METHODS COMPOSITION OF PHYSICAL THERAPY IN DISORDER OF SUBSTANCES EXCHANGE IN YOUNG GIRLS

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Анотація. В роботі наведено основні складові методів фізичної терапії при порушенні обміну речовин у молоді. Встановлена ефективність розробленої комплексної програми фізичної терапії при надмірній вазі, яку застосовували, протягом 4 місяців в групі у молоді 17-20 років. Доведено, що після експерименту індекс маси тіла у студенток контрольної групи зменшився на 5,7% (p> 0,05), а в експериментальної групи зменшився на 17,4% (p< 0,05), різниця між групами була статистично значима (p<0,05). Запропонована програма фізичної терапії може бути використана з метою профілактики ожиріння та нормалізації обміну речовин у молоді.

Abstract. The paper presents the main components of the methods of physical therapy in case of metabolic disorders in young people. The effectiveness of the developed comprehensive program of physical therapy with excess weight, which was used, was established for 4 months in a group of youth 17-20 years old. It was proved that after the experiment, the body mass index in the control group students decreased by 5.7% (p> 0.05), while in the experimental group it decreased by 17.4% (p <0.05), the difference between the groups was statistically significant (p <0.05). The proposed program of physical therapy can be used to prevent obesity and normalize the metabolism of young people.

Introduction. An important link in the formation of obesity, especially in young people, is the reduction in the cost of the body received energy in other words reducing the motor activity [1-5]. World Health Organization notes that the decline in physical activity is the fourth most important factor affecting the causes of death on a global scale (which accounts for 6% of the total deaths in the world). Further, such factors as high blood pressure of 13%, smoking - 9% and high blood glucose levels - 6%. The share of overweight and obesity accounts for 5% of the total number of deaths in the world [6-10].

In 2015, the study was repeated for 25 EU countries. The obtained data show that almost 69% of the EU countries are on the lower limit of the scale of physical

activity. The most active countries were the Netherlands and Germany, the least active in Sweden. Regular walking was the most popular in such countries as Spain, Denmark, Finland, Germany and Ireland. The prevalence of sitting for 6 hours or more on day 20 was the highest in Denmark (56%), the lowest in Portugal (24%) [2,6-10].

Several authors emphasize the importance of timely correction of overweight in young people as a major factor in the prevention of obesity and a number of diseases in adulthood [1-10].

The correction of overweight among young people has its own peculiarities and needs more in-depth detail. Therefore, further study of the state of the problem, prevention, treatment of overweight and obesity among young people is relevant.

The **object of the study** is the physical therapy of young people with overweight.

The **subject of research** is the impact of a comprehensive rehab program on the body of overweight youth.

The **purpose of the research** is to scientifically substantiate and develop a comprehensive program of physical therapy for girls over 17-20 years old.

Materials and methods of research

The research was conducted with a group of students (30 people) on the basis of universities "Open International University of Human Development" Ukraine "and Melitopol State Pedagogical University named after Bohdan Khmelnytsky, aged from 17 to 20 years old, overweight and obese, within 4 months from September 2017 to December 2017.

The program of physical therapy was carried out in the following way: after examination of medical cards and assessment of physiological development, functional and psycho-emotional state were divided into two groups, 15 each. All students of control (KG) and experimental groups (EGs) for conducting control at the beginning and at the end of the study studied physiological and anthropometric indices.

On the basis of the analysis of scientific and methodological literature, we developed a comprehensive program of physical therapy with overweight, which included morning exercise, metered walking, training on simulators (exercise bike, stepper, jogging track), circle training, aqua aerobics, swimming, diet therapy (for students EG) The developed program was carried out both during classes in the gym, and at home. KG girls performed physical exercises in physical education classes on schedule.

The following research methods were used: questionnaires and surveys, anthropometric studies, diagnosis of obesity according to the degree of obesity, which determined the ideal weight (based on the Bongard formula, which is based on measuring the circumference of the chest). In determining the ideal weight for each woman, the mean value of normative indicators was taken.

Results and discussion

By classification of the degree of obesity, the body mass index index in both groups before the experiment was related to overweight (Fig. 1).

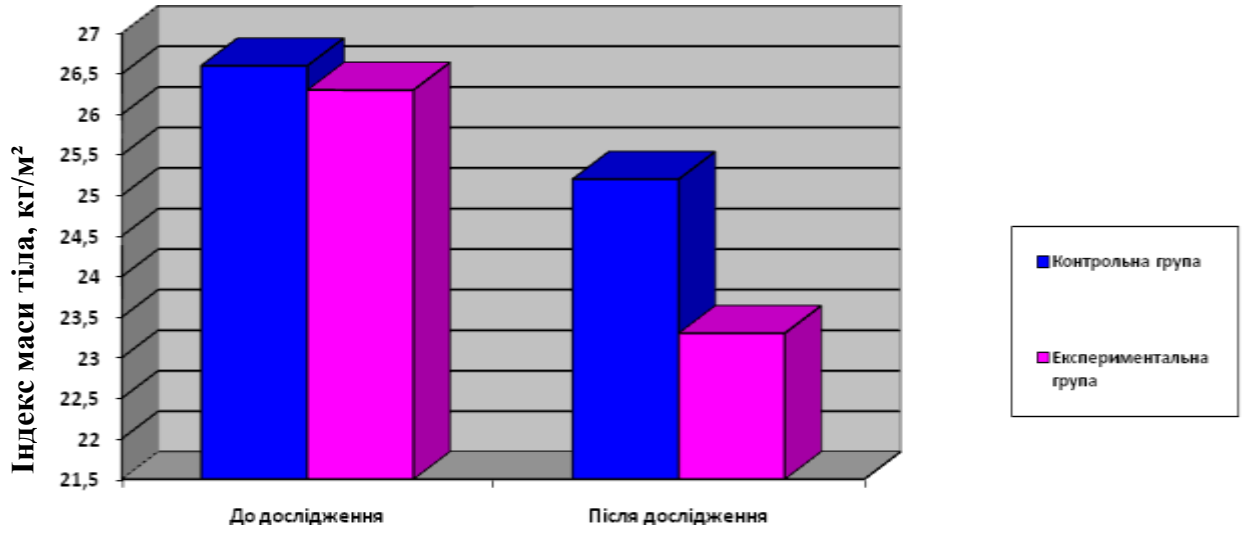

Fig. 1. Dynamics of the BMI of the student body of the control and experimental group before and after the study.

After the experiment, the body mass index for the students of the COG decreased by 5.7% ($p > 0.05$), and in the EH it decreased by 17.4% ($p < 0.05$), the difference between the groups was statistically significant ($p < 0.05$). The comparative

characteristic of normative variables with the obtained results showed that in girls CG it reaches the lower limit of overweight, and for girls EG is equal to the normal weight.

These results suggest that the physiotherapy program used in the clinical trials did not lead to correction of overweight, and therefore the values were unreliable. In the EG, the use of a comprehensive program has led to a better result, which allowed young people to get rid of this problem. Obviously, the decrease in the body mass index of students of the experimental group is associated with the application of physical therapy program in combination with aqua aerobics, swimming and diet therapy.

For a more detailed study of the distribution of subcutaneous fat in the students, a study of skin and fat folds was performed using caliperometry. Figure 2 shows the skin and fat folds of women in both groups.

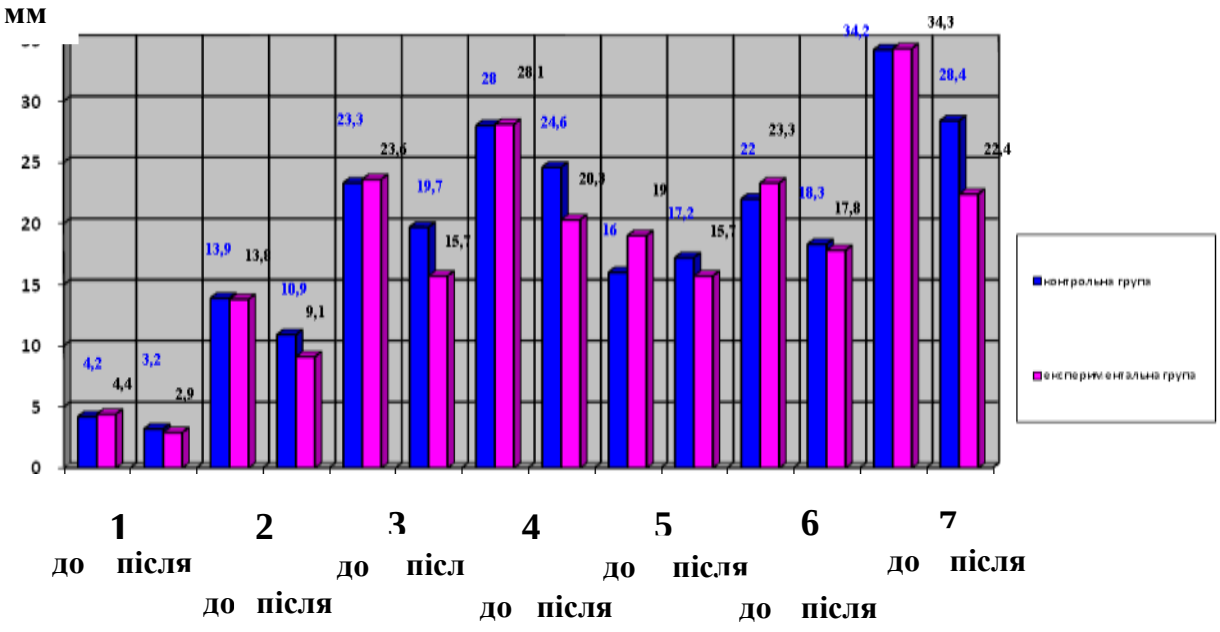

Fig. 2. Indicators of skin and fat folds at the beginning and end of the program of correction of overweight of the students of the control group and experimental group: 1 - the anterior surface of the chest; 2 - middle axial line; 3-level navel; 4 - superstitious; 5-back shoulder surface; 6-with a shoulder blade; 7 - anterior thigh surface.

The dynamics of the size of skin and fat folds in the girls of both groups during the experiment had a statistically significant difference. Representatives of the experimental group in comparison with the control group showed a significant

reduction of skin and fat folds, especially on the front of the thigh: CG - 23.8% and EG - 34.1%, on the average axillary line in KG - 21.6 % and in the Egg - by 34.1%, at the naval level in the CG - by 15.5%, and in the Egg - by 33.5%, in the longitudinal section in the CG - by 12.1% and in the Egg - by 18.1 %, the difference between the groups was fairly reliable ($p < 0.05$). Over other areas of the dynamics of skin and fat folds between groups was not statistically significant.

Analysis of the dynamics of the total weight, fat and muscle components before and after the implementation of the proposed program of physical therapy, showed positive effects for the studied students of both groups, because under the influence of even the slightest physical activity, the body begins to spend significantly more energy. This, in turn, leads to the achievement of optimal body weight, and the ratio of muscle and fat tissues in it. The fatty tissue is replaced by muscle, occupying less volume. This is confirmed by the average indicators of reduction in the total weight of 6% in girls KG and by 14.5% in students EG, body fat weight 8.8% in girls CG and 29.7% in girls EG, increase in muscle weight by 2,1% in young CG and 10.4% in girls with EG (Fig. 3).

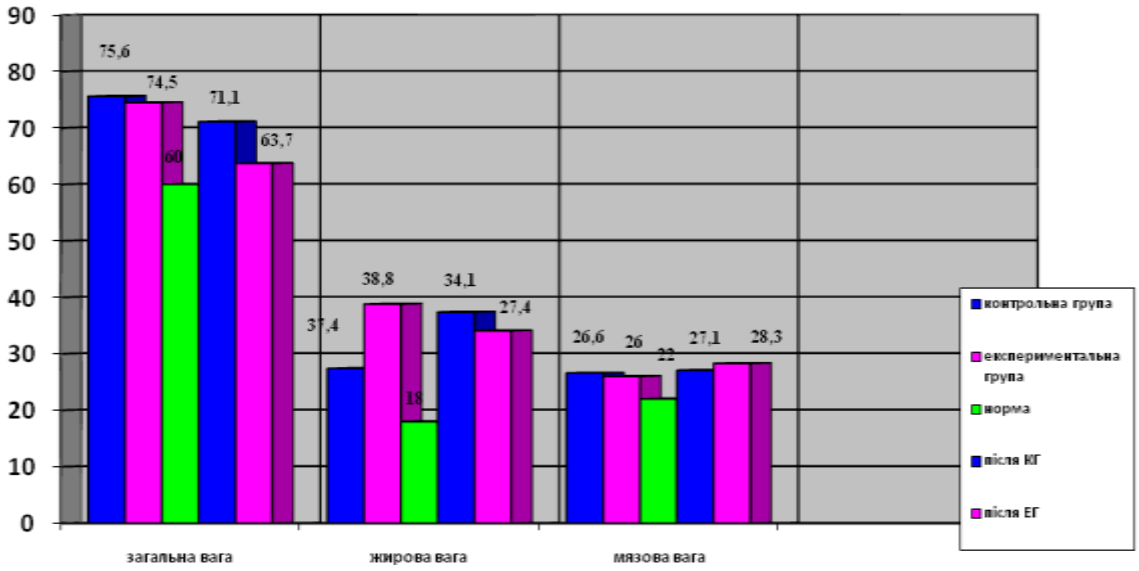

Fig. 3. Total fat and muscle weight before and after the study.

Thus, taking into account the above data, we can say that in the process of correction of overweight among both groups of students, we observed a positive

dynamics of anthropometric indicators. People who are prone to obesity need to constantly adhere to a healthy lifestyle if they do not want to return to their former state, as it is known that many people who are obese, reach a positive result, return to normal diet, stop playing sports and, as a result, come back to where they started.

Conclusions

One of the main causes of obesity is excessive intake of energy over its loss. In this regard, the main areas of rehabilitation in obesity are medical physical education and rational nutrition. As auxiliary and sufficiently influential directions it is possible to use occupational therapy, tourotherapy, psychotherapy, hypothermia, and others.
The effectiveness of a comprehensive program of physical therapy with overweight that was used for 4 months in a group of 17-20 year old youth was established. It was proved that after the experiment, the body mass index in the students of KG decreased by 5.7% ($p > 0.05$), and in the EG decreased by 17.4% ($p < 0.05$), the difference between the groups was statistically significant ($p < 0.05$).

The results of our studies show that the use of this program gives positive results in lowering the overall weight (6% for CG girls and 14.5% for girls EG) and fatty components (by 8.8% for CG girls and by 29.7 % of girls EG), which corresponds to a decrease in the size of fat folds on the body, there was an increase in muscle weight (2.1% in young CG and 10.4% in girls EG). The role of aqua aerobics, which was part of a comprehensive therapeutic program, was identified in the work. Use aqua aerobics is possible as an independent method and in combination with other means of physical culture. Flexibility exercises, exercise sessions and dietary recommendations were also included.

The proposed program of physical therapy can be used to prevent obesity and normalize the metabolism of young people.

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