

## MODERN APPROACH TO IMPLEMENTATION OF HEALTH RELATED TECHNOLOGY FOR PRIMARY SCHOOL CHILDREN

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**Abstract.** *Purpose:* to work out and experimentally prove health related technology, which would facilitate formation of pupils' healthy life style. *Material:* In the research pupils of 8-9 years' age participated. From four tested forms we composed four groups. Control groups consisted of 19 boys and 17 girls; experimental groups – of 20 boys and 16 girls, who were practically healthy. *Results:* the highest absolute increment of physical fitness indicators in experimental group was found in such motor abilities as flexibility, strength of hands' and torso muscles, speed-power qualities. It was noted that for effective development of pupils' physical qualities decisive factor was consideration of sensitive periods and complex approach at physical culture classes. *Conclusions:* the received results witness about effectiveness of the worked out by us technology. It consists of two blocks with prevailing usage of health related exercises.

**Key words:** technology, health, health related exercises, formation, primary school pupils.

### Introduction

Recent years, quantity of healthy pupils has been decreasing 3-4 times and, at the same time, level of motor functioning reduces. All these negatively influence on child's physical condition, slow development of main physical qualities: strength, quickness, endurance, flexibility, dexterity and etc. [14]. That is why, protection and strengthening of pupils' health, rising of motor functioning level, development and further perfection of main physical qualities are main tasks of primary school children's physical education and priority directions of our society progress [18, 19].

To day, in Ukraine high level of population morbidity is registered, especially among children and adolescents. During school period quantity of healthy children reduces 3-4 times from first to eleventh form. That is why preservation and strengthening of children's health, formation of spiritual demands and healthy life style skills are of first priority in society's development [6].

Physical culture is a part of society's general culture and one of social functioning spheres, oriented on health strengthening, development of human physical abilities. Main indicators of physical culture status in society are human health level and physical condition, application of physical culture in education, everyday life and sports achievements [2, 17].

Great number of scientific-methodic works is devoted to effectiveness of children's and adolescents' physical education: O. Dubogay [4], M. Boreyko [1], Yu. Vaskova [2, 3], T. Krutsevych [5], S. Prysiadniuk [8], A. Tsos [10], B. Shyan [11], L. Shuba [12-14], J. Rink [19], J. Fisher, L. Reilly, C. Kelly, A. Montgomery, J. Williamson [15] et al. All these permit to state that the basis of effective physical education in school shall be individualization of training process, directed to personality's interests and demands in free and independent development [12].

So, problem of health related technology's working out for primary school children with application of physical education means and methods is rather important.

### Purpose, tasks of the work, material and methods

*The purpose of the work* is to theoretically ground, work out and experimentally test health related technology for facilitation of healthy life style effective formation in 8-9 years' age pupils with the help of physical education means and methods.

*The tasks of the research:*

1. To analyze current status of existing technologies, methodic and means of healthy life style formation in primary school pupils.
2. To work out health related technology, oriented on formation of 8-9 years' age children healthy life style.
3. To study our technology's influence on physical condition and physical health indicators of 8-9 years' age pupils.

*The methods of the research:*

- analysis of literature sources;
- pedagogic observation (we studied influence of health related life style on health improvement and development of physical qualities);
- methods of physical health assessment. Assessment of physical health was realized as per “Express-screening of children’s and adolescents’ somatic health”. In the basis of quantitative express assessment of physical health there were anthropometrical indicators (body length, body mass, vital capacity of lungs (VCL)] and status of cardio-vascular system. Criterion of reserve and saving character of cardio-vascular system’s functioning was Ruffiet’s index and “double product” in rest (Robinson’s index). Criterion of external breathing function’s reserve was vital index of muscular system – power index. All indicators were ranged. They were given certain points separately for boys and girls. After receiving of every indicator we found total of points, which was assessment of physical health level;
- pedagogic testing (“forward bent from sitting position”, cm; “torso rising in sitting position during 1 minute”, quantity of times; “pressing ups”, quantity of times; “long jump from the spot”, cm; “shuttle run 4x9m”, sec.; “30 meters’ run”, sec.);
- pedagogic experiment (for fulfillment of three stages of experiment the tested were divided into control and experimental groups);
- methods of mathematical statistic (mean arithmetic, mean square deviation, variation coefficient, standard error of mean arithmetic, correlation coefficient).

In the research pupils of 8-9 years’ age participated. From four tested forms we composed four groups. Control groups consisted of 19 boys and 17 girls; experimental groups – of 20 boys and 16 girls, who were practically healthy.

### **Results of the research**

Physical culture field in educational sphere reflects also in many spheres of society’s functioning. Organization and content of physical education is regulated by:

- Laws of Ukraine: “On pre-school education”, “On education”, “On comprehensive secondary education”, “On vocational-technical education”, “On physical culture and sports”; by act of President of Ukraine and Cabinet of Ministers of Ukraine.
- Normative legal and other acts of Ministry of education and science of Ukraine, Ministry of health protection of Ukraine, Ministry of youth and sports of Ukraine about physical education of children and students;
- Inter-sector complex program “Health of nation”;
- State standards of basic comprehensive education, approved by Cabinet of Ministers of Ukraine;
- Physical culture educational program for comprehensive educational establishments’ pupils;
- Physical culture educational program for special health groups’ pupils;
- Order of MES of Ukraine “On approval of safety regulations at physical culture and sports trainings in comprehensive educational establishments” [14].

The purpose of modern school is preparation of children for life. Every pupil shall receive knowledge, which he will require in the future [4].

The process of physical education shall be continuous. It can not be organized in the way different from the form of structurally separate trainings. Such trainings shall be separated one from other by more or less significant periods of time. Duration of such trainings depends on general regiment of life, character of main and other activity, dynamic of recreational measures and other factors. General principles of physical education admit combining of different training forms’ different links; they can change in content and definite conditions of construction: by level of pupils’ fitness and content, place of training, environmental conditions, technical provisioning and so on [11, 15, 16]. That is why it is necessary to activate systemic practicing of physical exercises in organized forms. In practice of physical education there are two forms of training: curricular and extracurricular [5, 6, 9]. These forms have certain tasks, purpose, content, means and methods. It conditions obedience of their building to general rules and pedagogic requirements.

In the base of experimental technology creation we put main directions and main tasks of personality’s comprehensive harmonious development, different kinds of education: moral, civil, mental, physical and health related.

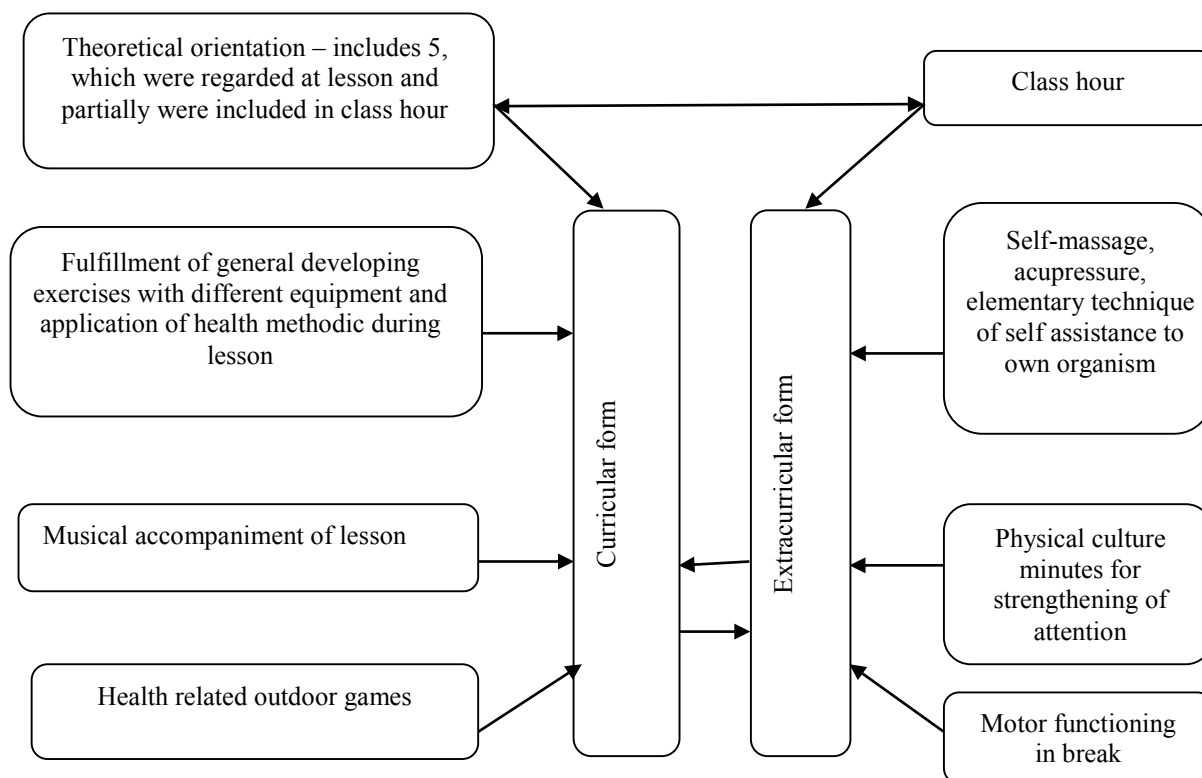
1. Moral education – is development of pupils’ morality: formation of moral conceptions, view, beliefs, moral feelings; cultivation of skills and habits of moral behavior.
2. Civil education means development of patriotism, national identity, value attitude to nature and work.
3. Mental development implies mastering of definite volume of knowledge, expansion of world-vision, development of cognitive abilities.
4. Physical education is facilitation of pupils’ correct physical development, health strengthening, training and perfection of motor qualities; formation of hygienic skills; formation of demand in systemic physical culture and sports practicing.
5. Health related education means formation of health culture, which includes knowledge about versatility of health exercises and their influence on organism [7].

The following pedagogic principles were the determining for us:

1. Complex approach to development of physical qualities;
2. Rational construction of trainings and complexes of exercises, which would comprehensively influence on child’s organism. The exercises were selected, considering age peculiarities of primary school children’s organism. Every complex includes exercises, requiring work of different muscles’ groups and oriented on training of physical qualities;
3. Application of play method for strengthening of child’s motivation for physical exercises’ practicing. In primary school age it is necessary to stimulate child’s creative abilities, help him (her) to awake interest for self-education, to acquire steady demand in creative thinking;
4. Application of self-control system for determination of physical qualities’ increment [9].

So, ideological basis of healthy life style formation can be conception of effective usage of physical education forms and means, to be applied in academic day and in extracurricular time. It is a process of pedagogic assistance to a child in formation of his (her) as a subject, cultural identification, socialization, self –affirmation in life.

Considering the above mentioned we offer the author’s health related technology. It is composed of two blocks, which supplement each other and, thus, comprehensively influence on a pupil (see fig.1).



**Fig.1.** Diagram of experimental health related technology

Effectiveness of the worked out technology is assessed by level of pupils' physical qualities and physical health. Analysis of control and experimental groups' indicators shows that increment of indicators of body length; body mass and chest circumference correspond to age standard in both groups. However, analysis of these indicators did not show statistically significant ( $p > 0.05$ ) increase in experimental group after experiment, comparing with control group. Results of the research witness that there is statistically significant ( $p < 0.05$ ;  $p < 0.01$ ) increment of VCL (vital capacity of lungs) indicators; reduction of HBR (heart beats rate) and BP (blood pressure) in experimental group after experiment, comparing with control group.

After experiment assessment of pupils physical health level proves effectiveness of the worked out technology. For example, indicators, characterizing physical health of the tested pupils increased (boys – 24.3% and girls – 21.6% of experimental group reached average level of physical health; in control group – accordingly 8.1% and 9.4%).

After experiment the received data of boys remained similar in all tests: “forward torso bent” (V up to 5.62% – control group and V up to 5.42% – experimental group), “torso rising in sitting position during 1 minute (V up to 4.81% – control group and V up to 4.05% – experimental group), “pressing ups in lying position” (V up to 6.95% control group and V up to 6.89% – experimental group), “long jump from the spot” (V up to 8.11% – control group and V up to 7.76% – experimental group), “shuttle run 4x9 m” (V up to 5.22% – control group and V up to 5.93% – experimental group), “30 meters’ run” (V up to 7.11 % – control group and V up to 6.55% – experimental group).

Analyzing indicators of test “Forward torso bent from sitting position” we registered the following increment: in control group - by  $8.76 \pm 0.85$  cm; in experimental – by  $11.47 \pm 0.67$  cm ( $p < 0.05$ ). Test “torso rising in sitting position during 1 minute” after experiment showed: control group -  $27 \pm 0.59$  times; experimental group -  $30 \pm 0.70$  times ( $p < 0.05$ ). “Pressing ups in lying position” of boys after experiment showed: control group –  $18 \pm 1.29$  times; experimental group –  $21 \pm 1.31$  times ( $p < 0.05$ ). Indicators of “Long jump from the spot” of boys after experiment were within average values and above it. In control group they were –  $149 \pm 3.09$  cm; in experimental -  $155 \pm 3.02$  cm ( $p < 0.05$ ).

Boys' results in “Shuttle run 4x9 m” after experiment were: in control group –  $11.24 \pm 0.19$  sec.; in experimental group –  $11.14 \pm 0.21$  sec. ( $p < 0.05$ ). Indicators of “30 meters’ run” test increased in control and experimental groups: in control group – by  $5.63 \pm 0.19$  sec.; experimental group – by  $5.13 \pm 0.18$  sec., ( $p < 0.05$ ).

Concerning girls' results in control and experimental groups after experiment we found that girls' groups remain uniform by indicators of all tests: forward torso bent from sitting position” (V up to 8.04% – in control group and V up to 7.98% – experimental group), “torso rising in sitting position during 1 minute” (V up to 7.28% – in control group and V up to 7.71% – in experimental group), “pressing ups in lying position” (V up to 7.04% – in control group and V up to 9.81% – in experimental; group), “shuttle run 4x9 m” (V up to 7.73% – control group and V up to 7.08% – in experimental group), “30 meters’ run” (V up to 9.72 % – control group and V up to 9.12% – experimental group).

Analyzing indicators of test “Torso bent from sitting position” we see the following increments: in control group – by  $12.08 \pm 0.67$  cm; in experimental group – by  $14.07 \pm 0.72$  cm ( $p < 0.05$ ). In test “Torso rising in sitting position during 1 minute” after experiment there were the following indicators: in control group -  $28 \pm 0.61$  times; in experimental group–  $30 \pm 0.74$  times ( $p < 0.05$ ). In “Pressing ups in lying position” after experiment there were the following indicators: in control group –  $10 \pm 0.29$  times; in experimental group –  $11 \pm 0.42$  times ( $p < 0.05$ ). Indicators of test “Long jump from the spot” were in control group –  $131 \pm 3.289$  cm and in experimental group –  $134 \pm 3.81$  cm ( $p < 0.05$ ). In test “Shuttle run 4x9 m” there were the following indicators: in control group –  $12.71 \pm 0.19$  sec.; in experimental group –  $12.57 \pm 0.19$  sec. ( $p < 0.05$ ). Besides, after implementation of experimental technology girls' indicators of “30 meters’ run” test improved in both groups. In control group they were  $6.10 \pm 0.15$  sec. and in experimental group –  $5.90 \pm 0.16$  sec. ( $p < 0.05$ ).

It should be noted that for effective development of physical qualities in control and experimental groups, consideration of sensitive periods and complex approach at physical culture lessons were the decisive factor. It was proved that application of experimental technology ensured improvement of physical qualities practically by all indicators. So, analysis of results showed that application of experimental health related technology was effective and can be used.

### **Discussion**

Physical culture lessons are the main form of pupils' physical education. They are compulsory for all pupils (except pupils-members of special health groups). These lessons shall actively facilitate successful realization of extracurricular and out-of-school physical education, formation of pupils' interest and skills in physical exercises in everyday life. It is necessary to strengthen influence of physical culture lessons on perfection of other physical education forms. It is known that even with physical culture lessons being of high quality, their direct influence on pupils' physical condition is insufficient. Scientific researches found that physical culture lesson ensures in average only 41% of hygienic norm of pupil's motor functioning. In this connection it is necessary to enrich and correctly combine different forms of pupils' physical education and health related physical culture work [5, 6, 11].

Orientation of physical culture curricular and extracurricular work on mass pupils' involvement in systemic physical culture and sports practicing to large extent facilitates schoolchildren health strengthening, improves their physical fitness. Analyzing the worked out by us health related technology we can note that it positively influenced on all aspects in our research. We registered improvement of VAL (vital capacity of lungs) indicators, reduction of HBR (heart beats rate) and BP (blood pressure) after experiment in experimental group pupils, comparing with control group ( $p < 0.05$ ;  $p < 0.01$ ). Besides, having analyzed physical fitness indicators in all groups we can note that after experiment physical fitness in experimental group reached high level and above average. In control groups there was also some increment but no so significant: indicators were at average level and above average. It is connected with the fact that in experimental groups, teacher used the author's technology: we selected all exercises, considering sensitive period and emotional state of children; also different equipment was used (both classic and non standard). All these components facilitated so positive results of the research.

### **Conclusions**

1. Analysis of literature showed that the main problem of improvement of healthy life style formation in primary school pupils by means of physical education is seeking of innovative approaches to complex organization of curricular and extracurricular trainings; appropriate methods and technologies. Such trainings shall consider interests and age peculiarities of children.

2. It has been proved that main attention in optimization of health related physical culture process is paid to projecting of different health related physical culture systems. The basis of such systems is scientifically grounded and adequate correlations of internal and external factors of child's development. Considering these factors we worked out our health related technology.

3. The received results witness about effectiveness of the worked out technology. It is composed of two blocks with prevalence of health oriented exercises as new mean of healthy life style formation.

The prospects of further researches of the problem are connected with study of pupils' organism adaptation under influence of different health related means, oriented on development of memory, attention, physical qualities and health strengthening.

### **Conflict of interests**

The author declares that there is no conflict of interests.

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