

## THE IMPORTANCE OF SECONDARY SCHOOL STUDENTS' PHYSICAL ACTIVITY IN MODERN ENVIRONMENT

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### ABSTRACT

The research was aimed at evaluating physical activity of students, who live in the city and rural areas, identifying the relationship between physical activity and school performance, as well as studying the dependence of the number of diseases on the volume of locomotion. To this end, in the Belgorod Oblast, 1,488 schoolchildren of 5-11 grades were surveyed from 2014 to 2017. The schoolchildren were divided into the following three groups: The 1st group included the schoolchildren assigned to a special education department; the 2nd group included the schoolchildren assigned to the main education department, and the 3rd group involved the schoolchildren regularly engaged in sports. The results of the questionnaire indicated that the children living in rural areas move more than their peers living in the city. The schoolchildren who regularly engage in sports have a higher level of performance (about 45% of respondents get excellent grades), compared to the students in the special and main education departments (approximately 32% get excellent grades). It is noted that approximately 93% of the schoolchildren living in rural areas and 92% of the schoolchildren living in the city referred to the third group of the respondents are ill once or less times a year. For comparison, approximately 40% of the schoolchildren assigned to the main education department are ill more than 1-2 times a year. In the special education department group, approximately 50% of the schoolchildren are ill more than 1-2 times a year.

**KEYWORDS:** schoolchildren, physical activity, performance, questionnaire

### INTRODUCTION

In recent years, the physical fitness level of schoolchildren and students has significantly decreased [1]. This is largely due to a lack of physical activity and a sedentary lifestyle [15]. As a result, non-communicable diseases develop [8-9, 12]. L.P. Makarova and G.A. Korchagina [5] note that only 14-23% of schoolchildren are practically healthy, about 50% have small morphological or functional abnormalities, and the remaining 27-36% of students have chronic diseases. L.P. Makarova and G.A. Korchagina [5] state that according

to medical examinations, children's health deteriorates by 4-5 times during studying at school. This is largely due to lack of sleep [16] and a sedentary lifestyle [13]. By the time of graduation, every third graduate has myopia, a postural disorder; every fourth graduate has cardiovascular system disorder. In this regard, it can be argued that the school has become an additional risk factor for the development of diseases, rather than performing a health-promoting role [5].

According to the research of the Scientific Centre of Children Health of the Russian Academy of Medical Sciences, over the last decade the number of schoolchildren with body weight deficiency has increased by 1.5 times; and among students in schools with the intensification of the educational process, this value is even higher. At the same time, we have to state the fact that the conducted research proved the decrease in the functionality of today's schoolchildren [2-3, 6]. According to scientists, among the causes for the deterioration of students' mental health associated with the school, the first place is academic overload, that is, inability to cope with the study load [11].

The research by L.P. Makarova *et al.* [4] indicated that at, gymnasiums and lyceums the duration of the "working day" of primary pupils is 10-12 hours, and high school students study 15-16 hours per day. As a result, the time taken to sleep [16-17] decreases, as well as physical activity [10]. Summarizing the above mentioned, it can be stated that the education process intensification results in expressed fatigue at the end of the day and week for 40-55% of students, while at secondary schools, the ratio of such children is 20-30%; 60-63% of students have changes in blood pressure (as a rule, according to the hypertonic type); neurotic-like reactions are noted in 78-85% of students [4].

Today, in the Belgorod Oblast, a significant number of schools pay more attention to students' health, but this idea in school is often reduced only to compliance with the requirements of sanitary rules and health-improving medical events.

At the same time, according to the estimates of the majority of specialists [2, 6, 11, 14], the main risk factors for students' health include a decrease in their physical activity, excessive intensity of the education process, non-observance of elementary physiological and hygienic requirements for the organization of the education process, as well as failures of the physical education system at school.

The experimental material accumulated up to now in the framework of this issue shows that the physical activity is one of the most important components of a person's healthy life style based on a reasonable application of physical culture and sports facilities, corresponding to the sex, age, health status.

The **research purpose** is to scientifically justify and experimentally test new approaches that allow us to solve the objective of replenishing secondary and high school students' physical activity deficiency, and in this way to support the vital activity of their organism at the level ensuring the success of mastering the contemporary secondary education curriculum.

## **RESEARCH METHODS AND PROCEDURE**

The observations conducted in the secondary education institutions of Belgorod and the Belgorod Oblast from 2014 to 2017 allow us to conclude that the amount of students' physical activity depends mainly on the characteristics of physical activity at Physical Education classes. An experiment was conducted in order to obtain more accurate data on the researched issue.

We identified three groups of the schoolchildren: the main medical group (MMG), without contraindications; special medical group (SMG), the students who have deviations in

health status, mainly with visual impairment (mainly, myopia); and a group of athletes, the students engaged in sports (at least 3 times a week).

We have developed a special program to identify the characteristics of physical activity at Physical Education classes. The purpose of the program was to determine the average value of the students' physical activity in each group. A set of survey included the physical activity in the study and vacation time, on weekends and holidays. The students of 5-11 grades living both in the city and in the rural area participated in the survey. In just three academic years, more than 1,488 people were examined.

## RESULTS & DISCUSSION

The research included a survey of students in the form of questionnaires to determine the mode of their physical activity (PA). Figs. 1 and 2 present the results of a survey of urban and rural schoolchildren.

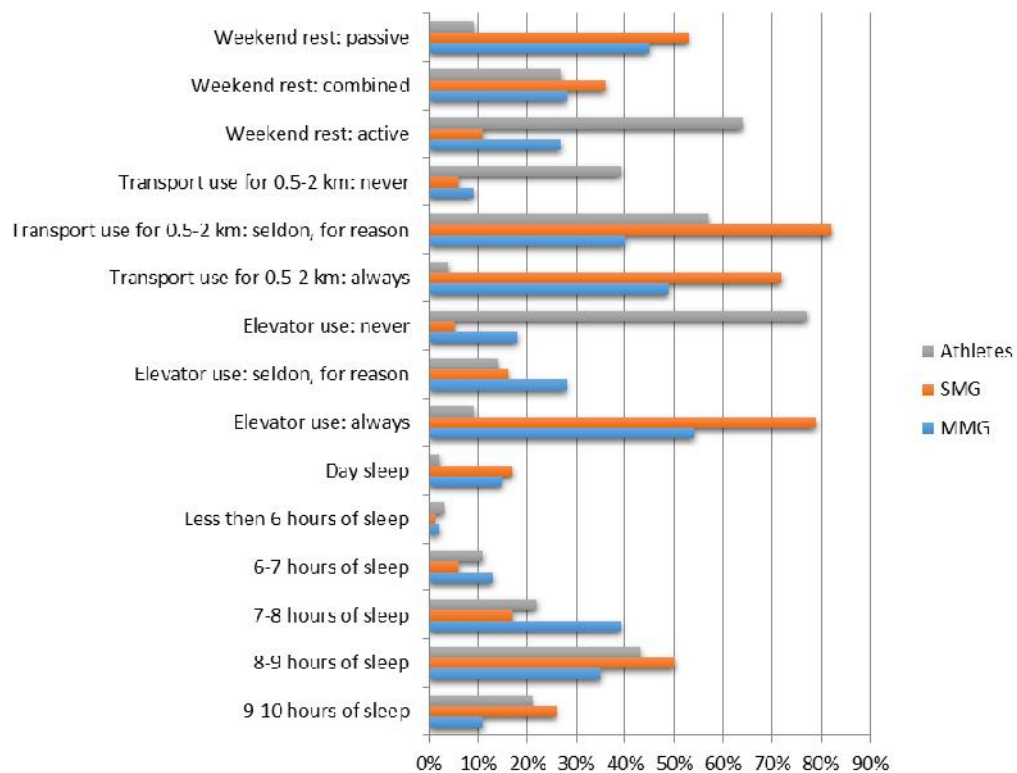


Fig. 1 Physical activity of urban schoolchildren

Based on the results of the survey of urban schoolchildren, one can conclude that the SMG students lead the least active way of life – they prefer passive rest, most often use an elevator and means of transport at close distances; the most time is spent on sleep. The second place of PA belongs to the MMG students – they also prefer passive rest, use the elevator and transport regularly; the least time is spent on sleep. The most active students are athletes – they prefer active recreation, prefer not to use the elevator and transport; a sufficient amount of time is spent on sleep.

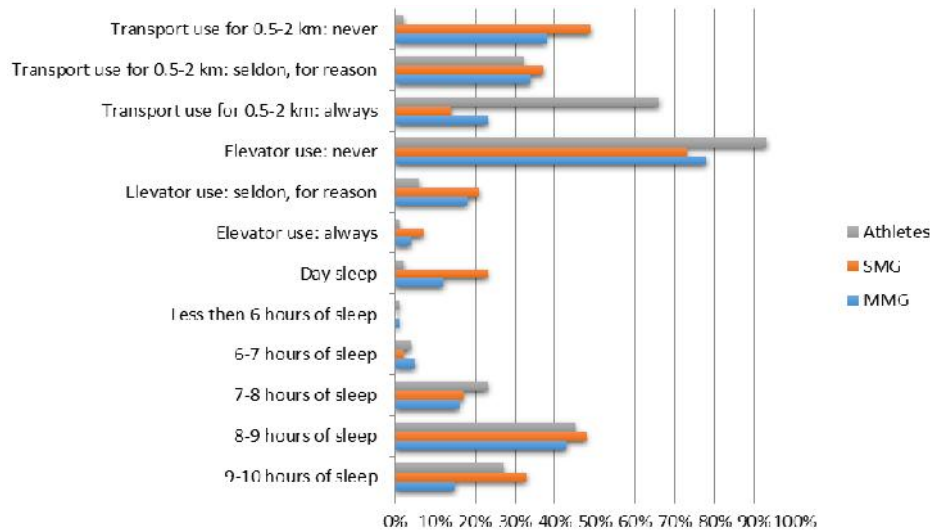


Fig. 2 Physical activity of rural schoolchildren

The survey results of the schoolchildren living in rural areas, in general, confirms the emerging trend of the PA dynamics distribution between the MMG, SMG students and athletes. The question of using the elevator was removed from the questionnaire of the rural schoolchildren, since there are practically no buildings with elevators in rural areas. Apparently, the peculiarities of rural life explain the answers of the schoolchildren regarding the use of transport for close distances. The majority of respondents do not use transport at suggested circumstances: 93% of the students-athletes, 78% of the MMG students, and 73% of the SMG students answered this way. Comparing the answers of the urban and rural students, it is interesting to note the following: the students representing the rural area generally sleep more, find more time for daytime sleep, walk more, and lead a more active lifestyle. In addition, they spend more time outdoors. So, more than half of the rural schoolchildren (52%) spend 3-5 hours outdoors, and the rest (48%) spend 1-2 hours; among the urban schoolchildren, only 31% of respondents spend 3-5 hours outdoors, 69% spend 1-2 hours.



Fig. 3 Physical activity of urban and rural schoolchildren

Using a pedometer, a study of the students' physical activity (PA) was carried out according to the following indices: PA average daily value, PA average daily value during the days of Physical Education classes in the gym and outdoors, PA average weekly value. The

obtained data testify that the highest level of PA is possessed by the athletes; the MMG students are in the second place, the SMG students are in the third place. At the same time, the athletes and SMGs living in rural areas are engaged in insignificantly large number of PA in comparison with students of the same categories living in the city. Conversely, the MMGs living in the city are slightly more active than the students of the same group living in rural areas (Fig. 3).

In order to determine the impact of the physical activity on the level of academic performance and morbidity among the groups of schoolchildren formed, an analysis of class books and medical charts was conducted (Figs. 4, 5).

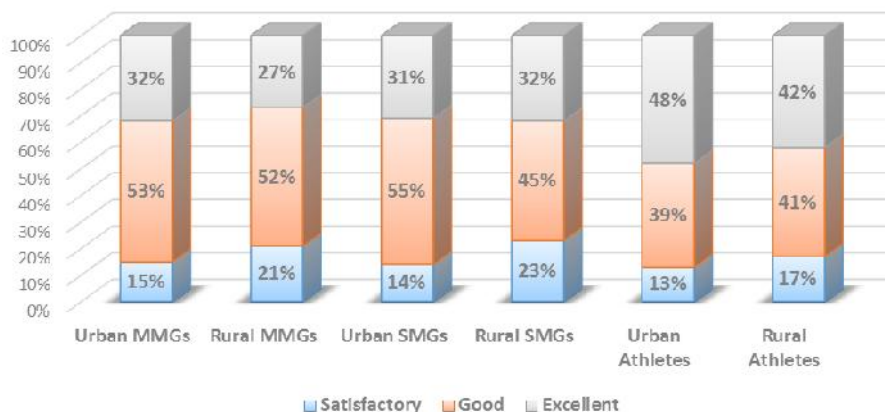


Fig. 4 Performance of urban and rural schoolchildren

The data in Fig. 4 indicate that the highest level of the academic performance is possessed by the athletes; Excellent is the most common grade in this group, the Satisfactory grade is the least common one. Almost the same level of performance was noted in the MMG and SMG students. This trend is typical for the urban and rural schoolchildren.

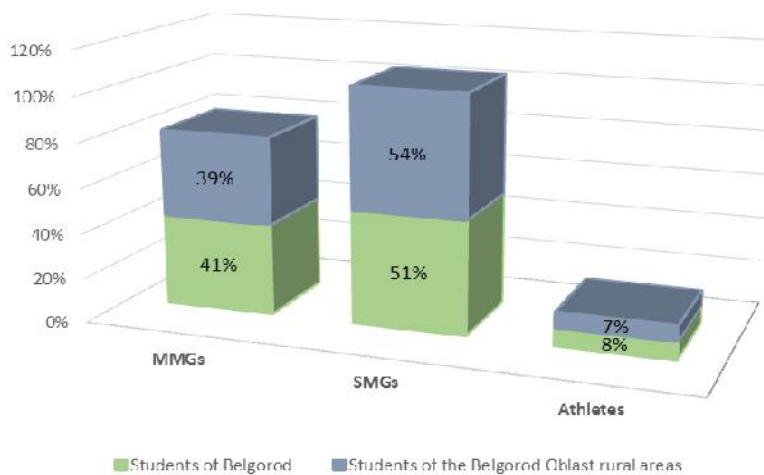


Fig. 5 Morbidity of urban and rural schoolchildren

The data presented in Fig. 5 testifies that the SMG students are most often ill; more than 50% of this category of students are ill at least 1-2 times a year. The athletes are less often sick, only 7-8%. The dynamics of morbidity in the urban and rural schoolchildren is almost identical.

## CONCLUSION

Our research of the urban and rural students' physical activity showed that, on the one hand, it is an indispensable component of a healthy lifestyle, a means of promoting health. On the other hand, the schoolchildren with disabilities have almost halved physical activity rates. This contradiction is due to the fact that a decrease in physical activity, as a result of a decrease in the level of health, is also its cause. This conclusion is supported by the research conducted by us, which states that the athletes have the smallest percentage of morbidity. The performance second place belongs to the students of the main group of health, attending only planned Physical Education classes. However, despite good performance in educational activities, they have a fairly high percentage of absence from school due to morbidity. This also indicates the prevalent importance of health in the success of mastering the contemporary secondary education curriculum. All of the above indicates the need to take serious measures to instill the students' interest in various types of the physical activity, the desire to engage in physical education, and, in general, the formation of their attitudes towards a healthy lifestyle.

## ACKNOWLEDGEMENTS

The paper was written within the framework of State Task No. 27.4338.2017/5.1 "Conducting Research in the Interests of the Departments of the Ministry of Education and Science of Russia" for the project "Research of Measures to Involve Students in Additional Physical Education and Sports and Implement Activities of Promotion of the All-Russia Physical Culture and Sports Complex "Ready for Labor and Defense".

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