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**EXPERIMENTAL SUBSTANTIATION OF THE METHODOLOGY FOR  
CONDUCTING PHYSICAL EDUCATION LESSONS IN THE SCHOOL  
EDUCATION SYSTEM, TAKING INTO ACCOUNT REGIONAL FACTORS**

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*Abstract: to the article by Khankeldiev Sh.Kh., Uraimov S.R. on the topic: "Experimental substantiation of the methodology for conducting physical education classes in rural schools in conditions of hyperthermia".*

*The article describes the results of a pedagogical experiment aimed at improving the motor abilities of girls of secondary school age, students in rural secondary schools at physical culture lessons in conditions of hyperthermia.*

*Key words: hypokinesia, hyperthermia, physical development, motor fitness, cumulative effect.*

An increase in the role of the anthropogenic component in the complex of the influence of external conditions on the human body, the most important component remains a set of natural climatogeographic factors that determine the peculiarities of the development, functioning and adaptation of organs, systems and the human body as a whole as a subject and object of the environment.

Of the whole variety of natural climatic factors, the most significant from the standpoint of the ecological and physiological impact on the human body is air temperature. When the ambient temperature rises, protective and adaptive reactions occur. Long-term exposure to the body of high temperatures inherent in the region of residence of the studied contingent, in combination with high air humidity, reduces the efficiency of heat conduction of the environment, reducing convection and evaporation from the body surface, which leads to maximum perspiration. Together with sweat, fluid and mineral salts are lost, which leads to disruption of metabolic processes in cells, which are partially compensated by an increase in metabolic intensity, which requires more oxygen, which in turn leads to increased respiration and an increase in the load on the cardiovascular system, and the extra heat generated by hyperthermia can lead to overheating of the body(1).

A long-term analysis of the temperature conditions of the Fergana region has revealed that thermal tolerance when performing physical exercises in conditions when the air temperature exceeds 30 ° C, schoolchildren practically do not tolerate the effects of physical exercises, performed even with a relatively low intensity of 40-50%, from the maximum aerobic capacity.

When practicing physical exercises, in conditions of external hyperthermia, maintaining the heat balance is extremely difficult due to the sharply limited possibilities of heat transfer from the body surface, which threatens overheating of the body and leads to a sharp decrease in their natural motor activity. Conducting physical education lessons on open school sports grounds is associated with a sharp decrease in the physical activity of students, which determines the urgency of the problem aimed at developing means, forms and methods to reduce the factor affecting the body of external hyperthermia(2,4,5).

In the course of conducting a pedagogical experiment on the use of the developed complexes of gymnastic exercises of a static nature, borrowed from the yogi system and aimed at the development of articular flexibility and respiratory gymnastics, it largely compensates for the negative phenomena associated with forced hypokinesia observed during periods of the year when the temperature the external environment significantly exceeds body temperature.

Experimental studies were carried out on a contingent of girls in grades 8-9 studying in rural secondary schools.

Multiple monitoring analysis of the results of the pedagogical experiment revealed that physical exercises of a static nature turned out to be a rather effective means from the point of view of their influence on flexibility and speed-strength qualities(13,14). Under the influence of gymnastic exercises developed and introduced into the educational process, the results in the tests under study statistically significantly improved as a long jump from a run, forward bend and dynamometric characteristics. The implementation of combined physical exercises for stretching, balance and strength orientation in combination with breathing exercises performed with sufficiently long rest pauses between the performance of individual exercises turns out to be quite feasible and is not psychologically perceived negatively by students(2,3).

The regular use of specially developed complexes of physical exercises and introduced into the educational process of physical culture in the school education system allows maintaining at a sufficiently high level indicators of strength, flexibility, speed-strength qualities. It was revealed that the most favorable changes were observed in the experimental group whose representatives were engaged in hyperthermia with the performance of complexes of gymnastic exercises aimed at developing flexibility, and static physical exercises that did not cause high energy expenditures(1).

Analyzing the results of the conducted pedagogical research in conditions of high external temperature, stabilization of the body weight of the studied girls was achieved during the period of the research and varied in a narrow range from  $51.6 \pm 1.7$  kg to  $51.8 \pm 1.7$  kg.

Table 1

Dynamics of changes in the studied indicators in girls of secondary school age during a pedagogical experiment in conditions of hyperthermia (n = 28)

Indicator	Baseline measurements	The final measurements ,	Differences	
			%	P
Body weight, kg.	51,6±4,3	51,8±4,7	0,4	HC
Run 100 m, s	16,1±0,10	15,9±0,08	1,25	0,05
Long jump with a run, cm	332,1±26,3	340±22,8	2,33	0,05
Throwing a tennis ball, m	22,4±3,8	22,5±3,8	0,45	HC
General flexibility, cm	9,0±3,6	9,9±3,1	9,1	0,01
Dynamometry kg.	31,1±5,1	33,1±4,8	6,05	0,01

If we compare the dynamics of body mass indices among the representatives of the experimental group, we can conclude that the introduction of specially designed physical exercises with sufficient volume and high intensity into the process of physical culture classes, which led to an increase in energy consumption (playing volleyball, basketball , national outdoor games) and helped stabilize body weight.

The results of the conducted pedagogical research with girls of secondary school age studying in rural secondary schools in conditions of hyperthermia are presented in Table 1.

The above provides a basis for the fact that by themselves static exercises aimed at flexibility(11,12), balance and breathing are insufficient to ensure energy consumption and stabilize body weight, but the inclusion of intense physical exercises such as sports and outdoor games in the process of physical culture engagement allows to ensure the stabilization of body weight in the studied contingent of girls of secondary school age(6,7,8).

The analysis of the results of pedagogical testing of motor abilities among girls of middle school age, students in rural educational institutions, revealed that during the period of a short-term experiment there was an improvement in speed capabilities determined by the results in running 100 meters, making up a difference of 1.25%.

A similar significant increase in performance among girls was also revealed in the speed-strength abilities determined by the results of the long jump from a run, where, upon repeated testing, an improvement in the result was revealed on average up to  $340 \pm 22.8$  cm, making a progressive difference of 7.9 cm (2, 33%).

It should be noted that in the test of throwing a tennis ball at a distance during the experimental period, no significant differences were found and the average difference was 0.45%.

In the course of the pedagogical experiment, a significant improvement in the indicators of general flexibility, assessed by the test results - forward bend was revealed. This factor gives reason to believe that the effect of the developed complexes of physical exercises of a static nature used for the entire period of the experiment contributed to a significant progressive change in the results on average from  $9.0 \pm 3.6$  cm to  $9.9 \pm 3.1$  cm, making up a difference of 9,one%. ( $p = 0.001$ )

Indicators of power capabilities assessed by the results of dynamometric characteristics tended to significantly improve(9,10). The introduction into the educational process of the developed complexes of physical exercises of strength orientation performed under conditions of hyperthermia revealed that the initial data of average achievements in girls obtained at the beginning of the experiment averaged  $31.2 \pm 5.1$  kg. , and upon repeated testing, the result improved to an average of  $33.1 \pm 4.8$  kg. making an increase in the result of 6.05%. ( $p = 0.001$ ).

Summarizing the results of the pedagogical experiment with girls of secondary school age, it was found that body weight did not statistically increase and there were positive changes in the level of motor abilities in 5 tests out of 7. , which gives grounds for the possibility of effectively conducting physical exercises in conditions of hyperthermia when using a combination of static physical exercises in combination with the introduction of sports and national outdoor games in the physical culture lesson, where a cumulative effect was revealed in comparison with the usual basic exercises provided for by the program on physical culture.

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