The lowest index of attitude to these exercises is registered at senior school age (grades 10-11). For boys it is 6.29 ± 2.86 points, and for girls 7.42 ± 2.96 points. The established differences in scores are reliable (P<0.05).

In general education schools teachers often use exercises on the gymnastics wall to develop flexibility. Similar to usual exercises for flexibility development girls and boys of primary school age (3rd-4th grades) showed the highest level of interest in these exercises, slightly lower in middle school students and even lower in high school students. Significant differences in the attitudes towards gymnastics exercises between genders were not revealed (P>0,05).

**Conclusion.** Characterizing the attitudes of children of different school age and gender towards flexibility exercises, the study shows that in the primary school age an increased interest in flexibility exercises is observed in both boys and girls. In middle school age there is a gradual decline in interest in these exercises. However, girls' values are significantly higher than those of boys, as well as at younger ages. Significant reduction of interest in flexibility exercises occurs at high school age. At this age, boys and girls' attitudes to flexibility exercises do not differ significantly.

The results of the study are recommended for teachers to consider in the methodology of development of physical qualities in children of different school ages. They allow objective analysis and prediction of pedagogical situations and timely provision of appropriate techniques for activation of students at the lessons.

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## THE FUNCTIONAL STATE OF THE VEGETATIVE NERVOUS SYSTEM OF THE TEACHERS

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Keywords: the functional state of the body, teachers, Kerdo index, the vegetative nervous system.

The functional state of the body is an integral characteristic of the state of the health which reflects the adaptive capabilities of the body and evaluated according to changes in functions and structures at the current moment with interacting with environmental factors [1, p. 155].

The functional state of the central nervous system plays an important role for the functioning of the organism, it is a link in the reaction of the organism, manifested in the form of a complex of functions that are caused by the activity of the brain, transforming the functional state for its implementation [2, p. 146].

It is advisable to keep in mind the presence of its two components - physiological and psychological states of the functional state [3, p. 94].

Physiological indicators of the functional state of the body – heart rate, blood pressure, Kerdo index, saturation, body mass index.

The vegetative Kerdo index (the VKI) is determined by two parameters: diastolic blood pressure (dBP) and heart rate (HR).

Hungarian doctor I. Kerdo has been developing for more than 10 years a theoretical justification of the effectiveness of the VKI to assess the balance between the tone of the sympathetic and parasympathetic nervous systems (SNS and PSNS) in the body, suggesting that the VKI directly depends on the predominance of the tone of the SNS over the tone of the PSNS and has an inverse relationship with an increase in the tone of the PSNS compared to the tone of the SNS. That is, the VKI has positive values for dBP < HR and negative values for dBP > HR.

Kerdo believed that with sympathicotonia the heart rate increases and the dBP decreases. An increase in heart rate leads to an increase in minute blood volume (MBV) and systolic pressure. At the same time the average blood pressure remains constant due to a decrease in peripheral vascular resistance and dBP. With vagotonia the heart rate decreases which is accompanied by a decrease in the MBV, and in order to maintain the average pressure and blood flow, the dBP increases due to an increase in vascular resistance.

It can be assumed that such a mechanism of self-regulation of average pressure occurs with minor changes in heart rate and dBP in healthy people. But another process of blood pressure regulation is also possible.

In addition it is known that a simultaneous increase in heart rate, sBP and dBP occurs during physical and mental work, emotional stress and hypertension. A decrease in heart rate, sBP and dBP occurs during rest, deep sleep, collapse, hypotension [4, p. 31-33].

Therefore the purpose of our study is to analyze the effect of physical and breathing exercises on the vegetative nervous system of the teachers.

**Material and methods.** Teachers of the "Gymnasium No. 7 of Vitebsk" and teachers of the university named after P.M. Masherov took part in the reserch.

The research involved 30 people.

The OmronM2 basic tonometer (HEM-7121) was used to measure blood pressure and heart rate. Indicators of systolic (sBP) and diastolic (dBP) pressure were used to assess the vegetative status of the Kerdo index (the VKI, %).

The Kerdo index is calculated by the formula:

VIC = (1-dBP/HR)*100.

There are five tones of the vegetative nervous system:

1. Pronounced parasympathicotonia - predominance of parasympathetic tone, values of the VKI > -25;

2. Parasympathicotonia is an intermediate state between normal and parasympathetic tone, the VKI = -16 ÷ -25);

3. Normotonia - balance of sympathetic and parasympathetic influences, the VKI= -15 ÷ +15);

4. Sympathicotonia is an intermediate state between the norm and the sympathetic tone of the VKI = 16 ÷25;

5. Pronounced sympathicotonia – predominance of sympathetic tone, values of the VKI > +25.

Statistical data processing was carried out in the Excel program.

**Findings and their discussion.** It follows from tables 1 and 2 that before the exercises normotonics among women were 10%, among men 40%, after the exercises their number increased by 30% and 10%, respectively. Vagotonics and hypervagotonics after exercise became less by 20% and 10% respectively, and sympathotonics and hypersympathotonics among women became less by 10%, among men the indicator has not changed.

Table 1 – Distribution of the respondents into groups depending on the active department of the VNS

| | Women (n = 20) | Men (n = 10) |
|---|---|---|
| normotonics | 2 people (10 %) | 4 people (40 %) |
| vagotonics + hypervagotonics * | 8 + 3* people (55 %) | 2 + 1* people (30 %) |
| sympathotonics + hypersympathotonics | 5 + 2* people (35 %) | 1 + 2* people (30 %) |

Table 2 – Distribution of the respondents into groups depending on the active department of the VNS after exercises

| | Women (n = 20) | Men (n = 10) |
|---|---|---|
| normotonics | 8 people (40 %) | 5 people (50 %) |
| vagotonics + hypervagotonics * | 6 + 1* people (35 %) | 1 + 1* people (20 %) |
| sympathotonics + hypersympathotonics | 4 + 1* people (25 %) | 3 people (30 %) |

**Conclusion.** The vegetative nervous system has a direct effect on the activity of the heart. Therefore there are three groups of people with varying degrees of influence of the vagus nerve on the activity of the heart - vagotonics, normotonics and sympathotonics. Vagotonics have the greatest effect of vagus tone. With strong activation there is a reaction of paralysis, a reflex of imitation of death and metabolic activity decreases. In sympathotonics the activity of the vagus nerve nuclei is suppressed. There is an activation of the "fight or flight" behavior, the metabolism increases. In normotonics the influence of the sympathetic and parasympathetic systems is balanced.

Among women there was a predominance of the parasympathetic division of the vegetative nervous system, after respiratory and physical exercises, there was a shift towards normotonia. The number of respondents with pronounced sympathicotonia decreased among men.

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## VEGETATIVE REGULATION OF THE HEART RATE OF ATHLETES WHEN PERFORMING A DYNAMIC TEST ON A STABILOPLATFORM

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Keywords: vegetative regulation; dynamic test; stabiloplatform; athletes; heart rate variability.

The vertical posture of a person leaves a certain imprint on the work of all physiological systems of his body. On the other hand, for optimal maintenance of postural balance (PB), a certain level of functioning of these systems, as well as their systemic interaction, is required. In this regard, there is a lack of a single concept that would explain the development of somatic and autonomic reactions that create conditions for effective postural stability. Research on the problems of interaction between PB and autonomic functions seems to be especially important and relevant [1].

When performing motor actions, including passing a dynamic test (DT) in an upright stance, the autonomic nervous system (ANS) is a mobilizing and activating system. It ensures the activation of the activity of organs, physiological systems and the body as a whole, as well as the mobilization of energy resources necessary for adaptation. Also, she is responsible for the restoration of physiological parameters after physical work performed [2].

In this regard, the study of the peculiarities of the autonomic regulation of the heart rate during the performance of DT in athletes at the current moment seems to be very relevant.

The aim – to identify the features of autonomic regulation of the heart rate of athletes when performing a dynamic test on a stabiloplatform.