Such an opportunity is provided thanks to the methodology, which is based on the operational-circular information connection, which is one of the varieties of internal communication, when the teacher independently reproduces, independently analyzes and independently corrects the performance of the physical exercise being learned. At the same time, the experimental methodology structured according to three basic blocks allows not only to positively influence the development of mental abilities, but also to ensure a sufficient level of physical fitness of future physical education teachers, which is necessary for successful teaching of complexly coordinated exercises.

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Modern trends in the development of health physical culture

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Abstract

Objective of the study was to experimentally prove the effectiveness and safety of using the method of forming a neutral position of the spine in fitness for the abdominal muscles.

Methods and structure of the study. The experiment was carried out on the basis of the “Ratiborets” fitness club in Yekaterinburg. It was attended by 14 women aged 30 to 38 years. For the experimental group, a training program was developed that included exercises that strengthen the abdominal muscles by stabilizing the spine in a neutral position. The experiment took place in three stages. The first stage was aimed at the development of static stabilization, the second - dynamic stabilization, the third - integrated stabilization.

Results and conclusions. The introduction of training in the work of fitness clubs for the development of static and dynamic stabilization with the control of execution technique strengthens the posture, axial muscles, increases the strength and endurance of the abdominal muscles. Moreover, such training is safe for the spine, since the main task of the method of forming the neutral position of the spine is to maintain the physiological (natural) curves of the spine and distribute the load optimally over all joints, thereby protecting them from injury.

Keywords: *health-improving physical education, fitness, digitalization, pandemic, neutral position of the spine, safety.*

Introduction. In the field of physical culture and sports, quite a lot of attention is paid to health-improving physical culture. In recent years, this direction has become increasingly relevant. This is due, on the one hand, to the deterioration of the health status of various segments of the population, the rejuvenation of a number of diseases, the deterioration of the environment, and so on. On the other hand, it has become fashionable to lead a healthy lifestyle, engage in various types of physical activity, and attend fitness clubs. As a result, new fitness technologies began to appear, combining both traditional and innovative means and methods of health-improving physical culture (A.G. Furmanov, 2003). At the same time, learning the correct technique for performing movements is a key factor in preventing injuries during the training process.

Recently, the topic of choosing the right and effective exercises for body alignment, improving its functionality and biomechanics of movements has become important for discussion in the instructor environment. The neutral position of the spine is directly related to the preservation of physiological curves (lordosis and kyphosis). The skill of building a neutral position helps to stabilize the spine both during daily activities and during the training process and protect the joints from injury. In this regard, the training of the abdominal muscles and the choice of effective exercises that will help develop the skill of maintaining a neutral position of the spine become relevant. The main criterion in the selection of exercises is their safety for the spine (E.A. Bespamyatnykh, 2021).

Objective of the study was to experimentally prove the effectiveness and safety of using the method of forming a neutral position of the spine in fitness for the abdominal muscles.

Methods and structure of the study. The experiment was carried out on the basis of the Ratiborets fitness club in Yekaterinburg. It was attended by 14 women aged 30 to 38 years. The composition of the experimental and control groups - seven people each.

Reliability of the final averages of the control and experimental groups

Statistical indicators	Test No. 1, s.	Test No. 2, s.	Test No. 3, s.	Test No. 4, s.	Test No. 5, s.
$\bar{X}э$	55,4	74,14	54	45,42	88,14
$\bar{X}к$	40,14	68,42	47,85	39,42	83,14
t	5,48	1,72	2,38	2,5	1,4
P	<0,001	>0,05	<0,05	<0,05	>0,05

For the experimental group, a program was developed that included exercises that strengthen the abdominal muscles by stabilizing the spine in a neutral position. The program excludes the traditional approach to working out the abdominal muscles and classic exercises for the abdominal muscles (lifting the torso into a sitting position, lifting straight legs from the starting position lying down, etc.).

The program is divided into three training stages, the duration of each stage is two months. Training - three times a week for 60 minutes each. The stages correspond to the level of difficulty of the exercises. At each stage, adjustments were made to the training program.

Stage I - the development of static stabilization, holding a posture in which it is required to maintain a neutral position of the spine (NPP) for a certain amount of time.

Stage II - the development of dynamic stabilization, the addition of movement of the upper and lower limbs, the neutral position of the spine is maintained.

Stage III - the development of integrated stabilization, the neutral position of the spine in conditions close to those that we encounter in sports and everyday life, with asymmetric weight lifting.

During the experiment, functional tests were used to assess the state of the abdominal muscles of the participants at the beginning, middle and end of the experiment: test No. 1 “Lying emphasis”; test No. 2 “Hunting dog”; test No. 3 “Lateral endurance”; test No. 4 “Maintaining the neutral position of the spine during flexion of the hip joints”; test No. 5 “Maintaining the neutral position of the spine during extension of the hip joints.”

Results of the study and their discussion. At the beginning of the experiment, the participants underwent functional testing of the state of the abdominal muscle group. Comparison by Student’s t-test showed that the differences are not significant ($p>0.05$). The results of the final testing are shown in the table.

The table shows that the final indicators in the experimental group are better than in the control group, and the difference between them is significant in three out of five tests ($0.001<p<0.05$). This allows us to conclude that the technique of forming a neutral position of the spine in fitness is effective in order to strengthen the muscular corset, namely the abdominal muscles.

Comparison of the studied indicators within the groups also showed higher rates of increase in results in the experimental group. So, in the experimental group, there were significant (significant) changes in four out of five tests. Changes in the results in the control group are less significant and are not significant ($p>0.05$).

During the study, none of the participants was injured, some had pain in the back and joints, others achieved high-quality technique for performing complex exercises, and all participants improved their general well-being. Thus, the conducted study proved the effectiveness of the experimental technique, a positive trend was revealed in increasing the functionality of the abdominal muscles in the experimental group. Indeed, the method of formation of the neutral position of the spine can improve the functional state of the abdominal muscles, increase their strength and endurance. Based on the results of the study, it can be seen that the developed method can be considered safe and effective, as well as competitive. The proposed technique can become the basis for health training in fitness clubs.

C**onclusions.** As a result of the study, it was revealed that the method of forming the neutral position of the spine is more effective for training the abdominal muscles than the traditional approach to working out the abdominal muscles. Indeed, the introduction of systematic training in the work of fitness clubs to develop static and dynamic stabilization with control over the execution technique improves the well-being of those involved, strengthens posture, axial muscles, increases the strength and endurance of the abdominal muscles. Moreover, such training is safe for the spine, since the main task of the method of forming the neutral position of the spine is to maintain the physiological (natural) curves of the spine and distribute the load optimally over all joints, thereby protecting them from injury. This indicates the practical significance of the study.

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