

**THE INFLUENCE OF SOCIAL-PEDAGOGICAL DETERMINANTS ON MOTOR
ACTIVITY OF YOUNGER SCHOOLCHILDREN**

***A INFLUÊNCIA DE DETERMINANTES SOCIOPEDAGÓGICOS NA ATIVIDADE
MOTORA DE CRIANÇAS MENORES***

***LA INFLUENCIA DE LOS DETERMINANTES SOCIO-PEDAGÓGICOS SOBRE LA
ACTIVIDAD MOTRIZ DE LOS NIÑOS MÁS PEQUEÑOS***

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ABSTRACT: The study aims to determine the influence of social and pedagogical determinants on the optimization of motor activity of 9-10 age children. The study engaged students of secondary schools in Belgorod. During the academic year, experimental work was carried out from September 2020 to May 2021. The methodology is to study and analyze scientific and methodological literature on the problem by domestic and foreign scholars; pedometry, methods of mathematical statistics. In 86% of junior school students, it has been found that the average daily volume of motor activity is below the age norm. At the same time, 3% of children involved in the study show hyperactivity. The analysis of the indicators of the average daily pedometer measurements indicates that the volume of motor activity in children of 9-10 years old in the experimental group is significantly higher than in children in the control groups.

KEYWORDS: Pedagogical determinants. Physical activity. Students. Elementary grades.

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RESUMO: O estudo visa determinar a influência dos determinantes sociais e pedagógicos na otimização da atividade motora de crianças de 9 a 10 anos de idade. O estudo envolveu alunos de escolas secundárias em Belgorod. Durante o ano letivo, foi realizado um trabalho experimental de setembro de 2020 a maio de 2021. A metodologia visa estudar e analisar a produção científica e metodológica sobre o problema por acadêmicos nacionais e estrangeiros; pedometria, métodos de estatística matemática. Em 86% dos alunos do ensino fundamental, verificou-se que o volume médio diário de atividade motora está abaixo do recomendado para a idade. Ao mesmo tempo, 3% das crianças envolvidas no estudo apresentam hiperatividade. A análise dos indicadores das medidas médias diárias do pedômetro indica que o volume de atividade motora em crianças de 9 a 10 anos do grupo experimental é significativamente maior do que nas crianças do grupo controle.

PALAVRAS-CHAVE: Determinantes pedagógicos. Atividade física. Alunos. Graus elementares.

RESUMEN: El estudio tiene como objetivo determinar la influencia de los determinantes sociales y pedagógicos en la optimización de la actividad motora de niños de 9 a 10 años. El estudio involucró a estudiantes de escuelas secundarias en Belgorod. Durante el curso académico se realizó un trabajo experimental desde septiembre de 2020 hasta mayo de 2021. La metodología es estudiar y analizar la literatura científica y metodológica sobre el problema por parte de académicos nacionales y extranjeros; pedometría, métodos de estadística matemática. En el 86% de los estudiantes de la escuela primaria, se ha encontrado que el volumen promedio diario de actividad motora está por debajo de la norma de edad. Al mismo tiempo, el 3% de los niños involucrados en el estudio muestran hiperactividad. El análisis de los indicadores de las mediciones diarias promedio del podómetro indica que el volumen de actividad motora en niños de 9 a 10 años en el grupo experimental es significativamente mayor que en los niños de los grupos de control.

PALABRAS CLAVE: Determinantes pedagógicos. Actividad física. Estudiantes. Grados de primaria.

Introduction

In modern studies, the motor activity of a growing person is considered as a natural and socially determined need of the body and personality, which ensures development as a source and resource of life, health, personal achievements.

When a child transfers from kindergarten to school, the problem of optimal, sufficient, rational motor activity intensifies. Changes in children's way of living during the adaptation period leads, according to Bezrukikh (1997) and Kim (2012), to a decreased physical activity by 45-56%. Studies of the active range of motion of primary schoolchildren conducted in 2020 indicate that the natural need for movement is satisfied only by 30-60%. In the second half of the day, on completing classroom learning, the motor activity of children noticeably decreases and amounts to only 40% of the recommended level of movements whereas Bakanov notes that

physical activity in the second half of the day of junior schoolchildren should be at the level of 9-10 thousand steps (BAKANOV, 2007). These facts are corroborated by research results (KADUTSKAYA *et al.*, 2021).

And for a younger schoolchild, a decrease in physical activity is a loss in health, development, knowledge. Vazou *et al.* (2021) have shown that optimal physical activity in school improves results in studies. Abramova *et al.* (2021) have revealed changes in the morphofunctional development and physical preparation of boys at 6-10 years of age, depending on physical activity.

It must be admitted that in the contemporary context of education, certain social and pedagogical determinants that negatively affect the individual motor activity of a child have emerged. Firstly, during the period of global informatization of the educational space, it was not possible to achieve harmonization of the processes of teaching, upbringing, informatization, health protection (VOLOSHINA *et al.*, 2018). Secondly, insufficient recognition by adults and children of physical activity as a factor ensuring human health (KADUTSKAYA *et al.*, 2021; VOLOSHINA *et al.*, 2021; SILAEVA, 2009). Thirdly, in the period of preschool and junior school age, there is a desire on the part of parents for early development, to the detriment of the harmonious development of a child's personality (PRAVDOV, 2003). Fourthly, with obvious tendencies of individualization of education, when defining motor regimes, the individual level of a child's motor activity (hyper- and hipoactivity) is not always considered (HERRERA *et al.*, 2020).

All of the above naturally needs the development of updated strategies for pedagogical resourcing, support, and assistance in the process of regulating the motor activity of a growing person. And this, in turn, requires an objective evaluation of the social and pedagogical determinants of motor activity. The relevance of this idea is emphasized by academician Feldstein (2013), "... the construction of the activities of growing people is carried out with the building of their awareness, always occurs in the process of interaction with the World of adults".

The Purpose is to determine the influence of social and pedagogical determinants on the optimization of motor activity of children aged 9-10 years.

Materials and methods

The study engaged students from secondary schools № 22, 5 and from the *Algorithm of Success* school in Belgorod (n = 94, 46 girls, 49 boys aged from 9 to 10). Experimental work was carried out during the academic year from September 2020 to May 2021. Three groups were formed: 1CG – children studying in traditional school (n = 30, 16-girls, 14-boys), 2CG – children studying in full-time school (n = 32, 15-girls, 17-boys), EG – children studying in full-time school with the implementation of game programs and technologies as a variative part of the main educational program (n = 32, 16 girls, 16 boys).

Study and analysis of scientific and methodological literature on the problem by domestic and foreign scholars were considered; pedometry. Statistical analysis of the data obtained was carried out using licensed Microsoft Excel (2016). Indicators of descriptive statistics were determined (arithmetic mean, standard deviation and mean error). The significance of differences in values was assessed using the Student's t-test. The difference was considered significant at $p < 0.05$.

Results and Discussion

In traditional school, the school-day is from 8 to 13, including extracurricular activities and physical culture and recreation activities (morning warm-up, physical training break, footing). The possibility of additional education of physical culture and sports orientation of students is provided by the family. Children can get it, both based on an educational organization and in organizations of additional education.

In full-time school, the school day is from 8a.m. to 18p.m. and involves two blocks: a study block from 8 to 14 (lesson activities and extracurricular activities) and a developmental block from 14 to 18 (self-tuition, extracurricular activities, leisure activities, outside activities). Traditionally, both in the morning and in the afternoon, physical culture and recreation activities were planned and carried out.

At experimental school with a variative system of physical education, the organization of the educational process is carried out from 8 to 18 and also consisted of two blocks: an educational block from 8 to 14 (lesson activities and extracurricular activities) and a developmental block from 14 to 18 (self-tuition, extracurricular, leisure activities, outdoor activities). The timetable at school with a variative system of physical education is implemented nonlinearly. The school day alternates between classroom hours and the following physical culture and recreation activities: gymnastics before educational classes, physical training breaks

during lessons, outing on long recess with actualizing the content of game programs, a dynamic hour with the predominant use of action and sports games. The flexibility of the physical education system is provided by game programs and technologies that are implemented within the framework of the third lesson of physical education and extracurricular activities. The basis of the lessons is made up of outdoor games with elements of sports games. This contributes to the enrichment of the motor experience of children, stimulates the independent organization of motor-play activity. In the second half of the day, junior schoolchildren are offered more scope for choosing activities within the framework of out-of-class activities and sports-oriented co-curricular, which in turn also contributes to an increased motor activity of schoolchildren.

The volumes of motor activity of children according to pedometer indicators in the control and experimental groups are given in Table 1.

Table 1 – Average Indicators of Motor Activity Range in Children Aged 9-10 (Control Stage)

Days	groups	Boys		Girls		All	
		M ± m	P	M ± m	P	M ± m	P
School days	CG1	9373.43±421.35	*	10374.75±365.02	*	9907.47±298.1	*
	EG	14115.29±1329.45	*	15663.88±774.62	*	14940.73±745.71	*
	CG2	12358.36±987.37		12568.03±893.25		12487.78±872.54	
Weekends	CG1	9628.14±456.68	*	11013.02±666.26	*	10366.73±440.66	*
	EG	14175.14±1440.33	*	15714.13±729.48	*	14995.93±773.9	*
	CG2	12401.01±562.39		12069.56±791.27		12215.15±691.19	

* - $P \leq 0,05$ upon t – Student
 Source: Devised by the authors

It has been found that in 86% of primary school students the average daily motor activity volume is below the age norm – 14-20 thousand steps per day (SUKHAREV, 1991) (Table 1). At the same time, 3% of children who took part in the study show hyperactivity, the pedometer indicators in such children are in the range of 20-21 thousand steps per day.

The performance analysis of the average daily pedometry indicates that the volume of movements of children aged 9-10 years in the experimental group is significantly higher than of children in the control groups ($p < 0.05$). This confirms the effectuality of using game programs in the system of physical education of primary schoolchildren. As a positive point, of note is an imperceptible increase in the indices of physical activity in all students on weekends. However, comparing the results of pedometer measurements on weekends, one can also note higher average daily indices of the volume of physical activity in the younger schoolchildren of the experimental group. This is attributable to the fact that the introduction of game programs and technologies of physical education has actualized the need for motor activity, stimulated

independent motor activity of junior schoolchildren on weekends, which is corroborated by the given data. It should also be mentioned that girls from both experimental and control groups have higher pedometer indicators than boys both on school days and on weekends.

In our opinion, the COVID-19 pandemic has had a certain impact on the study results, therefore, there are mixed results.

The results obtained are consistent with the data presented by scientists from different countries studying the social and pedagogical determinants of motor activity, physical fitness and health. So, for example, the works by Averina (2016), Komkov (2002), Lyapishev (2006) determined a galvanizing effect of socio-pedagogical determinants on the motor activity of a growing person (VOLOSHINA *et al.*, 2020).

Research by Veldman *et al.*, (2020) has proved that a positive psycho-emotional background in sports lessons has a positive effect on the mastering of basic motor skills and increases the motor activity of primary school students. It is sports and play activities that create such a background, allow children get pleasant emotions. In our study, the positive attitude of junior schoolchildren to sports games and game exercises contributed to the optimization of physical activity range.

Often not all children are able to use their free time for their health, to be physically active. This function is incumbent on parents and teachers. The meaning of pedagogical support is to form in students the ability to plan their daily routine and independent physical activity. Kelly *et al.* (2020) have proved that there are significant improvements in the level of mastery of basic motor skills of Irish schoolchildren having all ability levels, if physical education lessons are focused on teaching and education, compared with traditional physical education lessons.

Actualization in the minds of junior schoolchildren of ideas about the value of motor activity, gain of motor-play experience in the process of implementing our experimental program stimulated independent motor activity had a positive effect on the regulation of motor activity.

In the course of the research carried out, it was important for us to obtain valid and objective information that would be a gauge of the influence of game programs and technologies on the optimization of motor activity of junior schoolchildren. In further studies, with large sample sizes and longer durations, it will be possible to empirically substantiate a personality-oriented model for regulating the motor activity of a growing person in a modern variative system of physical education.

Conclusion

The motor activity of junior schoolchildren is open to a significant influence of external social and pedagogical determinants and internal factors. They, in turn, create conditions and opportunities for the realization of the necessary daily potential of locomotion. It has been proved in our study that the variative system of physical education, created based on game programs and technologies, is a prerequisite for optimizing the motor activity of a growing person. At the control stage, the average indicators of the volume of motor activity of the children of the experimental group significantly ($p < 0.05$) exceeded the indicators of the control groups.

The study of the volume of physical activity in children aged 9-10 years has revealed that an average daily volume of locomotion of 86% of junior schoolchildren is below the norm for this age division. Only 11% of the students studied have an optimal volume of physical activity corresponding to the norm. 3% of children in the experiment are hyperactive. Considering gender characteristics, it is worth pointing out that of all the girls in the experiment, only 12.5% and 7.14% of boys have the volume of motor activity exceeding 15,000 steps / day, which corresponds to the norm.

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