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HEALTH-SAVING TECHNOLOGIES IN EDUCATIONAL PROCESS OF RURAL SCHOOL

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Abstract

The article presents results of using health protection technologies in the educational process of rural schools. Fitness and health recreation events, which are to support the optimal level of motion activity of children, contribute to the process of forming and saving children`s health in the educational process. The research makes the follow-up assessment of health condition of schoolchildren of 1-6 grades, which has been monitored for three years. As a result, most of schoolchildren were referred to the second health group. The number of children, referred to the second health group, remained almost unchangeable in a span of seven years. The number of schoolchildren, who were referred to the first health group, was consistently decreasing over the period of six years. For the examined children, the most common diseases were gastrointestinal tract, cardiovascular system and disorders of the musculoskeletal system. Skin, genitourinary system diseases occur rarely. Using health protection technologies contributed to the burden reduction of diseases of the endocrine, musculoskeletal systems. A slight decrease in cardiovascular system diseases is marked as well. In a span of two years of observation, the number of children, having retarded physical development, was decreasing.

Improvement of the motion activity level contributed to the decrease in cases of violations of body posture in the survey sample of children. Active breaks, which were introduced at schools, and involving schoolchildren in sports activities allowed decreasing the burden of the cardiovascular and musculoskeletal system.

Keywords: Health, health saving technologies, motor activity, rural schoolchildren.

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1. Introduction

The health state of the younger generation is one of the main indicators of the health state of a nation. (State Report, 2016; Katashinskaya, 2016; Fattore 2015). The health state is a characteristic of the level of social, economic, spiritual and cultural development of a society. A number of researchers arrive at consensus on the fact that the health state of children and young people in Russia has been declining for over a fairly long period of time (State Report, 2016; Efimova & Mylnikova 2015; Levykh, et al., 2016). The Russian system of education is, in some ways, responsible for the deterioration of the health state of schoolchildren.

2. Problem Statement

The problem of health saving and recreation of children and young people is regarded as one of the priorities in the modern strategy of education (State Report, 2016). During the educational process the issues of forming, saving and recreating health of the younger generation as well as its structural components, namely physical, psychic and moral ones, are the obligatory conditions of revealing personal potential and providing a successful professional activity in future.

3. Research Questions

Different research sources give the results of studying factors, which define health state (Voronkov, Yaroslavtseva, Voronkova, Velilyaeva & Poteshkina, 2016; Zhukova, Verevina, Svintukhovsky, Kharagurgieva & Polonenko, 2013; Nifontova, Litovchenko, Bagnetova & Konkova, 2017). The data on forming health is a necessary condition of its saving, fostering and recreating. The World Health Organization defined the rate of different factors, which provide human health. They are: genetic factors, medical service, living standards and conditions. The ratio of the factor of living standards and conditions in the process of saving and fostering health is 50-55%.

4. Purpose of the Study

The purpose of the research is to assess the efficiency of using health saving technologies, which are to optimize the factor of living standards and conditions, in the educational process of a rural school In the educational process sports and fitness activities, optimal organization of a school day (which takes into account sanitation and hygiene standards and age characteristics of schoolchildren), health-promoting sport events and individual correction of children`s physical development contribute to the formation and saving the health state of schoolchildren. (Helmer, 2015).

5. Research Methods

The research was carried out at the premises of a comprehensive school in the south of the Tyumen Region with the schoolchildren of 1-6 grades. The assessment of their health state was based on the data of annual medical examinations. When referring children to health groups we followed the recommendations given in “The Assessment of Health State of Schoolchildren by Physiological Research Methods” (Dzharylkapova, Tolenbek, & Amirasheva, 2013).

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6. Findings

Using health saving technologies in the educational process of a rural school requires creating a kind of health improving infrastructure foe schoolchildren. The school facilities, which contribute to saving and fostering health of children, are a school medical office, a school stadium, a sport ground, a training complex, a swimming pool, a room for rhythmic gymnastics, table tennis and soccer grounds. (Liu, Van Damme, Gielen, & Van Den Noortgate, 2014).

As a result of a number of activities (Table 01) the requirements to the motion regime of schoolchildren were observed. .

Table 01. Providing the motion regime in rural schools

Grade	Gymnastics before lessons, min	Physical training during lessons, min	Active Breaks, min	Time for Sports, min
1	5	7	40	60
2	5	7	30	60
3	5	6	30	60
4	5	6	30	60
5	5	6	30	60
6	5	6	30	60

The health state of schoolchildren is defined by the adequate level of motion activity and rational organization of their living (Efimova & Mylnikova, 2015; Filatova, & Kharchenko, 2015).

The deterioration in the health state and the increase of children`s incidence rate are directly related to a non-regulated way of life, the lack of a rational mode of life, hypo- and hyperdynamia ((Voronkov, Yaroslavtseva, Voronkova, Velilyaeva, & Poteshkina, 2016; Gridinskaya, & Galaktionova 2008).

These factors define the level of physical development of children. The dynamics of the level of physical development of children and adolescents can be used as a criterion of the health state (Dzharylkapova, Tolenbek, & Amirasheva, 2013; (Voronkov, Yaroslavtseva, Voronkova, Velilyaeva, & Poteshkina, 2016; Zhukova, Verevina, Svintukhovsky, Kharagurgieva, & Polonenko, 2013).

The results of the assessment of health state according to the data of medical records of students of the rural school are presented in Table 02. When analyzing the data, the focus was on the results of the examination carried out by specialist physicians, on the morphological and functional state of organs and systems, on the incidence rate, on the level of physical development as well as on the level of puberty of children. A child was assigned to a certain health group on the ground of these considered indicators. .

Table 02. Distribution of schoolchildren of a rural school among health groups

Grades	Number of Students	First Helath Group		Second Health Group		Third Health Group		Fourth Health Group	
		Absolute Number	%	Absolute Number	%	Absolute Number	%	Absolute Number	%
1	26	5	***19***	15	***58***	6	***23***	-	**-**
2	22	4	***18***	12	***55***	6	***27***	-	**-**
3	27	4	***15***	16	***60***	6	***21***	1	***4***

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4	24	3	***13***	15	***63***	5	***20***	1	***4***
5	21	3	***14***	12	***57***	5	***24***	1	***5***
6	26	3	***12***	14	***54***	8	***30***	1	***4***
Total	146	22	***15***	84	***57***	36	***24***	4	***4***

Most of the students surveyed were assigned to the second health group. Over the period of time when they were 13 years old, the number of children assigned to the second health group remained virtually unchanged. The number of schoolchildren in the first health group was regularly decreasing over the period of time when they started school to their sixth year of studies. If the percentage of such children in Grade 1 was 19%, in Grade 6 it was already 12%. There is also an increase in the number of children referred to the third health group. For six years of school studies, the increase of schoolchildren in the third health group was 7%. Among the students of Grades 3-6 there were children belonging to the fourth health group.

Based on the analysis of medical information over the period of three years, we conducted an assessment of the health state of schoolchildren (Grades 1-6) of the rural school. Data on the analysis of the incidence rate of students are presented in Table 03.

Table 03. The assessment of the incidence rate of schoolchildren (Grades 1-6) over the period of three years (the number of cases)

Diseases	**2015-2016**	**2016-2017**	**2017-2018**
Central nervous system	12	18	14
Cardiovascular system	24	28	22
Allergic diseases	11	10	22
Genitourinary system	8	12	11
Digestive tract	33	31	39
Endocrine system	18	13	13
Pathology of eyesight	14	16	21
Dermal pathology	5	3	5
Ear Nose Throat pathology	19	15	18
Muscularskeletal system	34	30	26

Having analyzed the incidence rate of schoolchildren under research in the rural school over the period of three academic years, we can state that the most common are diseases of gastrointestinal tract, cardiovascular system and disorders of musculoskeletal system. The most uncommon are skin diseases and diseases of genitourinary system.

Over these three years there is an increase in the number of children, suffering diseases of genitourinary system, gastrointestinal tract, eyesight pathology, allergic diseases (which increased almost twice). At the same time, there is a decrease in the incidence rate of the diseases of endocrine system and violations of musculoskeletal system.

We analyzed the prevalence of various diseases over the time of two years, which is presented in Table 04.

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Table 04. Distribution (%) of chronic diseases and functional disorders of the main body systems in students of Grades 1-6

Diseases	**2016-2017**	**2017-2018**
Pediatric pathology		
Chronic cholecystitis	15.7%	17.2%
Dyskinesia	6.6%	7.2%
Liver diseases	0,98%	1,1%
Cardiovascular diseases	19%	15%
Physicaldevelopmentdelay	8.9%	7.6%
Obesity	3.4%	2%
Chronic pneumonia	2%	1.36%
Kidney diseases	8.2%	7.5%
Allergic diseases	6.8%	15%
Skin diseases	2%	3.4%
Orthopedic pathology		
Violation of posture	15.6%	13.2%
Scoliosis	7.5%	5.1%
Flat-footedness	8.2%	6.7%
Ear Nose Throat pathology		
Chronic tonsillitis	10.2%	12.3%
Hearing loss	1.36%	1.36%
Neurological pathology	12.3%	9.6%
Ophthalmic pathology	10.9%	14.3%
Logopedic pathology	6.8%	4.2%

The diseases of cardiovascular system take the first place in terms of prevalence in the group of pediatric pathologies – for practically 20% of the schoolchildren surveyed. Over the period of time of two years there was a slight decrease in the incidence of diseases of cardiovascular system. Chronic cholecystitis is diagnosed in 15% of schoolchildren of Grades1-6. Skin diseases, liver diseases and chronic pneumonia are quite rare. Retarded physical development was diagnosed in about 10% of schoolchildren. Over the time of two years the percentage of children with retarded physical development slightly reduced. Obesity was diagnosed in 3% of children, aged 8-13.

The number of allergic diseases in rural schoolchildren over the time of two years increased twice. This may be due to the fact that most modern food products contain the whole range of different additives, dyes, thickeners, etc., which can cause allergic reactions. In addition, because of low living standards in rural areas, food products of low-quality are usually consumed.

In the group of orthopedic pathologies, various violations of posture prevail - in 15% of the surveyed contingent of children. In the span of two years, the percentage of children with body posture disorders decreased. In our opinion, this is due to the fact that during the last three years health-saving technologies are being actively introduced in the Kazankaya Comprehensive School (that has been surveyed) and the regime of dynamic sport breaks is being implemented there.

As for ear, nose and throat pathologies, 10% of primary and secondary schoolchildren had chronic tonsillitis. The prevalence of neurological pathology in the span of two years reduced by 2.7% and currently is 9.6%.

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The growth of the ophthalmologic pathology in the examined contingent of children gives cause for concern. For the two years the number of schoolchildren with visual impairment increased by 3.4%. Probably, this is the result of the uncontrolled use of a computer in everyday life.

7. Conclusion

Thus, among schoolchildren of the rural school, that has been surveyed, the level of diseases of musculoskeletal system, low eyesight, gastrointestinal tract, allergic and cardiovascular diseases is high. At the same time, the introduction of dynamic sport breaks, the involvement of students in sports and recreational activities allowed to reduce the percentage of diseases of cardiovascular system and those of musculoskeletal system (Stevenson & Clegg, 2013).

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