

Optimization of the processes of adaptation to the conditions of study at school as a component of health forming activities of primary school-age children

VITALII KASHUBA¹, SERGEY FUTORNYI¹, OLENA ANDRIEIEVA¹, NATALIYA GONCHAROVA¹, ION CARP², OLENA BONDAR¹, NATALIYA NOSOVA¹

¹National University of Physical Education and Sport of Ukraine, Kyiv, UKRAINE

²State University of Physical Education and Sport, Chisinau, REPUBLIC OF MOLDOVA

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Abstract:

Purpose: to give information on the problem of optimization of adaptation processes to the conditions of studying at school of primary school-age children using health forming technologies. Special attention was paid to the difficulties of the adaptation of first grade pupils to the conditions of education and main directions of the health forming technologies application in the process of physical education of school-age children.

Material: Research methods are theoretical analysis scientific literature data, pedagogical observation, pedagogical experiment, methods of integral evaluation of the course of adaptation to the conditions of study by T.I. Lyasota (2012), which included an assessment of the level of physical development, the functioning of the body systems, the predictive index of adaptation, the level of school motivation, the assessment of the psychological climate in the team of pupils. 51 first grade students (23 boys and 28 girls) have participated in the pedagogical experiment.

Results: During the research process a complex of physical education means has been provided within the functioning of health forming technology, which is based on extracurricular activities and facilitates the optimization of the processes of adaptation of pupils to the conditions of study. The physical exercise complexes were based on the means of active tourism.

Conclusions: Confirms the efficiency of health forming technologies in the direction of optimization of adaptation processes to the conditions of studying. This is due to an increase of the number of children with an average and above the average level of adaptation to the conditions of study in experimental group, under the influence of the proposed means, in comparison to the children of control group.

Keywords: *health, adaptation, pupils, primary school.*

Introduction

One of the most important areas of modern research in the field of physical education is the study of the whole spectrum of issues related to health and its formation (Andrieieva et al, 2017). This is determined by the fact that human health is an indicator of the social development of the country, its socio-economic and moral welfare, a powerful factor in building demographic, economic, labor and cultural capacity of society (Kashuba et al, 2012; Andriyets et al, 2013; Ivanchykova et al, 2018).

Unfortunately, today's reality is a high level of child morbidity. The disappointing statistics of recent years confirms the general tendency of the deterioration of health of children during the period of schooling (Kashuba et al, 2006, Goncharova, 2017; Imas et al, 2018), increasing the number of chronic diseases (Perehinets et al, 2017), lack of physical activity (Andriyets, 2013). In addition to the above-mentioned problematic issues, for the pupils of the first grade, the duration and peculiarities of the process of adaptation to school conditions is particularly important, which in the future has a significant impact on the level of physical and mental health of a child (Romashevskaya, 2010).

Adaptation in its content is a continuous process aimed at adapting the child to changing conditions of the educational environment with the help of various means, which is accompanied by a progressive rearrangement of functional systems of the body (Romashevskaya, 2010). Signs of its disorders are low level of school motivation, disorder of body organs and systems functioning, low level of physical capacity and readiness, rapid fatigue, anxiety, uncertainty, etc. The result of the adaptation disorder may be hereditary factors and a number of unresolved problems in the process of physical education in school associated with the adaptation of children to school conditions, health, formation of harmoniously developed personality.

The search for ways to optimize adaptation processes and to reduce the morbidity of children led to consideration of the existing potential of physical education in this direction, which is associated with the implementation of health forming technologies (Kashuba et al, 2017).

At present, a considerable experience of the implementation of health forming technologies into the process of physical education of school-age children has been accumulated (Nasibullina et al., 2013; Shuba, 2016; Perehinets et al, 2017). The theoretical principles of health forming activity in the context of individualization and differentiation of the educational process on a gender basis have been justified (Zaytsev et al., 2009), health forming educational environment has been created (Lubysheva et al, 2016), control of the efficiency of the physical education process has been justified (Kozhokar et al., 2018). The potential of different sports in optimizing physical education process is considered (Kalakauskene, 2007; Tomenko et al, 2017; Blagii et al., 2018; Imas et al, 2018).

In the course of the study it was found that theoretical and practical experience of researchers was only superficially aimed at addressing the issues of health forming activities in primary school, they have left without sufficient attention the conceptual approaches to the implementation of health forming technologies in the process of physical education of children and their potential in optimizing the process of adapting children to learning conditions.

Objective of the study is to consider the main points of health forming technologies in the process of physical education of primary school-age children and its impact on the optimization of adaptation processes to school conditions.

Material & methods

At the theoretical level of research such research methods were used as analysis and generalization of scientific and methodological literature, Internet resources, content analysis, conceptual-terminology analysis, theoretical and methodological analysis.

At the empirical level of the study, a method of assessment of the adaptation to the study conditions course was used (Lyasota, 2012), which was conducted in accordance with the assessment of the analysis of changes in the indicators of the body's systems functioning, physical fitness, work capacity and pace of physical development of children, self-awareness of the child while staying in a pupils community, motivational priorities of pupils by a specially designed scale.

The study involved 51 students (23 boys and 28 girls) who were divided into two groups of control (CG) and experimental (EG). The CG, which included 25 children (11 boys and 14 girls), was engaged in a program approved for physical education (Krutsevich et al, 2013), and EG children of 26 pupils (12 boys and 14 girls) followed the technology proposed by us.

Primary school pupils who belonged to the groups at the beginning of the experiment did not have a statistically significant difference in the rates ($p > 0.05$) that were studied.

Results

The relevance of the high level of morbidity in primary school age children has been confirmed by the results of our own previous studies (Kashuba et al., 2016; Butenko et al, 2017); this is an issue of concern due to the large number of pupils who have already had chronic illnesses at the first stage of schooling. In the sample of participants of the study, only 44.91% of children were considered to be practically healthy, the largest number of disorders (19.62% ($n=52$)) of the bone and muscular system and conjunctive tissue and diseases of the eye and adnexa was observed in 10.19% ($n=27$) children. A matter of concern is the presence of several diseases in one child, among the contingent of the subjects, it was observed in 11.45% ($n=15$) boys and 10.45% ($n=14$) girls.

A high level of morbidity affects the processes of adaptation of children to school conditions. The research results confirm that only 50.9% of girls and 20.4% of boys have an average level of adaptation to learning conditions, which is accompanied by a high level of morbidity, a decrease in the level of motivation for school attendance, 45.3% girls and 73.5% boys are characterized by below average level of adaptation to the conditions of study, at the same time, a high level of adaptation to the conditions of study was not observed.

The development and implementation in the process of physical education of primary school-age children of health forming technologies can contribute to solving the problem issues of the modern stage of the development of the education system in the direction of improving primary school-age children and optimizing the processes of adaptation to the conditions of education. In the study, health forming technology was developed in the process of physical education of primary school-age children.

As part of the development of this technology, the necessity of its justification at the theoretical and practical levels was determined.

The theoretical level of justification considers scientific achievements in the main directions of the development of innovative activity in preserving the health of school-age children.

The result of the theoretical justification of health forming technology was determined as the priority directions of its functioning: the definition of the main tasks of health forming activity from the position of age characteristics of child's body, the initial development level of motor skills, priorities of motor activity, the presence of negative factors of influence, optimization of adaptation to school conditions; innovative design of the physical education process, covering the diversity of means, forms and methods of health forming activity of

students, corresponding to the current trends of development in the field of physical culture and sports; the definition of health forming activity content, which positions the implementation of the integrated impact and physical and emotional state of a child, the possibility to correct it in accordance with the results of operational and stage control; the formation of motivation to systematic physical and recreation activity; the optimization of adaptation to school conditions processes; the construction of integral monitoring system (medical, pedagogical, psychological) to determine the directions of pedagogical influence; the involvement in health forming activities of all educational process participants, coordination of their activities and effective interaction; the continuity of health forming activity from the preschool educational institution to the institution of comprehensive secondary education.

The means of active tourism, which were implemented in various forms of extracurricular activities of primary school-age children, were the basis for practical implementation of health forming technology (Fig. 1).

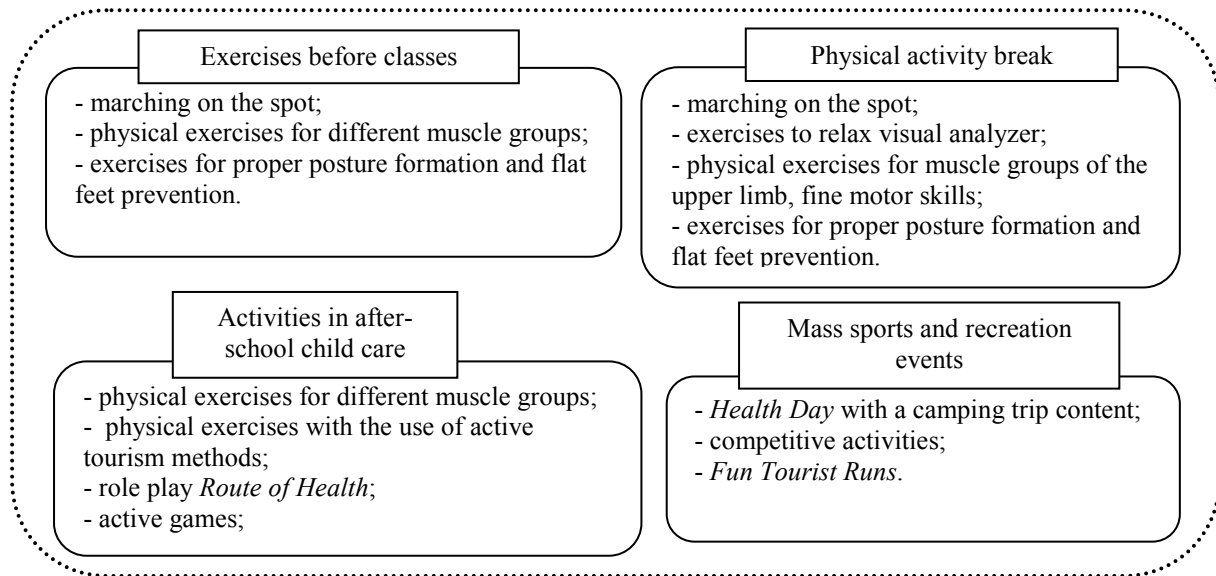


Fig.1. Forms of training in physical education of children to increase the efficiency of adaptation processes to the conditions of studying at school

The direct influence of the developed technology on stimulation of adaptation processes to the conditions of learning at school was determined in accordance with the structure of the factors of negative influence on the adaptation processes and structure of the physical state, psychological state, and motivation of children to school. Undoubtedly, during the development of events, methodological approaches to the organization of the process of physical education of primary school pupils were considered, taking into account the differential approach to the planning of physical activity, the individual approach to the student's personality, the identification of the main for each student factors of health-promoting effect.

The means of active tourism, which were the basis of the developed technology, contributed to a significant health effect through the implementation of motor activities in natural environment.

In developing the program of events aimed at achieving the state of adaptability of first class students to the conditions of learning in school, the implementation of a motivational component (participation in socially significant activities; meeting the personal need for communication, motor activity; the formation of orientation towards a healthy lifestyle) was included.

Formation of moral and volitional qualities of a child is the result of interaction with other students and a teacher within the tourist group, in this type of activity they can show themselves, to establish themselves as experts, specialists in the eyes of their fellows. The satisfaction of the work performed increases the desire to establish oneself in other activities. The degree of participation of each member of the tourist group in social activities determines the level of improvement of the living conditions of the group and promotes awareness of the need to achieve social needs through interaction, mutual respect and mutual understanding.

The assessment of the effectiveness of the proposed technology was considered from the point of its impact on the adaptation process for the first grade pupils.

The primary task in conducting research work was related to the assessment of the predictive indicators of the adaptation processes, which included a survey of parents with the clarification of the existing factors of negative impact on adaptation processes.

It should be noted that the data of the participants during the pedagogical experiment did not change and remained stable regardless of the stages of the experiment and was used to compare the course of adaptation

processes with predictive indicators (Table 1). This method covers the assessment of the factors of influence on the processes of adaptation to the training conditions.

It turned out that among CG girls 71.4% (n = 10) had a body weight of 2.500 to 3.499 grams at birth, and the rest – over 3.500 grams. At the same time, 57.1% (n = 8) of EG girls had a birth body weight within normal limits. There was the same share of girls in breastfeeding in each group.

The analysis of the received data showed that the difference in the percentage of CG and EG girls, whose mothers during pregnancy more often had: in the first half of pregnancy among CG girls 7.1 % exceeded the share of such EG girls, and in the second half of pregnancy - 7.1 % more cases were observed among mothers of EG girls. 7.1 % more of CG girls than EG girls suffered from pulmonary inflammation during the 1st year and the proportion of asphyxia at birth was 36.0% higher in EG girls. Mothers of girls who drink alcohol are not found and 7.1 % of CG girls' mothers are abusing tobacco. 7.1 % more parents of CG girls consume alcohol and 7.1 % less they likely to have calm relationship, however, 35.7 % fewer parents of CG girls smoke in comparison with the parents of EG girls. There are 7,1 % more EG girls who spend active weekends with the family, while during the adaptation in kindergarten, sleep and appetite disorders were observed 7.1 % more often and an increase in colds was observed 14.3 % more often in the group of CG girls. At the same time, the same share of girls, regardless of the group, has their own room, as well as the desire to go to school. 7.1 % more parents of EG girls than participants of CG are workers by their social status. It was found that a high cultural level of the family was recorded in 28.6 % (n = 4) of CG girls and 57.1 % of EG girls.

Table 1. Parents division by the answers to questionnaire questions, n=28

Questions	Parents share by questions answering, %							
	CG				EG			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
Was the birth weight of the baby within 2.400-3.499 g	16	64.00	9	36.00	9	34.62	17	65.38
Did the child suffer pulmonary inflammation during the 1 st year	5	20.00	20	80.00	2	7.69	24	92.31
Did the mother have toxicosis of the 1 st half of pregnancy (nausea, vomiting)	11	44.00	14	56.00	11	42.31	15	57.69
Did the mother have toxicosis of the 2 nd half of pregnancy (pressure increase, changes in urine)	2	8.00	23	92.00	2	7.69	24	92.31
Did the child suffer asphyxia at birth	1	4.00	24	96.00	6	23.08	20	76.92
Does the mother often drink alcohol	0	0.00	25	100.00	0	0.00	26	100.00
Does the mother smoke	1	4.00	24	96.00	1	3.85	25	96.15
Does the father often drink alcohol	1	4.00	24	96.00	4	15.38	22	84.62
Does the father smoke	14	56.00	11	44.00	18	69.23	8	30.77
Are the relations calm between parents	23	92.00	2	8.00	16	61.54	10	38.46
Are there differences in the child upbringing	8	32.00	17	68.00	14	53.85	12	46,15
Is the corporal punishment used in the family	0	0.00	25	100.00	1	3.85	25	96.15
Does the child spend active weekend with parents	24	96.00	1	4.00	26	100.00	0	0.00
Does the child has a will to visit school	25	100.00	0	0.00	26	100.00	0	0.00
Does the child have a separate room	18	72.00	7	28.00	20	76.92	6	23.08
Did the child have a disorder of sleep, appetite, behavior during the period of adjustment to nursery school	10	40.00	15	60.00	6	23.08	20	76.92
Did the child have an increase in the level of colds during the period of adaptation to nursery school	12	48.00	13	52.00	12	46.15	14	53.85

It was found that in comparison with EG boys, there was 4.5 % more CG boys with birth weight from 2.500 to 3.499 grams, and 3.8 % more of EG boys were breastfed during the 1st year. During the first year of life,

18.9 % of CG boys suffered pneumonia more often. Toxicosis in the first half of pregnancy was 6.1 % more common in EG boys' mothers, but in the second half of pregnancy, on the contrary, 9.1 % more CG boys' mothers experienced it. 0.8% higher proportion of CG boys' mothers confirmed the fact of asphyxia at birth.

The survey showed that the proportion of EG boys, whose mothers smoke, was 8.3% higher than that of CG boys, and the parents of CG boys smoke 3.8 % more than EG boys. The difference is identical between the shares of boys whose mothers or parents drink alcohol twice a week, in families where the corporal punishment is used, where relationships between parents are calm, the child spends active weekends with the family, and the child has desire to go to school. In addition, 10.6 % more of CG boys has a separate room, 28.8 % more of CG boys had sleep and appetite disorders during the period of adaptation to school, and 13.6 more EG boys experienced the increase in the level of diseases in the indicated period. Among EG boys, 3.0 % more parents by their social status are workers, in comparison with CG boys. The cultural level of the family of the participants in the experiment was distributed as follows: 36.4 % (n = 4) of the CG boys had a family with high level, 63.6 % (n = 7) – average; 33.3 % (n = 4) of the EG boys' families were characterized by high level and 66.7 % (n = 8) – by moderate. The general assessment of the adaptation degree of the child to the conditions of school life showed that 7.14% more EG girls have a prognostically favorable level of adaptation than CG girls (57.14% vs. 50%), however, CG girls have a prognostically unfavorable level of adaptation 7.14% higher in comparison with EG girls, among whom the unfavorable level of adaptation of the child to school life was not found at all (Fig. 2).

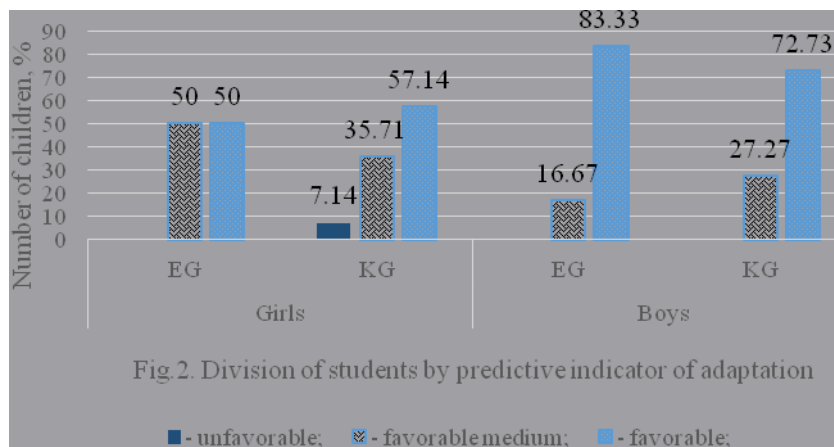


Fig. 2. Division of students by predictive indicator of adaptation

At the same time, as opposed to CG boys, 9.1% more of EG boys with a favorable level of adaptation was found. It should be emphasized that the results of the processing of the data obtained using Fisher's exact test provide grounds for confirming that there are no statistically significant differences ($p > 0.05$) between the parts of girls as well as boys, whose favorable level of adaptation to school life conditions has been established.

Integrated method of estimating the adaptation processes by T.I. Lyasota gave the opportunity to trace the effectiveness of the adaptation process of the EG and the CG pupils to the conditions of study at school.

It is proved that before the experiment there were observed no differences in the distribution of children, regardless of the group (Fig. 3).

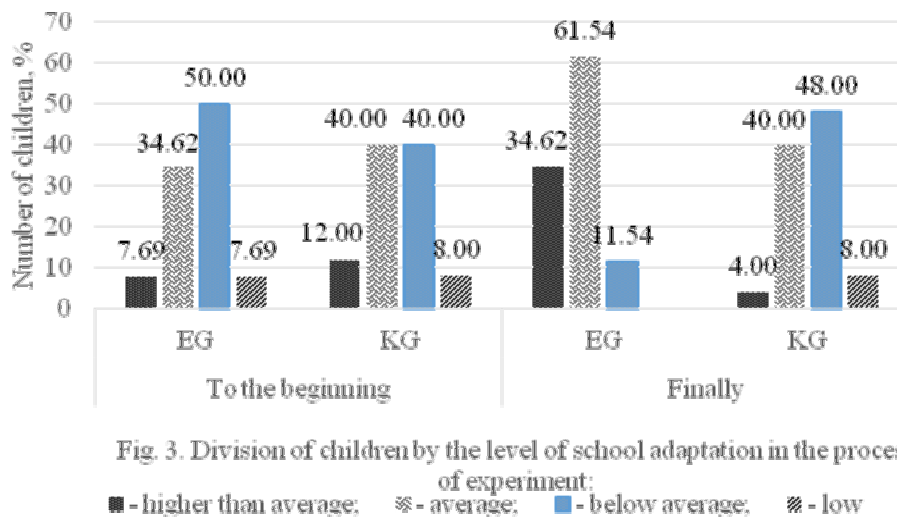


Fig. 3. Division of children by the level of school adaptation in the process of experiment:

■ - higher than average; ▨ - average; ■ - below average; ▩ - low

After the experiment, as opposed to CG girls, in whose group the proportion of girls with a higher than average level of school adaptation dropped by 14.3 % (n = 2), positive changes were observed in EG girls. Thus, the growth of girls with a higher than average level of school adaptation was 21.43 % (n = 3), with an average level - 14.3 % (n = 2). The indicated changes were due to the 28.57 % reduction of the share of girls with the level of school adaptation below average and 7.14 % (n = 1) reduction of the share of girls with low level of school adaptation.

The boys had a similar situation. If at the beginning of the experiment, the distribution of children by the levels of school adaptation did not differ much, then after the experiment in CG boys there was a negative dynamics: there was a decrease to 25.97 % (n = 2) in the share of the experiment participants with an average level of adaptation, while EG boys, on the contrary, had 15.91 % (n = 2) increase in the share of children with the above the average level of school adaptation, and 31.82 % (n = 5) in the share of children with the average level of school adaptation

Discussions

The use of health forming technologies in the process of physical education of primary school-age children contributes to solving a number of issues primarily associated with the health formation of primary school-age children, the development of forms and methods of stimulating motivation to systematic physical culture and recreational activities, the formation of a values-based attitude to own health among children. Our studies confirm the results of other authors (Kalakauskene, 2007; Lubyshva et al, 2016), on the prospect of health forming technologies use in physical education of school-age children.

The integrated application of health forming technologies in the process of physical education of primary school-age children from the point of activation of the processes of adaptation to the conditions of study:

✓ before the experiment, statistically significant differences between the data of school adaptation of CG and EG girls were not recorded ($p > 0.05$);

✓ after the experiment, the assessment of school adaptation of EG girls was statistically significantly higher compared to CG girls ($p < 0.05$);

✓ there were no statistically significant differences between the assessment of the school adaptation of CG and EG boys before the experiment ($p > 0.05$);

✓ after the experiment the assessment of school adaptation of EG boys, as well as of girls, was statistically significantly higher compared to CG boys ($p < 0.05$);

✓ during the experiment, there were no statistically significant differences between the assessment of school adaptation ($p > 0.05$) of CG girls, and the assessment of EG girls after the experiment was statistically significantly higher than at the beginning ($p < 0.05$);

✓ in contrast to the KG participants, where the boys did not show statistically significant differences between the assessment of school adaptation before and after the experiment ($p > 0.05$), the assessment of school adaptation of EG boys at the end of the experiment was statistically significantly higher than at the beginning ($p < 0.05$).

The obtained results confirm the effectiveness of the proposed technology and its efficiency in increasing the school adaptation of primary school-age children and supplement scientific data on the effectiveness of physical education methods in optimizing the process of adaptation to school conditions.

Conclusions

The critical situation with the health state of school-age children, which exists today in Ukraine, is associated with a complex of socio-economic problems and global issues of motor activity reduction, existing in the world. During the analysis of research and development projects regarding the changes in this situation, the perspectives of the application of health forming technologies in the process of physical education of primary school-age children were clarified. The theoretical justification of the developed technology is based on scientific achievements in the main directions of development of innovative activity on preservation of school-age children health. Practical implementation of health forming technology reveals the potential of active tourism in the direction of children rehabilitation and optimizing processes of adaptation to learning conditions. The verification of the effectiveness of the proposed technology confirms its impact on the optimization of the processes of adapting children of primary school age to the conditions of learning in the first grade.

Conflicts of interest. The authors state that there's no conflict of interest.

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