# IMPROVING THE METHODOLOGY OF STRUCTURAL DEVELOPMENT OF PHYSICAL PREPARATION OF PRIMARY SCHOOL PUPILS 

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#### Abstract

ANNOTATION The method of differentiating educational loads in physical education lessons was developed using a computer program that allows you to divide primary school students into three groups in accordance with their physical development and level of physical fitness.


KEYWORDS. Physical development, physical culture, differentiation, computer program, physical education lessons, workload, primary school students.

## RELEVANCE OF THE STUDY

Research is being conducted in developing foreign countries on the targeted use of tools and methods to increase the physical development and physical fitness of students. In general education institutions, various forms of corrective work are carried out with students with low levels of physical development, depending on the number and level of existing deficiencies. However, the differentiated physical fitness of primary school students has not been fully studied. The available data are scattered and contradictory. An analysis of the scientific and methodological literature shows that the forms of organizing the stratified development of physical fitness have not been sufficiently studied. [3]

The effectiveness of the process of physical education in modern conditions depends on the correct use of tools and methods of complex training of physical qualities. The effectiveness of a differentiated approach to the development of physical qualities of school-age children is recognized by many researchers, emphasizing the need to organize the integrated development of children to perform almost all types of exercises and demonstrate all physical qualities. [2].

An analysis of the scientific and methodological literature on the subject shows that the formed "traditional" system of physical education in secondary school does not fully meet the needs of the growing organism for motor activity [1].

All of the research listed above should be taken into account when organizing the process of a
hierarchical approach to the physical development and physical fitness of students in school.

Thus, in the process of physical education, in addition to knowing the age and gender differences of school students, it is necessary to study their individual characteristics such as health status, level of physical development, level of physical fitness, level of biological maturity, nervous system characteristics and temperament. Therefore, in the organization of a stratified approach, it is necessary to study the individual characteristics of physical development and physical fitness of schoolchildren as indicators of their accounting, control and management in the process of physical education classes in secondary school. Physical development characteristics are one of the indicators of the physical condition of the organism. In addition, at school age, size and body weight reflect the body's functional capabilities. Analysis of scientific data shows that taking into account different indicators is important to improve the process of physical education of school students, because a differentiated approach allows us to organize education and upbringing on a scientific basis and is therefore the most effective.

The aim of the research is to improve the methodology of stratified development of physical qualities of primary school students.

## RESEARCH METHODS

In our study, we used the following research methods:

1. Study and analysis of scientific and methodological literature;
2. Pedagogical observation;
3. Pedagogical testing;
4. Pedagogical experience.

## RESEARCH RESULTS AND DISCUSSION

In determining the indicators of physical and functional development and general physical fitness of primary school students, we identified indicators of 13 tests of 4 types: anthropometric indicators: (body length (height) when standing; body weight (weight); chest circumference), cardiovascular vascular system parameters: (Rufe test; orthostatic test), respiratory system indicators: (Shtange test; Genche test) and
physical fitness indicators: ( $3 \times 10 \mathrm{~m}$ sprint; long jump from standing position; six-minute run; 30 m sprint from high start) ; leaning forward while sitting on the floor; pulling).

Using these tests, we developed a computer program "Smart School". The introduction of a computer program to monitor the physical development and physical fitness of primary school pupils will allow:

- to monitor the dynamics of physical development and physical fitness of primary school students during their secondary education;
- diagnose deficiencies in physical development and physical fitness of primary school
students and take measures to eliminate them in a timely manner;
- monitoring the effectiveness of the introduction of innovative programs and technologies for the health of primary school students;
- to evaluate the work of the educational institution and the education system in general in maintaining and strengthening children's health;
- to determine the effectiveness of the methodology developed by us as an important component in the creation of a system for evaluating the quality of education, because if educational services are provided taking into account the health of students, they can be considered qualitative.

Tests are held twice a year, in September and May. Once the control results data is entered into the computer, the calculations are performed and three levels (high, medium, low) are selected, which appear on the monitor screen in three different colors: high-green, medium-yellow, and low-red.

According to the results of the inspections, the developed computer program divided the students into three groups according to their level of physical development and physical fitness after the initial processing: high, medium, low. To determine the level of readiness of students, we have developed a special scale. Three criteria were identified on this scale. If a student met the norm and showed a high result, he or she was given three points, two points on average performance and one point on blank performance. The total number of tests in 4 areas was 13, so the total maximum score was 39 points. The level was determined by summarizing the sum of the scores on the results for each test according to the table developed by us (see Table 1).
Table 1

A special scale to determine the level of readiness of pupils

| № | Distribution of points | Degree |
| :---: | :---: | :---: |
| 1. | $28-39$ | High |
| 2. | $14-27$ | Medium |
| 3. | $0-13$ | Low |

Since we divided the experiment participants into 3 groups, we developed descriptions of the parameters of the types of exercises performed in physical education classes.

## CLASSIFICATION OF TYPES OF NORMS IN PERFORMANCE OF PHYSICAL EXERCISES



Figure 1. Classification of types of norms in the performance of exercise

As can be seen from the picture, we have proposed seven types of norms, each of which has three ways of doing more exercise. For example, the number of exercises to be performed has three different ways of performing movement actions: doing more, more moderately, and less in this norm. One of the most important criteria for exercise is the duration of exercise, which is also divided into three types: large, medium, small. To increase the effectiveness of the exercise, it is usually used to perform at three different speeds: fast, medium, and slow. It is very important to control the amplitude of the exercise, especially when shaking the legs and performing body movements. Amplitude is divided into three types: high, medium and low. The level of complexity of the exercise is divided into very complex, medium complexity and low complexity exercises. The level of strength given by the students during the exercise is of great importance, they are divided into high, medium and low voltages.

One of the most important indicators in the performance of exercise is the observation of the emotional state during exercise. Clearly, in the preparatory part of the lesson, it is important to ensure that the exercise is accompanied by a high emotional state. In the final part of the lesson, however, the exercise should be done with low emotion, as this is necessary to remove the fatigue accumulated during the whole lesson.

Based on the classification of types of norms in the performance of exercises, we have developed recommendations for the planning of norms in the compilation of lesson outlines. All exercises and learning tasks were divided into three types of loads: for children who showed low results ( $0-13$ points)
after the tests performed; for children who showed average results (14-27 points) after the test and for children who showed high results (28-39 points) after the test. These results are based on criteria based on our experimental tests. This distribution of learning loads allowed the targeted use of the individualgroup method in the conduct of physical education classes.

## SUMMARY

Our computer program, which allows students to be divided into three groups depending on their physical development and level of physical fitness, has allowed us to develop a methodology for stratifying learning loads in physical education classes.

The problem of increasing the effectiveness of physical education classes as one of the main forms of organizing physical education classes in schools requires the solution of many issues related to improving the educational process. One of the most pressing issues is the study of the features of the organization of a stratified approach as an important condition for optimizing the learning process in physical education classes at school.

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