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Physical fitness assessment in physical education activities of kindergarten children aged 5-6 years in Thai Nguyen city

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Abstract

Physical development for preschool children is an important task of school Physical Education. Through the use of regular and reliable scientific research methods in Physical Education and sports, the purpose of this study is to assess the physical fitness status in Physical Education activities of preschool children 5-6 years old at the school. Thai Nguyen City, Thai Nguyen Province. The results of the study have important implications for reviewing and completing appropriate Education plans, and also serve as a basis for consultation on relevant public health care programs. Research results have also identified appropriate and scientific fitness assessment tests for preschool children aged 5–6 years old in Thai Nguyen City. of this group of preschool children is low. The results of the physical examination and assessment also show that the physical fitness level is better than that of children of the same age, according to research by Lam Thi Tuyet Thuy in 2008. The physical development of preschool children (5–6 years old) currently, Thai Nguyen City is suitable for age-related physiological characteristics, but it is still limited compared to the recommendation of the daily minimum amount of exercise by the World Health Organization.

Keywords: Children, preschool, physical, physical education, Thai Nguyen

Introduction

Regarding the tasks of Physical Education activities in the Early Childhood Education (ECE) training programs, they are specifically identified as: Strengthening health protection, developing good habits in children, and ensuring the development of children. comprehensive physical education and love for sport (sports); Educating children in life skills through the application of a variety of forms and methods of child care and education in the organization of activities in the view of "child-centered" education in order to create opportunities for children. Children actively explore, experience, and create according to the motto "learning by playing, playing, and learning" [1].

With the fast and strong development trend of the world's current level of science and technology, the renovation of training activities is a mandatory trend for all levels of education. This poses many challenges to the global education industry in general. This seems simpler in many countries with developed economies, but for Vietnam, economic development belongs to the group of developing countries, Investment is not equal in many aspects, including education. Meanwhile, according to the global trend, Vietnam's education needs to change in order to adapt to the progressive changes in new science and technology, as well as globalization.

The Resolution of the Eighth Plenum of the 11th Central Committee clearly stated that "The basic task and goal of education is to build people and generations who are passionately attached to the ideals of national independence and socialism; who have pure morality, have a strong will to build and defend the fatherland; Industrialization and modernization of the country; preserve and promote the cultural values of the nation; have the capacity to absorb the cultural quintessence of mankind; bring into play the potential of the Vietnamese nation and people, having a sense of community and promoting individual positivity, mastering modern scientific and technological knowledge; have creative thinking and practical skills; "Excellent behavior, industrial style, organization, and discipline; good health" [3].

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Current reality shows that, except in big cities, most children are sedentary. The activity indicators recommended by the World Health Organization for the amount of daily activity (for 5-6 years old children who need to be active for at least 60 minutes daily) only achieved a low rate ($\approx 7\%$). Through the use of routine and reliable scientific research methods, the main purpose of the study is to assess the physical condition of 5-6-year-old preschool children in Thai Nguyen City, Thai Nguyen Province. The results of the study have important implications for reviewing and completing appropriate Education plans, and also serve as a basis for consultation on relevant public health care programs.

Research methods

The study uses the usual and reliable scientific research methods in sports, including: methods of analysis and synthesis of documents; methods of interviews and discussions; methods of pedagogical observation; methods of pedagogical examination; and statistical mathematical methods.

Research Results and Discussion

Choosing a test to assess the fitness of preschool children 5–6 years old in Thai Nguyen City

In order to select appropriate fitness assessment tests for preschool children 5-6 years old in Thai Nguyen City, the study followed three steps as follows:

Step 1: Using analytical methods, synthesizing relevant professional and scientific references, thereby selecting tests to assess the fitness of preschool children 5-6 years old. The specific results are as follows:

According to the provisions of Circular No. 17/2009/TT-Ministry of Education and Training dated 7/25/2009 of the Minister of Education and Training promulgating the Early Childhood Education Program, including tests: Run 18m; zigzag crawled 7 points; Go and catch the ball; Long throw with one hand, two hands; far turn ^[1]. Circular No. 23/2010/TT-BGDDT, dated July 23, 2010, of the Minister of Education and Training promulgating regulations on the set of development standards for 5-year-old children, regulating physical assessment tests: turn on and off. at least 50 cm; Drop from a height of 40 cm; Throw and catch the ball with two hands from a distance of 4 m; climb up and down ladders at a height of 1.5 meters above the ground; Hop at least 5 consecutive steps, changing legs as required; Smash and catch the ball with 2 hands; Can balance on the gymnastics chair (2 m x 0.25 m x 0.35 m); 18-meter sprint in 5-7 seconds; Running continuously for 150 meters with no time limit; Participate in continuous learning activities and show no signs of fatigue for about 30 minutes ^[2].

Author Le Anh Tho (1995) ^[6] employs physical fitness tests for preschool children aged 5 to 6 years old, such as a 10-

meter sprint (second); throwing sandbags (points); picking up marbles for 15 seconds (points); walking on a bridge (point); and answering the question (points).

Physical fitness tests for preschool children 5-6 are used by author Dang Hong Phuong (2003) ^[4], and include: fast running 15 m (second); Throw sandbags (points); Pick up the marbles and discarding the bottle for 15 seconds (points); Take a walk across the bridge (point).

Physical fitness tests for preschool children 5-6 are used by author Lam Thi Tuyet Thuy (2008) ^[7], and include: running 10 meters (seconds); jumping in place (centimeters); hitting and catching the ball with two hands (times per minute); throwing a long ball with the dominant hand (meters); sitting forward bending the body (centimeters); and balancing on one fo leg (seconds).

Physical fitness assessment tests are used by author Nguyen Thi Thao (2018) ^[5] for preschool children aged 5-6, including: crawling for 4 meters with hands and feet straight and zigzagging over 5 points (points); 5 m walk + 5 m run for a 20 m change of speed (points); 10m walk backward (points); 15 m fast run (points); Go up to the gymnastics chair wearing A bean bag 3 m long, 30 cm wide, 35 cm high (points); Hop hop with one foot for four meters (points); Turn on in a distant location (point); Throw the ball away with 1 hand, 2 hands (points); To earn points, throw the ball to the target 2 meters away, 1.5 meters high, 60 cm circle diameter, and five times in a row. Catch the ball and throw it with the opposing team five times in a row (points); Go smash and catch the bouncing ball 5 times in a row (points); Coordination: 3m fast straight run; crawling through the pipe gate 1.2 x 0.6 m long; turning on the foot split and closing the leg through 5 boxes; Go up to the gymnastics chair wearing a 3 m sandbag; bounce off the chair with two 0.35 m-high legs; Run straight to the finish line 3m (point).

Through actual surveys at kindergartens and based on psychophysiological and physical characteristics of preschool children 5–6 years old, the study has synthesized eight suitable tests, including 5: Walking balance on an exercise bench (m); 6) Long throw with your dominant hand (m); 7) Sit forward bending the body (cm); 8) Hop hopscotch with one foot for 4m (points).

Step 2: Interviews with Physical Education experts

The study conducted questionnaires and 2 interviews with 30 PE experts on the criteria for assessing the physical fitness of preschool children aged 5–6 years old in Thai Nguyen City. The interview process was conducted in the same way and 60 days apart by electronic interview (7 days each). The answer options are divided into points according to the Liker scale as follows: 1) Strongly disagree (1 point); 2) Disagree (2 points); 3) Normal (3 points); 4) Agree (4 points); 5) Strongly agree (5 points). The results obtained are as follows:

Table 1: Results of expert interviews on physical fitness tests of preschool children 5–6 years old in PE activities in Thai Nguyen City (n1=n2=30)

TT	Test	First		Second		χ^2	P
		Σ_{point}	%	Σ_{point}	%		
1	Run 10 meters (seconds).	141	94.00	142	94.67	0.11	>0.05
2	Long jump in place (cm).	138	92.00	140	93.33	0.66	>0.05
3	Zigzag crawling over 7 points (points).	109	72.67	111	74.00	0.50	>0.05
4	Hit and catch the ball with two hands (times per minute).	137	91.33	138	92.00	0.14	>0.05
5	Walking with balance on the gym bench (m).	115	76.67	115	76.67	0.58	>0.05

6	Long throw with the dominant hand (m).	133	88.67	132	88.00	0.11	>0.05
7	Sit forward with your body bent (cm).	130	86.67	131	87.33	0.14	>0.05
8	Hop with one foot for 4 meters (points).	112	74.67	114	76.00	1.24	>0.05

The results obtained after 2 interviews in Table 1 show that: the results of 2 interviews for the tests have $\chi_{\text{calculation}}^2 < \chi_{\text{table}}^2$ at $p > 0.05$, so the difference between the two observed values of the sample is not meaningful. In other words, the results of the two interviews are statistically similar.

In order to ensure the value of expert opinion, the study decided to choose the test with an opinion $\sum \text{score}$ of ≥ 120 and an interview participation rate of $\geq 80\%$. The results obtained are from the following 5 tests: 1) Running 10 meters (second); 2) Long jump in place (cm); 3) Smash and catch the ball with two hands (times/minute); 4) long throw

with your dominant hand (m); 5) sit with your body bent forward (cm).

Step 3: Check the reliability of the selected tests. To determine the reliability of physical fitness assessment tests for preschool children 5-6 years old in Thai Nguyen City, the study applied the test method (retest) to this group of children. The experimental application was conducted at Thai Nguyen Pedagogical Kindergarten School. The pedagogical examination was conducted twice, the time between the two times was seven days apart with the same testing process and method. The results obtained and analyzed are described in detail as follows:

Table 2: The reliability coefficient of physical fitness tests of preschool children 5–6 years old in PE activities in Thai Nguyen City (male =female=33)

Test	Initial investigation				r	p
	\bar{x}_1	$\pm SD_1$	\bar{x}_2	$\pm SD_2$		
Male						
1. Running 10 meters (second)	2.58	0.15	2.54	0.14	0.99	<0.01
2. Long jump in place (cm)	96.79	5.89	97.67	5.21	0.99	<0.01
3. Smash and catch the ball with two hands (times/minute)	19.52	2.95	19.97	2.97	0.90	<0.01
4. Long throw with your dominant hand (m)	6.20	0.32	6.28	0.35	0.97	<0.01
5. Sit with your body bent forward (cm).	3.03	2.56	3.24	2.42	0.98	<0.01
Female						
1. Running 10 meters (second)	2.83	0.15	2.78	0.16	0.95	<0.01
2. Long jump in place (cm)	94.58	5.65	96.00	5.14	0.98	<0.01
3. Smash and catch the ball with two hands (times/minute)	17.79	2.47	18.21	2.28	0.92	<0.01
4. Long throw with your dominant hand (m)	5.34	0.60	5.45	0.61	0.98	<0.01
5. Sit with your body bent forward (cm).	3.03	2.48	3.30	2.44	0.95	<0.01

The results obtained in Table 2 show that: "All tests to assess the fitness of preschool children 5-6 years old in physical education activities at Thai Nguyen Pedagogical Kindergarten school are reliable with $r > 0.8$ at $p < 0.01$."

In summary: Through the steps of document synthesis, interview, and reliability test, 5 tests have been identified to assess the fitness of preschool children aged 5-6 years in PE activities, including: 1 Running 10 meters (second); 2 Long jump in place (cm); 3-Smash and catch the ball with 2 hands (times/minute); 4- Long throw with your dominant hand (m); 5- Sit with your body bent forward (cm).

Physical status of preschool children 5–6 years old in PE activities in Thai Nguyen City

Physical status of preschool children 5–6 years old in PE activities in Thai Nguyen City

To assess the physical condition of preschool children 5–6 years old in Thai Nguyen city, the study assessed the fitness of 566 preschool children aged 5–6 years old (male = 295; female = 271) in Random Kindergartens in Thai Nguyen City (Thai Nguyen Pedagogical Kindergarten school) in September 2022.

Table 3: Physical status of preschool children 5–6 years old in Thai Nguyen City (male=295; female=271)

Test	Female			Male		
	\bar{x}	$\pm SD$	C_v	\bar{x}	$\pm SD$	C_v
1. Running 10 meters (second)	2.74	0.23	8.22	2.57	0.18	7.07
2. Long jump in place (cm)	94.31	8.25	8.75	95.05	9.43	9.92
3. Smash and catch the ball with two hands (times/minute)	16.37	3.79	23.16	17.64	4.32	24.52
4. Long throw with your dominant hand (m)	5.22	0.66	12.71	6.37	0.70	11.00
5. Sit with your body bent forward (cm).	3.75	1.89	50.41	2.91	2.13	73.20

According to the results in Table 3, x of the physical fitness of preschool children (5-6 years old) has high homogeneity (C_v 10%) as tests 1 and 2. Test 4 has average homogeneity (10%) $< C_v < 20\%$. Tests with low homogeneity ($C_v > 20\%$) were tests 3 and 5 ($C_v = 73.20\%$ for boys and $=50.41\%$ for girls). The cause of the difference was determined by the difference in the plasticity of each child and this factor

depends on the anatomical characteristics of each child. To assess the physical development of preschool children 5-6 years old, it is necessary to compare them with children of the same age. The study compared the results with those of other studies (compared with the results obtained by Lam Thi Tuyet Thuy^[7] in 2008).

Table 4: Comparison of average values of fitness assessment tests of preschool children aged 5–6 years old in Thai Nguyen City with those of kindergarten children according to the results obtained from the study of author Lam Thi Tuyet Thuy

Test	Children at Thai Nguyen	Children according to research by Lam Thi Tuyet Thuy	t	P
Male				
1. Running 10 meters (second)	2.57±0.18	2.65±0.33	3.06	<0.01
2. Long jump in place (cm)	95.05±9.43	91.85±16.15	2.47	<0.05
3. Smash and catch the ball with two hands (times/minute)	17.64±4.32	16.36±6.82	2.31	<0.05
4. Long throw with your dominant hand (m)	6.37±0.70	6.20±1.14	1.84	>0.05
5. Sit with your body bent forward (cm).	2.91±2.13	2.31±4.27	1.80	>0.05
Female				
1. Running 10 meters (second)	2.74±0.23	2.94±0.30	7.80	<0.05
2. Long jump in place (cm)	94.31±8.25	91.71±10.29	2.92	<0.05
3. Smash and catch the ball with two hands (times/minute)	16.37±3.79	15.80±7.19	1.01	>0.05
4. Long throw with your dominant hand (m)	5.22±0.66	4.63±1.14	6.49	<0.05
5. Sit with your body bent forward (cm).	3.75±1.89	2.80±2.93	3.97	<0.05

The comparison results obtained in Table 4 show that For the group of preschool boys 5-6 years old

In test 1, the average of 5-6 year-old male Preschool children in Thai Nguyen City is better than the average physical strength children of the same age of author Lam Thi Tuyet Thuy (<0.08 sec) with T calculation > T table, the difference is significant at $p<0.05$; In test 2, the average of 5–6-year-old male Preschool children in Thai Nguyen City is better than the average fitness of children of the same age of author Lam Thi Tuyet Thuy = 0.7cm with T calculation > T table, the difference is significant statistical significance at $p<0.05$; In test 3, the average of 5–6 year-old male Preschool children in Thai Nguyen City is better than the average physical strength of children of the same age of author Lam Thi Tuyet Thuy = 1.28 times/min with T calculation > T table, the difference statistically significant at $p<0.05$; In test 4, the average of 5–6 year old male preschool children in Thai Nguyen City is better than the average fitness of children of the same age of author Lam Thi Tuyet Thuy = 0.17m with T calculation < T table, the difference is not small significant at $p>0.05$; In test 5, the average of 5–6 year old male preschool children in Thai Nguyen City is better than the average fitness of children of the same age of author Lam Thi Tuyet Thuy = 0.6cm, the difference is not significant at $p>0.05$

For the group of preschool boys 5-6 years old

In test 1, the average of 5-6 year old male Preschool children in Thai Nguyen City is better than the average physical strength of children of the same age of author Lam Thi Tuyet Thuy (<0.09 sec) with t calculation > table, the difference is significant at $p<0.05$; In test 2, the average of 5–6 year old male Preschool children in Thai Nguyen City is better than the average fitness of children of the same age of author Lam Thi Tuyet Thuy = 2.6 cm with $t>$ table, the difference is significant. statistical significance at $p<0.05$; In test 3, the average of 5–6 year old male preschool children in Thai Nguyen City is better than the average fitness of children of the same age of author Lam Thi Tuyet Thuy = 0.57 times/min with $t>$ table, the difference statistically significant at $p<0.05$; In test 4, the average of 5–6 year old male Preschool children in Thai Nguyen City is better than the average fitness of children of the same age of author Lam Thi Tuyet Thuy = 0.59 m with $t>$ table, the difference is significant statistical significance at $p<0.05$; In test 4, the average of 5–6 year-old male preschool children in Thai

Nguyen City is better than the average fitness of children of the same age of author Lam Thi Tuyet Thuy = 0.95 cm with $t>$ table, the difference is significant. Statistical significance at $p<0.05$;

Conclusion

The obtained research results show that the situation of preschool children in Thai Nguyen City is low level. Research results have also identified appropriate and scientific fitness assessment tests for preschool children aged 5–6 years old in Thai Nguyen City. The results of physical examination and assessment of preschool children aged 5 to 6 years old in Thai Nguyen city showed that their physical fitness level was better than that of children of the same age as preschool children aged 5 to 6 years according to research by Lam Thi. Tuyet Thuy 2008. The process of physical development of preschool children 5–6 years old in Thai Nguyen City is currently consistent with age psychophysiological characteristics, but it is still limited compared to the recommended amount of exercise. Minimum daily requirements of the World Health Organization. The research results are determined to be the basis for making adjustments to the training program, as well as the basis for recommending public health programs for children in the study area.

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