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FEATURES OF THE DEVELOPMENT OF CERTAIN PHYSICAL QUALITIES IN CHILDREN AGED 5–6 UNDER CONDITIONS OF CHRONIC STRESS

Children aged 5–6 undergo significant changes in their physical condition under chronic stress. ***Objective****: To evaluate the development level of physical qualities in children aged 5–6 under chronic stress for the subsequent development of a corrective fitness program. The assessment of some physical qualities in children was conducted using specially selected tests. Statistical analysis was performed using the software package "TIBCO Statistica 15.0.0.4". The Wilcoxon signed-rank test was used, and significant differences were considered at p < 0.05.* ***Results****: It was estimated that the speed indicators corresponding to the norms (1–3% in 5-year-olds, 2–3% in 6-year-olds) are the lowest among children aged 5–6 years. A significant improvement in this indicator (from 50–64% in 5-year-olds) was observed in 6-year-old children (75–87%). Among 5-year-olds, a significant difference was noted between boys (64%) and girls (50%) in the reliable indicators of explosive strength and strength endurance.* ***Conclusions****: The results confirm the need to implement a corrective fitness program aimed at improving physical qualities and, based on this, correcting stress conditions in children aged 5–6 years.*

Keywords*: physical qualities, preschool children, chronic stress, fitness activities.*

Петренко Сергій., Василенко Марина, Петренко Наталія. Особливості розвитку деяких фізичних якостей у дітей 5–6 років в умовах хронічного стресу. *Сучасні умови, включаючи пандемію COVID-19 та військові дії в Україні, суттєво вплинули на фізичну активність дітей дошкільного віку. Діти віком 5–6 років зазнають значних змін у фізичному стані в умовах хронічного стресу. Фізична активність може стати важливим засобом подолання стресу, сприяючи не лише фізичному розвитку, але й підтримці емоційного добробуту. Мета. Оцінити рівень розвитку фізичних якостей у дітей 5–6 років в умовах хронічного стресу для подальшої розробки корегувальної фітнес-програми. Оцінку деяких фізичних якостей дітей проводили за допомогою спеціально підібраних тестів, відповідно до завдань дослідження (за методикою Е. Вільчковського). Статистичний аналіз здійснювали за допомогою програмного пакета «TIBCO Statistica 15.0.0.4». Для перевірки відмінностей між двома залежними вибірками парних вимірів використовували Т-критерій знакових рангових сум Вілкоксона. За достовірні відмінності приймали значення p < 0,05. Результати. Було показано, що показники швидкості, що відповідають нормативам (1–3% у 5-річних, 2–3% у 6-річних) у дітей 5–6 років є найнижчими. Достовірно покращення цього показника (50–64% у 5-річних) у 6-річних дітей 75–87%. У 5-річних дітей спостерігається значна різниця між хлопчиками (64%) та дівчатками (50%) у достовірних показниках вибухової сили та силової витривалості. Гнучкість зберігалася в межах норми у всіх дітей, але спостерігалася тенденція до її зниження. Висновки. Було виявлено, що рівень розвитку фізичних якостей у дітей дошкільного віку різний. Усі обстежені діти мали значні проблеми зі швидкісними характеристиками, що може бути наслідком малорухливого способу життя та хронічного*

стресу. Хлопчики демонстрували значно кращі результати у присіданнях, що може вказувати на часткове природне покращення силових якостей із віком. Дівчатка показали відставання у стрибках у довжину, що може бути пов'язане з недостатнім розвитком м'язової сили нижніх кінцівок. Результати підтверджують необхідність впровадження корегувальної фітнес-програми, спрямованої на поліпшення фізичних якостей та на цій основі корекції стресових станів у дітей 5–6 років.

Ключові слова: фізичні якості, діти дошкільного віку, хронічний стрес, фітнес заняття.

Problem Statement and Relevance: The development of physical qualities in children aged 5–6 years is fundamental to their overall development and health. At this age, the active formation of the musculoskeletal system and the central nervous system occurs, laying the foundation for motor skills that influence future physical activity and health. Timely and successful formation of a person's motor function, especially in the preschool period of their life, is of paramount importance for full-fledged physical development [3, 5].

The issue of physical education has become particularly relevant due to the increased amount of time spent with gadgets and the rising levels of stress among children in war conditions. Studies show that chronic stress can lead to sleep disorders, reduced immunity, increased anxiety, and decreased motivation for physical activity [2]. This further complicates the development of physical qualities such as strength, speed, endurance, flexibility, and agility. Hence, there arises a need to develop approaches to physical education that not only promote the development of physical qualities but also help reduce stress levels and support children's psycho-emotional well-being.

Current conditions, including the recent COVID-19 pandemic and military hostilities in Ukraine, have significantly impacted the physical activity of preschool children. According to the Institute of Educational Content Modernization (2023), 46% of children have not attended physical education classes since the full-scale invasion began, compared to 15% before the war. Additionally, 66.6% of children do not attend sports clubs, significantly exceeding the pre-war figure of 37%. These conditions lead to weakened immune systems, increased sedentary lifestyles, and a rise in the number of children with overweight [1].

Children aged 5–6 undergo significant changes in their physical condition under chronic stress. Health deterioration occurs due to several factors, such as weakened immune systems, sedentary lifestyles, remote learning, and the consequences of the COVID-19 pandemic.

According to the recommendations of the World Health Organization (WHO), children aged 5–6 should spend at least 180 minutes daily in various physical activities. For children of this age, at least 60 minutes of this time should be devoted to moderation or high-intensity activities. Such a considerable level of physical activity strengthens muscles and bones, develops endurance, improves movement coordination, and positively affects the child's psycho-emotional state, reducing the risk of developing anxiety and obesity in the future.

Physical activity can become an important means of overcoming stress, promoting not only physical development but also emotional well-being. For the effective development of physical qualities in children aged 5–6, specially adapted methods that consider age characteristics and modern trends should be used. For example, the development of flexibility is key in early school age, and systematic training can improve motor skills and coordination [4].

A research among children aged 5–6 has found that 40.7% have an average level of physical fitness, 14.8% above average, 25.9% below average, and 18.5% low level [5]. This indicates the need for health-improving activities to enhance children's physical condition. Given the current challenges, an important direction in this issue is the implementation of adapted physical activity programs that consider children's psycho-emotional state [6]. Additionally, further research will be required on the impact of stress factors on the physical qualities of preschool children and methods of their correction through physical education, including fitness programs.

Objective: To evaluate the level of development of physical qualities in children aged 5–6 (boys and girls) under chronic stress conditions for the subsequent development of a corrective fitness program.

Methods and Organization of the Study: The evaluation of the development level of physical qualities in children was conducted based on a comparison of the obtained results with normative indicators. The assessment of the main physical qualities of children was carried out using specially selected tests according to the research objectives (following the methodology of E. Vilchkovsky). These included: Test 1 for determining the speed abilities of children (30 m run); Test 2 for assessing the explosive strength of the lower limbs (standing long jump); Test 3 for determining the strength endurance of leg muscles (squats in 30 seconds); and Test 4 for evaluating the flexibility of the spine and the back of the legs (forward bend in a standing position). The test tasks were defined according to the child's age, considering full 6-month periods.

Statistical analysis was performed using the software package "TIBCO Statistica 15.0.0.4". To check for differences between two dependent samples of paired measurements, the Wilcoxon signed-rank test was used. The test is designed to compare indicators that were measured under two different conditions on the same sample of subjects. It allows not only to establish the direction of changes but also their intensity, meaning it can determine whether the shifts in indicators in one direction are more pronounced than in the other. Significant differences were considered at $p < 0.05$.

Results: The conducted research showed that the examined children of different genders under chronic stress conditions exhibited certain features compared to normative indicators. For instance, significantly lower results in speed and strength endurance (compared to normal average) were found in boys and girls aged 5 (Table 1).

Table 1

Comparison of norms for the development of physical qualities and the results of examined 5-year-old children

Test	Norms	Examined	Norms	Examined
	Boys		Girls	

1. 30 m Run (s)	7.8 – 8.5	11.6	8.0 – 8.7	17.5
2. Standing Long Jump (cm)	90 – 100	84.5	80 – 95	91.8
3. Squats in 30 sec (times)	12 – 17	10.7	11 – 16	7.7
4. Forward Bend from Standing Position (points)	1 – 2	1.2	1 – 2	1.3

The results of the standing long jump for boys indicate an insufficient level of explosive strength development in the lower limbs. Similarly, the result for girls falls within the normative range but is closer to the lower limit. Meanwhile, the flexibility of the spine and the back of the legs in these children corresponds to the expected norm but is below optimal values. Therefore, based on the obtained data, it can be concluded that the overall level of physical fitness of 5-year-old children under chronic stress is insufficient, requiring correction of motor activity.

Six-year-old children, compared to 5-year-olds, showed significantly better results in speed abilities but still fell below the normative range (Table 2). A relatively sufficient level of explosive strength and strength endurance was found in boys. At the same time, girls showed results indicating insufficient strength in the lower limbs, while their strength endurance fell within the normative range. The results of flexibility development in these children correspond to age norms.

Table 2

Comparison of norms for the development of physical qualities and the results of examined 6-year-old children

Test	Norms	Examined	Norms	Examined
	Boys		Girls	
1. 30 m Run (s)	7.2 – 7.8	9.2	7.4 – 8.0	10.9
2. Standing Long Jump (cm)	100 – 110	102.8	90 – 105	83.3
3. Squats in 30 sec (times)	15 – 20	27.8	14 – 18	14
4. Forward Bend from Standing Position (points)	1 – 2	1.3	1 – 2	1.7

Based on the table, it is evident that boys show significant improvement in strength endurance, but the issue of speed abilities remains. Girls have poorer performance in long jumps and running speed, indicating weak development of explosive strength and overall coordination.

The conducted analysis revealed that the results of some physical qualities in children aged 5–6 show significant deviations from normative values, which may be a consequence of chronic stress and insufficient physical activity.

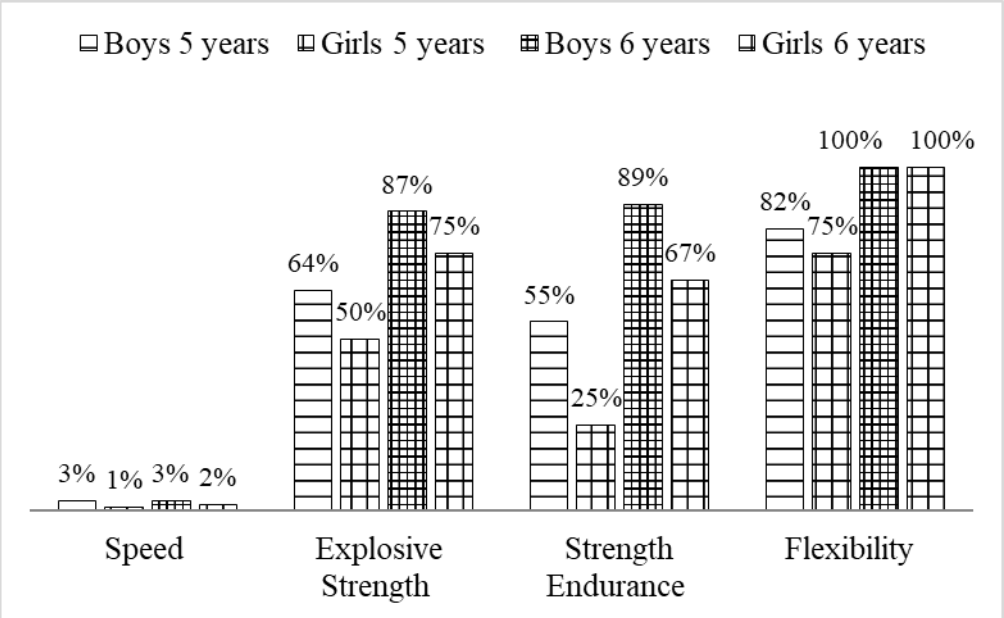


Fig. 1. Features of physical quality development in 5–6-year-old children.

The analysis of the obtained research material showed that speed indicators corresponding to the norms (1–3% in 5-year-olds, 2–3% in 6-year-olds) in children aged 5–6 are the lowest among other physical qualities. This may be explained by the fact that the nervous system at this age has not yet reached a sufficient level of maturity (Fig. 1), and the development of physical qualities in children aged 5–6 depends on the maturity level of the neuromuscular system and adaptive mechanisms.

It is known that physical qualities are directly related to psychophysiological mechanisms, such as the speed of nerve processes, the level of excitability, and coordination between sensory and motor systems. Explosive strength depends on the ability of the neuromuscular system to quickly generate powerful muscle contractions. A significant improvement in this indicator (from 50–

64% in 5-year-olds) observed in 6-year-olds (75–87%), especially in boys, indicates the development of intermuscular coordination and the improvement of the motor centers of the cerebral cortex.

In 5-year-olds, there is a significant difference between boys and girls in reliable indicators of explosive strength (64% vs. 50%) and strength endurance (55% vs. 25%). This may be associated with higher physical activity in boys, as well as hormonal background characteristics.

The improvement in strength endurance indicators (the ability of the body to maintain prolonged physical activity) in 6-year-olds indicates the development of adaptive mechanisms, improved energy metabolism, and increased resistance of the nervous system to stress.

Flexibility remains within the norm for all children. At the age of 6 years, this indicator reaches 100%, confirming the maximum elasticity of the ligamentous apparatus at this age.

The obtained results indicate the need for implementing corrective fitness activities to improve children's physical condition under chronic stress.

Conclusions: Thus, it was found that the level of development of physical qualities in preschool children varies. All the examined children had significant issues with speed characteristics, which may be a result of a sedentary lifestyle and chronic stress. Six-year-old boys demonstrated significantly better results in squats, which may indicate partial natural improvement in strength qualities with age. Six-year-old girls showed lagging performance in long jumps, which may be related to insufficient development of lower limb muscle strength. Flexibility remains within the norm for all children, but there is a tendency for it to decrease. These results confirm the need for implementing a corrective fitness program aimed at improving speed characteristics (running exercises, active games); developing strength endurance (jumps, bodyweight exercises); and maintaining flexibility levels (special stretches, dynamic exercises), thereby correcting stress conditions in children.

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MASCULINITY, FEMININITY AND THEIR RELATION WITH SOME FAMILIAR VARIABLES OF AGGRESSION AMONG FEMALE STUDENTS LAW ENFORCEMENT ACTIVITIES

Today, we are observing the active implementation of a gender approach in the field of law enforcement, where masculinity continues to dominate. The purpose of the study was to determine the presence of aggressive personality traits of future security guards, taking into account gender differences during the mastering of special training subjects while studying at higher education institutions with specific learning conditions. Methods and organization of the study: analysis of literary sources and Internet resources, surveys, pedagogical observation, psychological testing, methods of mathematical statistics. As a result of the conducted studies, it was determined that among female students, girls with masculine traits prevail 45.5%, 28.5% with androgyny traits, and 26% with femininity. According to the results of the study of aggressiveness between groups of girls with masculine and feminine traits, no differences were identified in terms of negativism, resentment, suspicion, and guilt. However, it was found that the group with masculine characteristics differs significantly in such indicators as physical aggression, indirect aggression, irritation, verbal aggression, aggressiveness index and hostility index. It has been proven that the direction of law enforcement work is chosen more by girls who have masculine character traits, which are further developed during the mastery of professional disciplines.

Key words: *aggressiveness, gender, masculine and feminine traits, professional orientation.*

Скрипченко І.Т. Маскулінність, фемінність та їх зв'язок з деякими показниками агресії у студенток-правоохоронців. *Сьогодні спостерігаємо активне впровадження ґендерного підходу в усі сфери суспільного життя, де*