

Development of Physical Qualities of Preschool Children Taking into Account Gender Features

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Keywords: health, physical development, physical training, physical fitness, adaptation, physical qualities, preschool age, children, gender differences

Abstract: The formation of the physical qualities of a preschooler, taking into account their individual data in order to achieve harmonious physical development, is an important task of the basic general education program of preschool education in the sphere of physical education. The purpose of our research is to study the formation parameters and the level of physical qualities of preschool children in the city of Chelyabinsk. Research methods: questionnaire of parents, assessment of physical qualities using exercises in experimental (n=72) and control groups (n=68): a long jump from a place, throwing a stuffed ball of 1 kg. from behind the head, and beating the ball. An analysis of the primary results revealed differences between the groups, as well as differences in indicators, taking into account gender identity in a number of exercises. In the range of ball throwing, a high level is defined in 59% of boys and 15% of girls. The “Kicking the Ball off the Floor” indicator for girls is higher than for boys, at 33% and 8%, respectively. It should be noted that no significant differences were found in the “Long Jump from a Place” indicators. The results obtained after the implementation of the set of measures give reason to assert the effectiveness of the program for the development of speed-strength qualities, taking into account gender identity.

1. Introduction

The transition of children from preschool to primary school is accompanied by a change in the dynamic stereotype. Duration, systematicity of academic day contribute to an increase of static load and accordingly decrease motor activity [1, 2]. On the one hand, with the arrival of physical education specialists in a preschool educational institution, there was a real opportunity to take into account the sexual characteristics of preschool children in the process of exercising. At the same time, in practice, work programs do not have differences in the methodological approach to teaching boys and girls. Accounting for gender differences often becomes relevant at the stage of testing the level of the physical condition of children (norms for girls, as a rule, are somewhat lower than for boys).

According to many experts, the physical fitness of preschool children does not meet state requirements [3, 4]. The development of physical qualities in the process of ontogenesis is influenced by two factors: the implementation of the hereditary program and the social regime of the individual motor activity. Physical abilities and functional changes in physiological systems constitute the morpho-physiological and psychological-pedagogical basis for the development of physical qualities. These characteristics are quite multifaceted, but despite this, it is clear that the formation of physical fitness is facilitated by methodological approaches taking into account individual psychophysiological characteristics [5, 6]. Most studies are devoted to the study of the morpho-functional component of physical fitness (development of analyzer

systems, certain muscle groups, mastery of the basic movements), which provides an adaptive resource for the development of a general educational program [7, 8].

The main criteria for physical fitness are endurance, quickness, flexibility, and agility. A comparison of these criteria among preschool children will determine the influence of environmental factors, reveal the somatic maturity of preschool children, and also determine the adaptive resource of the muscular and nervous systems. Usually, girls and boys differ according to the above criteria, but they have similar negative trends with a low level of their formation [8, 9].

Studying the dynamics of the development of physical qualities of preschool children will help to identify problems and formulate a strategy for health-oriented programs for preschool institutions, to provide general and specific ways to preserve the health of preschool children.

The purpose of the study is to study the development parameters of the physical qualities of preschool children in Chelyabinsk city.

2. Materials and Methods

The study involved children of preschool age from Chelyabinsk city, with the registration of the voluntary consent of a legal representative to participate in the survey.

To solve this goal, we used the questionnaire for parents (assessment of the physical condition of the child), the method of continuous exercise, the uniform method, and the interval method. Moreover, we the assessment of physical qualities using exercises: long jump from a place (the results were evaluated according to O. A. Sirotin and S. B. Sharmanova), throwing a stuffed ball weighing 1 kg in a way from behind the head (results were estimated by M. A. Runova), kicking the ball off the floor (results were estimated by M. A. Runova).

Statistical analysis was performed using the statistical package SPSS v.17. The significance of differences was determined by the non-parametric Student T-test with subsequent calculation of the p-level of significance.

3. Results

During the research, qualitative and quantitative analytical approaches made it possible to distribute children into experimental and control groups according to the level of physical fitness. Moreover, in the experimental group, the distribution was made by gender identification. In a number of exercises, the analysis of the results (Table 1) revealed significant differences between boys and girls. In range throwing exercise, a high level was determined in 58% of boys and 34% of girls. The indicator of “kicking the ball from the floor” in girls is reliably higher than in boys and amounted to 32% and 9%, respectively. It should be noted that there were no significant differences in the performance of the “long jump from a place” among boys and girls.

TABLE 1. DISTRIBUTION OF CHILDREN BY THE LEVEL OF DEVELOPMENT OF PHYSICAL QUALITIES (** THE SIGNIFICANCE OF DIFFERENCES AT P <0.05-0.001).

	Test 1 (Long jump from a place)			Test 2 (Throwing a stuffed ball from behind the head)			Test 3 (Kicking the ball off the floor)		
	high	average	low	high	average	low	high	average	low
Boys (exp. group) n=39	10% (n = 4)	59% (n = 23)	31% (n = 12)	59% (n = 23)	33% (n = 13)	8% (n = 3)	**8% (n = 3)	58% (n = 23)	33% (n = 3)
Boys (ctrl. group) n=38	8% (n = 3)	53% (n = 20)	39% (n = 15)	60% (n = 23)	32% (n = 12)	**8% (n = 4)	8% (n = 3)	50% (n = 20)	42% (n = 16)
Girls (exp. group) n=33	*15% (n = 5)	33% (n = 11)	52% (n = 17)	15% (n = 5)	52% (n = 17)	33% (n = 11)	**33% (n = 11)	52% (n = 17)	15% (n = 5)
Girls (ctrl. group) n=30	17% (n = 5)	40% (n = 12)	43% (n = 13)	37% (n = 11)	40% (n = 12)	**23% (n = 7)	20% (n = 6)	43% (n = 13)	37% (n = 11)

After the implementation of a complex of measures for the development of speed-power qualities taking into account gender identification in a preschool educational institution, which included individual programs in the experimental group (exp. group), control measurements were carried out (table 2).

TABLE 2. DISTRIBUTION OF CHILDREN BY THE LEVEL OF DEVELOPMENT OF PHYSICAL QUALITIES AT THE FINAL STAGE (** – THE SIGNIFICANCE OF DIFFERENCES AT $P < 0.05-0.001$)

		Test 1 (Long jump from a place)			Test 2 (Throwing a stuffed ball from behind the head)			Test 3 (Kicking the ball off the floor)		
		high	average	low	high	average	low	high	average	low
Boys (exp. group) n=39		23% (n= 9)	66% (n= 26)	11% (n= 4)	74% (n=29)	23% (n= 9)	3% (n= 1)	**46% (n= 18)	51% (n=20)	**3% (n= 1)
Boys (ctrl. group) n=38		13% (n= 5)	69% (n= 26)	18% (n= 7)	60% (n= 23)	32% (n= 12)	**8% (n= 3)	16% (n= 6)	58% (n= 22)	26% (n= 10)
Girls (exp. group) n=33		36% (n= 12)	46% (n= 15)	18% (n= 6)	46% (n= 15)	46% (n= 15)	8% (n= 3)	42% (n= 14)	49% (n= 16)	9% (n= 3)
Girls (ctrl. group) n=30		27% (n= 8)	53% (n= 16)	20% (n= 6)	37% (n= 11)	43% (n= 13)	20% (n= 6)	27% (n= 8)	57% (n= 17)	16% (n= 5)

Analyzing the data, the boys from the experimental group in the test 1 (long jump from a place) and in the test 2 (throwing a stuffed ball) demonstrate higher performance (23% and 74%, respectively). In test 3 (kicking the ball from the floor), the improvement of the indicators from 8% to 46% respectively was reliably proved. In the ctrl. group of boys, changes in the results of all indicators showed positive dynamics, but they are less significant. In the exp. group of girls, three tests show the improvement in all indicators (36%, 46%, 42% respectively). The results obtained give reason to assert the effectiveness of the measures taken to develop speed-power qualities, taking into account gender identity.

4. Discussion

The results of this study are consistent with studies of a global trend [12, 13, 14]. The physical qualities of endurance, quickness, agility, and flexibility in the process of schooling become less in demand, with the exception of the development of a physical education program. However, in addition to training, the federal educational standard provides for labor and play activities, the success of which depends on the level of development of the aforementioned physical qualities.

Physical fitness is based on physical qualities that are individual in nature, as they are innate morpho-functional parameters. The development of these qualities is carried out through physical exercises, which contribute to the mobilization of psychological and physiological processes in the body.

Complex exercises should be selected taking into account the morpho-physiological status of the student. This age period is characterized by a number of specific features of the development of the skeleton and physiological systems. In particular, we consider the period of the first growth, weakness of the muscular skeleton (tendons, fascia, ligaments), sensitivity of the spinal column to loads, active growth points, the supporting bones ossification. Also, the predominance of the tone of the flexor muscles over the tone of the extensor muscles, the lack of balance in the development of the autonomic nervous system, and the crossroads in the development of the immune and circulatory systems are considered.

Comprehensive measures for individualization, taking into account gender identity in the development of physical qualities (dexterity, endurance, speed, etc.), is an essential factor in physical fitness, which ensures the duration of concentration and working capacity. The rationally dosed physical activity provides the formation of a harmonious personality.

5. Conclusion

In the course of the study, we determined the physical fitness parameters for preschool children to study at school. Also, the level of development of essential physical qualities, the mastery of physical exercises, leading to the development of the school curriculum, to the biological adaptation of the child in the new morpho-functional and socio-cultural status.

The set of mandatory requirements prescribed in the federal state educational standard for preschool education [15] in different directions can be reduced to one single goal. This goal is to comprehensively develop children, taking into account age and individual characteristics and achieving the level of development necessary for the successful development of educational programs of primary and general education. The section of the educational field “Physical development” includes such types of behavior of children, which contribute to the correct formation of the musculoskeletal system of the body. Also, it implies the development of coordination of movements, large and small motor skills of both hands, that is, to the development of self-regulation in the motor sphere. Means and methods of developing physical qualities must comply with the medical and pedagogical requirements for ensuring physical fitness, not contradict the values of a healthy lifestyle and not harm the emerging biological systems.

6. Acknowledgment

The work was carried out in the framework of scientific and practical cooperation between FSBEI HE “Ural State University of Physical Culture,” FSBEI HE “Altai State University,” and FSBEI HE “South Ural State Humanitarian Pedagogical University.”

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