

## PHYSICAL FITNESS CHARACTERISTICS OF SCHOOL-AGED CHILDREN

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### **Annotatsiya**

Ushbu maqola maktab yoshidagi o'quvchilarning jismoniy tayyorgarlik xususiyatlarini o'rganishga bag'ishlangan. Tadqiqotda o'quvchilarning yosh, jins, biologik rivojlanish darajasi va jismoniy faollik bilan bog'liq jismoniy sifatlar (kuch, chidamlilik, tezkorlik, chaqqonlik va egiluvchanlik) tahlil qilindi. Adabiyotlar tahlili va pedagogik kuzatish, test sinovlari, taqqoslash va statistik metodlardan foydalanildi.

### **Аннотация**

В данной статье рассматривается оптимальное состояние образования в Южной Корее и процессы сотрудничества Узбекистана с Южной Кореей в годы после обретения независимости. Объективное, правдивое освещение культурных, научно-технических связей, описание процессов двустороннего научного и культурного сотрудничества между Республикой Узбекистан и Республикой Корея также составляют основу статьи. В первые годы независимости были подписаны двусторонние соглашения с Южной Кореей по каждому направлению образования. В этой статье мы видим, что в ряде областей образования в обеих странах произошли коренные изменения.

### **Abstract**

This article highlights the optimal state of education in South Korea and Uzbekistan's relations with South Korea since independence. An objective and truthful coverage of cultural, scientific, and technical ties, as well as a description of the processes of bilateral scientific and cultural cooperation between the Republic of Uzbekistan and the Republic of Korea, also forms the basis of the article. In the first years of independence, bilateral agreements were signed with South Korea in

each area of education. In this article, we can see that fundamental changes have been implemented in a number of areas of education in both countries.

#### **Kalit so‘zlar**

turmush tarzi, kardiovaskulyar, muskulyar, koordinatsion, monitoring, kundalik jismoniy faolligi, jismoniy rivojlanish, darsdan tashqari sport mashg‘ulotlari, komponent.

#### **Ключевые Слова**

образ жизни, сердечно-сосудистый, мускулистый, координация, мониторинг, ежедневная физическая активность, физическое развитие, внеклассные спортивные мероприятия, компонент.

#### **Key words**

lifestyle, cardiovascular, muscular, coordination, monitoring, daily physical activity, physical development, extracurricular sports activities, component.

### **INTRODUCTION**

The school-age period is characterized by rapid growth and development of the child’s body, during which physical fitness plays a crucial role in shaping a healthy and active lifestyle. Physical fitness not only develops qualities such as strength, endurance, and speed, but also enhances a child’s coordination, psychological stability, and social adaptation. In recent years, a decline in daily physical activity among school-aged children, along with the prevalence of sedentary lifestyles and increased screen time, has had a negative impact on their physical fitness levels. Therefore, the effective organization of school-based and extracurricular sports activities, as well as the adaptation of pedagogical approaches to age-related and individual characteristics, is of paramount importance.

This article examines the characteristics of physical fitness in school-aged children based on a review of the relevant literature and practical research, and proposes methods that can be applied within the pedagogical process.

The Law of the Republic of Uzbekistan “On Physical Education and Sports,” adopted on September 4, 2015, identifies ensuring the physical development of children and adolescents and the systematic and effective organization of physical education classes in educational institutions as key responsibilities of the state. Furthermore, the Decree of the President of the Republic of Uzbekistan No. PF-5924 dated January 24, 2020, emphasizes the need to improve the quality of physical education lessons in general education schools, to engage children in sports from an early age, and to gradually develop their level of physical fitness.

In addition, the Resolution of the President of the Republic of Uzbekistan No. PQ-201 dated April 11, 2022, as well as the “Uzbekistan-2030” Strategy, define the development of school sports, the strengthening of sports infrastructure, and the expansion of mass participation in sports as priority objectives. These normative legal documents further increase the relevance of conducting a scientifically grounded study of the physical fitness characteristics of school-aged students.

### LITERATURE REVIEW AND METHODOLOGY

Scientific studies on the physical fitness characteristics of school-aged students indicate that the effective development of physical fitness depends not only on pedagogical approaches, but also on students’ age, gender, level of biological development, and daily physical activity.

In her study, Rajabova (2023) notes that in schoolchildren aged 6–10 years, physical qualities such as coordination and speed are strengthened through natural physical activity, whereas strength and endurance indicators improve only through organized physical training. This conclusion is supported by other researchers as well.

The cardiovascular, muscular, and coordinative systems can be considered the leading factors determining the level of physical fitness. The cardiovascular system is defined as the functional unity of the heart and blood vessels; it plays a vital role in ensuring blood circulation in the body, delivering oxygen and nutrients to muscles and tissues, and facilitating adaptation to physical loads. The muscular system represents a complex of skeletal muscles and functions as a system that enables motor activity through processes of contraction and relaxation. The coordinative system, in turn, is responsible for ensuring accuracy, balance, and harmony of movements through the integrated interaction of the central nervous system, sensory organs, and the muscular apparatus.

International studies also demonstrate that regular physical activity strengthens children’s cardiovascular, muscular, and coordinative systems and improves their overall physical fitness. In their study on the development of physical qualities in school-aged children, Kamardinov and Azimqulova (2025) recommend pedagogical methods – such as extracurricular sports clubs, movement-based games, and the development of students’ self-management skills – as effective means for enhancing physical fitness.

In addition, the assessment of physical fitness commonly involves the analysis of five core physical qualities: strength, endurance, speed, flexibility, and agility. The literature indicates that the main factors leading to a decline in physical fitness include a sedentary lifestyle, insufficient participation in extracurricular sports activities, and excessive time spent in front of screens.

## RESULTS

The analysis of the above-mentioned scientific sources indicates that the development of physical fitness in school-aged students requires the application of age-appropriate methodological approaches, the introduction of an individual monitoring system across grade levels, and active support for extracurricular sports activities. Research findings show that the development of the cardiovascular system in children and adolescents is considered one of the key indicators of endurance and overall work capacity. Moreover, the school-age period is recognized as a particularly important stage for the development of coordinative abilities, as it enables the rapid and effective acquisition of complex motor skills.

In the present study, several methods were employed to analyze physical fitness. These included a review of scientific literature – examining both national and international sources to identify concepts of physical fitness, age-related characteristics, and assessment criteria – and pedagogical observation, which involved monitoring students' individual physical characteristics during physical education classes. In addition, test-based assessments were used to comprehensively evaluate students' core physical qualities.

To assess muscular strength, abdominal muscle endurance was measured using a sit-up test (maximum number of repetitions within a specified time), and explosive strength was evaluated through the standing long jump test. These exercises made it possible to determine indicators of muscular strength and explosive power.

Endurance was assessed using a 1,000-meter running test, which allowed for the evaluation of the functional state of the cardiovascular and respiratory systems, as well as the overall level of work capacity.

Speed performance was determined through a 30-meter sprint test performed at maximum speed. The results reflected students' start speed and their ability to maintain a high movement rate over a short distance.

Agility was evaluated using specialized relay exercises and running tests involving rapid changes of direction, such as shuttle runs or "snake-pattern" running. These tests served to determine the level of movement coordination, rapid decision-making, and spatial orientation.

Flexibility was assessed through a forward bend test (performed on a gymnastics bench or using a standardized measuring device), which helped to determine the mobility of muscles and joints.

The results of the conducted tests were recorded in a standardized table, analyzed to determine students' levels of physical fitness, and used as a basis for planning subsequent training sessions.

**Table 1**  
**Physical Fitness Indicators of School-Aged Children**

No	Test Type	Unit of measurement	6-10 young (active)	6-10 young of action)	11-12 young (active)	11-12 young of action)
1	Sit-up Test (30 s)	times	22 ±2	16 ±2	28 ±3	20 ±3
2	Standing Long Jump	cm	145 ±8	125 ±7	170 ±10	150 ±9
3	1,000-meter Run	minutes	5.10 ±0.20	6.00 ±0.25	4.40 ±0.18	5.20 ±0.22
4	30-meter Sprint	seconds	5.6 ±0.2	6.1 ±0.3	5.0 ±0.2	5.6 ±0.3
5	"Snake-pattern"	seconds	9.8 ±0.4	11.2 ±0.5	8.9 ±0.3	10.1 ±0.4
6	Forward Bend	cm	8 ±2	5 ±2	10 ±2	7 ±2

The results presented in Table 1 demonstrate a direct relationship between school-aged children's physical fitness levels and their daily physical activity, as well as regular participation in sports activities. According to approximate indicators, students who attended sports clubs at least three times per week showed higher performance in all core physical qualities—strength (sit-up test), explosive power (standing long jump), endurance (1,000-meter run), speed (30-meter sprint), agility ("snake-pattern" run), and flexibility (forward bend test)—compared to their less active peers.

Among children aged 6–10 years, speed and coordinative abilities were relatively well-developed, whereas strength and endurance levels were insufficiently developed. This observation underscores the need for specially organized, age-appropriate methodological exercises to enhance strength and endurance during this developmental stage.

For students aged 11–12 years, notable improvements in strength and endurance were observed. These gains are explained not only by biological growth processes but also by the effects of regular training. Additionally, this age group displayed significant individual differences, highlighting the importance of individual monitoring and differentiated approaches in physical education.

Particularly, low results were observed in endurance (1,000-meter run) and agility tests among students with sedentary lifestyles. This indicates that prolonged screen time and insufficient physical activity negatively affect the functional capabilities of the body.

Overall, the table results indicate that the development of physical fitness in school-aged children is effective only when training is systematic, continuous, and tailored to age-related characteristics. Regular test monitoring and an individual tracking system enable the identification of dynamic changes in physical qualities and support evidence-based planning of training sessions.

The study clearly confirms that physical fitness levels in school-aged children are directly dependent on daily physical activity and consistent participation in sports activities. Students participating in sports clubs at least three times per week exhibited higher levels of strength, endurance, and speed than their less active peers. In children aged 6–10 years, speed and coordination were relatively well-developed, while strength and endurance remained low, confirming the necessity of specially organized exercises to enhance these qualities. Among 11–12-year-olds, significant individual differences were observed in physical qualities, emphasizing the importance of a personalized approach. Observations also revealed that students with sedentary lifestyles and extended screen time had particularly low endurance and agility scores. Conversely, children engaged in additional sports activities outside regular physical education classes showed positive improvements across all five core physical qualities.

## DISCUSSION

The results of this study indicate that physical fitness in school-aged children is a multifactorial process that extends beyond the scope of regular physical education classes. The findings are consistent with scientific perspectives reported in the literature. Specifically, in children aged 6–10 years, coordination and speed naturally develop rapidly, whereas strength and endurance improve primarily through specially organized training sessions. The study confirmed that significant differences exist between students who participate regularly in sports activities and those leading sedentary lifestyles.

These findings underscore the importance of a systematic and continuous approach to developing physical fitness. Notably, disparities were most pronounced in endurance and strength indicators. Furthermore, excessive screen time was identified as a contributing factor to the decline in physical qualities. Modern technologies reduce the volume of daily movement among children and negatively affect their functional capacities. Therefore, creating an environment that encourages physical activity both at school and at home remains an urgent priority.

The discussion also highlights the necessity of adapting pedagogical approaches to age-specific and individual characteristics. In particular, for girls aged 11–12, motivational factors play a crucial role, and game-based or group

exercises were found to be effective in increasing engagement and participation. Developing physical fitness in school-aged children requires a comprehensive pedagogical strategy that includes improving lesson quality, expanding extracurricular sports activities, implementing individualized monitoring systems, and strengthening cooperation with parents.

## CONCLUSION

The results of this study demonstrate that the physical fitness of school-aged children is directly influenced by their daily physical activity, regular participation in sports, and pedagogical approaches tailored to their age and individual characteristics. Test results revealed that students who actively participated in sports exhibited higher levels of strength, endurance, speed, agility, and flexibility, whereas children with sedentary lifestyles showed particularly low endurance and agility. These findings confirm that systematic and continuous training is a critical factor in the effective development of physical fitness.

Based on these results, the following recommendations are proposed:

Strengthen age-appropriate methodological approaches. For children aged 6–10 years, it is necessary to implement game-based exercises that not only enhance coordination and speed but also progressively develop strength and endurance. For students aged 11–12 years, the volume and intensity of physical load should be increased in a scientifically justified manner.

Implement an individual monitoring system. Regularly recording each student's test results, analyzing their developmental dynamics, and adapting training plans to individual performance indicators will improve the effectiveness of physical education.

Expand extracurricular sports activities. Organizing sports clubs and movement-based games at least 2–3 times per week significantly improves overall physical fitness, particularly endurance and strength.

4. Prevent sedentary lifestyles. Regulating screen time and promoting active leisure in collaboration with parents helps enhance children's functional capacities.

5. Promote group, competitive, and game-based activities. Incorporating motivational systems and fostering a positive psychological environment strengthens students' interest in sports.

Effectively developing physical fitness in school-aged children requires a comprehensive approach. By scientifically planning training sessions, conducting regular test monitoring, applying individualized strategies, and promoting a healthy lifestyle, children's physical performance can be significantly enhanced. This, in turn, lays a strong foundation for their development as healthy, active, and socially adaptable individuals.

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