance and propensity for psychological problems.

To study people's awareness in the field of the issue under consideration, a sociological survey was conducted, in which 63 students from different universities of Minsk participated.



Based on the results obtained during the survey, it can be noted:

1. Most students know about body mass index. Despite this fact, one third of respondents said they did not even try to eat right.

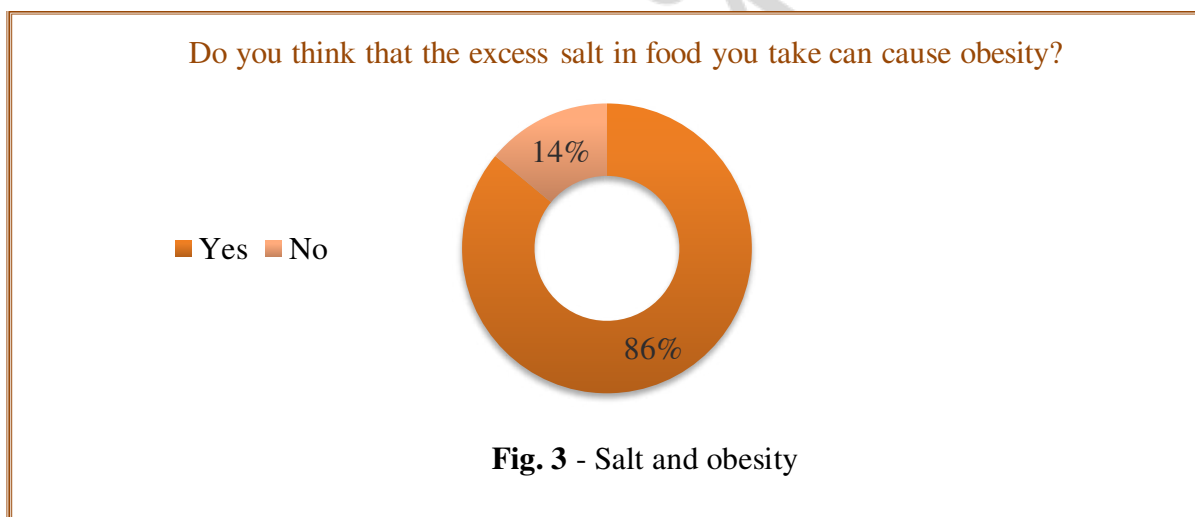
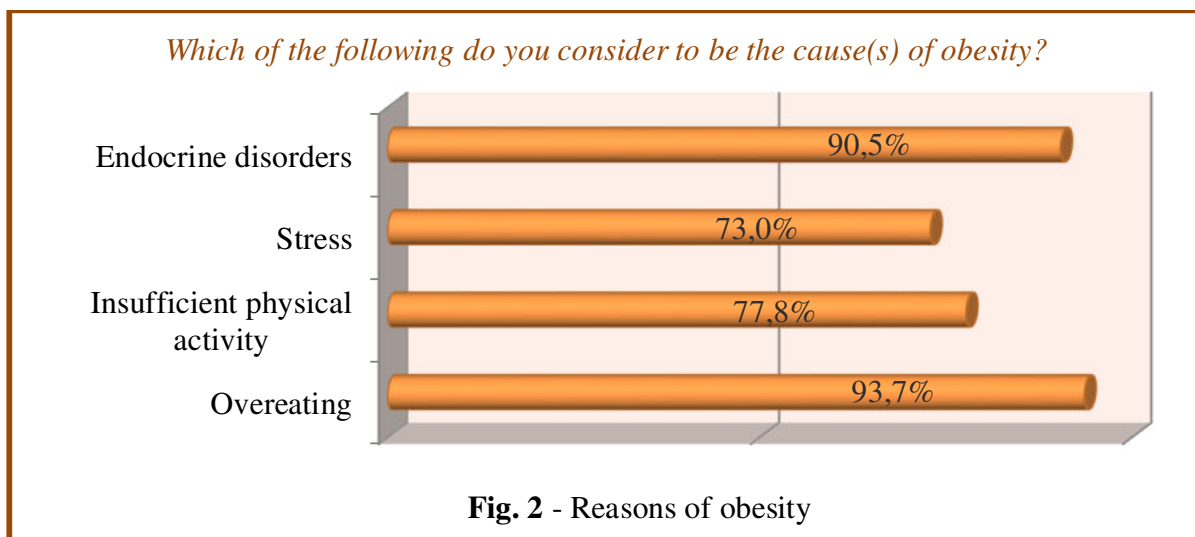
2. Moreover, only a half (52.4%) of respondents are aware of the daily salt intake recommended by the WHO (Fig.1). Thus, we can conclude that most students do not monitor the amount of salt in their food and their diet in general.

The methods of obesity prevention should be also identified. Thus, everyone can limit caloric intake by reducing fats, salt and sugar intake, increase consumption of fruits and vegetables, as well as legumes, whole grains and nuts and engage in regular physical activity.

The food industry can also contribute to the transition to proper nutrition by reducing the content of fat, sugar and salt in foods, ensuring the availability of healthy and nutritious foods at a price affordable to all consumers, restricting the advertisement of foods high in sugar, salt and fats, especially foods targeted at children and teenagers and ensuring the availability of healthy foods in the market and promoting regular physical activity in the workplace.

Besides, it was found out that most young people consider overeating and various endocrine disorders the main reason of obesity (Fig.2). It is important to emphasize that

86% of respondents consider that excessive salt intake can cause overweighting and obesity (Fig.3).



The study of the diet of an average citizen of Belarus showed the following:

1. Many Belarusians are used to adding a large amount of salt to their dishes to improve their taste.
2. Belarusians do not monitor the amount of salt in their food.

Thus, it follows that the average Belarusian consumes an amount of salt that significantly exceeds daily intake of this product recommended by the WHO.

To study how salt affects human organism, we turn to various studies and experiments.

As a result of the Joslin Diabetes Center's research it was revealed that people consuming about 11.5 grams of salt per day have significantly increased excretion of sodium in the urine, while the content of fatty acids in the blood is also elevated.

Specialists from the University of Colorado explain that salt stimulates the formation of fructose, which in turn leads to the formation of leptin resistance and fat deposition in the liver and, consequently, excess weight.

To test this phenomenon, an experiment was conducted on mice. For 30 weeks, adult mice in one group consumed a solution of sodium chloride, and the other group was fed by ordinary drinking water. During the experiment, it was noticed that both groups consumed the same amount of fluid. By week 10, the blood of mice of the first group became much more salty, the amount of fructose in it tripled and osmotic pressure significantly increased. Then these mice began to gain weight and by the end of the 30th week weighed twice as much as the mice of the second group. To find out if endogenous fructose is a direct cause of weight gain, a second experiment was performed with mutant mice that do not digest fructose. In 30 weeks, mutant mice showed elevated level of fructose in their blood, but the weight remained the same. Thus, excess salt affects the synthesis of endogenous fructose, and it already causes weight gain [3].

Jens Titze, a specialist in the field of molecular physiology, came to the conclusion that it takes a lot of urea to remove excess salt from the human body. Because of this fact people who take excess salt suffer from frequent hunger [2].

Conclusions:

1 Despite the fact that most students are informed about obesity and methods of its prevention, they are not ready to change their usual diet and follow the recommendations.

2 Belarusians do not monitor the amount of salt they consume, which leads to excessive consumption of this product.

3 The basis for the prevention of obesity is proper nutrition.

Thus, it is important to talk more often about the need to monitor the nutrition of people. The media and health organizations should disseminate this information to people, which will help solve the widespread problem of obesity.

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