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The Effect of Physical Education and Sports Activities on the Motor Skills of Preschool Children

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Ethical Statement: It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.

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Abstract

In the study, the effects of physical education and sports activities on the motor skills of preschool children were examined. Physical education and sports activities in the form of educational games were applied to 30 pre-school students aged 5 (n = 15) and 6 years (n = 15), 2 days a week and 30 minutes for 12 weeks. Physical education and sports activities; While it included walking, running, jumping and balance exercises, materials such as balls, ropes, funnels and hoops were used. The study was organized according to the pretest and posttest method. Children's motor skills were evaluated by applying motor performance tests developed by Morris, Atwater Williams and Wilmore (1980) that included balance, agility, running, catching, standing long jump and throwing criteria. The data obtained with the pretest and posttest method were analyzed by using the SPSS 23.0 statistical program and applying the t test (Paired-Sample t test) for dependent samples between the tests. According to the findings, a statistically significant improvement was noted in all motor performance criteria ($p<0.05$). It was determined that the lowest performance improvement occurred in the agility skill with a rate of 7.80%, and the highest improvement occurred in the catching skill with a rate of 19.57%. In conclusion; It can be said that physical education and sports activities can positively contribute to the development of motor skills of children aged 5-6. However, it should be examined whether the positive development observed in children's motor performance occurs as a result of the natural course of growth processes or as the positive contribution of physical education and sports movements.

Keywords: Physical education and sports, motor skills, motor performance, pre-school education.

Beden Eğitimi ve Spor Etkinliklerinin Okul Öncesi Dönemdeki Çocukların Motor Becerilerine Etkisi

Özet

Çalışmada, beden eğitimi ve spor etkinliklerinin okul öncesi çocukların motor becerilerine etkisi incelenmiştir. 5yaş(n=15) ve 6 yaş(n=15) grubu 30 okul öncesi eğitim gören öğrenciye, 12 hafta boyunca haftada 2 gün v e 30 dakika süren, eğitsel oyun formunda beden eğitimi ve spor aktiviteleri uygulanmıştır. Beden eğitimi ve spor aktiviteleri; yürüyüş, koşu, atlama ve denge egzersizleri içerirken, top, ip, hunu ve çember gibi materyaller kullanılmıştır. Çalışma ön test ve son test metoduna göre düzenlenmiştir. Çocukların motor becerileri Morris, Atwater Williams ve Wilmore (1980) tarafından geliştirilmiş, denge, çabukluk, koşu, yakalama, durarak uzun atlama ve fırlatma kriterleri içeren motor performans testleri uygulanarak değerlendirilmiştir. Öntest ve sontest yöntemi ile elde edilen veriler SPSS 23.0 istatistik programı kullanılarak, testler arasındaki bağımlı örneklemler için t testi (Paired-Sample t test) uygulanarak analiz

edilmiştir. Elde edilen bulgulara göre, motor performans kriterlerinin tamamında istatistiksel olarak anlamlı gelişim kaydedilmiştir ($p<0,05$). En düşük performans gelişiminin %7,80 oranla çabukluk becerisinde, en fazla gelişimin ise %19,57 oranla yakalama becerisinde oluştuğu belirlenmiştir. Sonuç olarak; beden eğitimi ve spor aktivitelerinin 5-6 yaş grubu çocukların motor becerilerinin gelişimine olumlu katkı sağlayabileceği söylenebilir. Fakat çocukların motor performansında gözlenen olumlu gelişmemin, büyüme süreçlerinin doğal seyri içerisindeki bir durum olarak mı yoksa beden eğitimi ve spor hareketlerinin olumlu katkısı olarak mı oluştuğu incelenmelidir.

Anahtar Kelimeler: Beden eğitimi ve spor, motor beceri, motor performans, okul öncesi eğitim.

INTRODUCTION

In childhood, when activity is quite intense, it is very important to meet the movement requirements and needs of children in this period in order for their development periods to proceed healthily. Studies involving basic movement skills are extremely important in the development of biomotor skills such as endurance, strength, flexibility and coordination of children in this period. Physical education, movement skills and sports activities performed during this period have positive effects on physiological parameters such as the circulatory system, skeletal and muscular system, and respiratory system. For this reason, physical activity is one of the basic needs in the development process for children in this period. For this reason, it is thought that regular and periodic physical activities for children in this period to improve their movement skills will positively affect their development processes (10, 19). Motor development is the changes in motor behavior over a period of time that includes the entire lifespan. Motor development is also evaluated in terms of both duration and result. Process evaluation; While defining the factors affecting changes in motor skills throughout life; Changes in motor behaviors and skill performances over a period of time are defined as results (12). It is known that the experiences gained in the first years of childhood affect the child's values, attitudes and behaviors in his future life (4, 11, 13). Preschool period is the period when the child's development accelerates. It includes many critical periods that children go through until they start basic education, and it is important because the development rate of children is very high during this period (6). By implementing pre-school education programs that include physical education and sports activities in children in this period, it is aimed to support the physiological development of small and large muscles of children, and it is evaluated that it will contribute to the development of features such as correct and healthy posture development and skills. In many studies; reported that physical education and sports-based training programs provide development not only in movement skills but also in small and large muscle groups, and supported these predictions (14, 18, 22). The purpose of this study is to examine the effects of regular physical education and sports activities on the motor development of 5-6 year old preschool children. However, the study was designed by evaluating the pretest and posttest data of the experimental group without a control group.

METHOD

In the study, the effects of physical education and sports activities on the motor skills of preschool children were examined. A total of 30 preschool students aged 5-6 [5 years old (n=15), 6 years old (n=15)] who were enrolled in a preschool program and had at least 1 year of preschool education history participated in the study. In the research, a pretest-posttest experimental design without a control group was used. The research was conducted using a single-group pretest-posttest experimental design, one of the quantitative research approaches.

A total of 30 pre-school students in the 5-6 age group were given a physical education and sports activity that included movement training for 30 minutes, 2 days a week, for 12 weeks. In order for the training process to run more smoothly, the participants were divided into age groups (15 students in the 5-year-old group and 15 students in the 6-year-old group) and were subjected to the same movement training on separate days and hours. Within the scope of movement training, exercises including warm-up movements were applied to the children in the form of educational games for the first 10 minutes from the beginning of the study, followed by walking exercises, jogging exercises, jumping exercises and balance exercises, exercises using balls and ropes, rings, hoops, funnels and so on. Exercises using similar materials were applied. In the final parts of the study, static stretching exercises were applied.

Motor Skills Tests

Motor skill tests were developed by Morris et al. (1980) to determine the motor performance of preschool children (14). The validity and reliability study of the test was tested in the study titled "Examination of the Motor Performance of Preschool Children" conducted by Sevimay (1986) with the participation of 205 children in the 3-6 age group (19). Skills tests; It includes 6 evaluation criteria: balance, agility, running, catching, standing long jump and throwing tests (16). In the study, pretest and posttest methods were used to measure the motor skill performances of preschool children.

Balance test; It measures how long it takes the child to complete the starting and finishing points on a 2-meter rope by walking and maintaining balance. Agilits Test; It measures the time between when the child is given a command while lying on his back, becomes vertical, runs the determined distance of 3.05 meters forward, picks up the tennis ball left at the end of the area with his hand, turns back and runs to his previous position. Running Test; It determines how long it takes the child to run forward for a distance of 12 meters within the test area. Capture Test; It determines the child's ability to catch a ball thrown high from the air while standing steadily. In the test, the distance the child moves backwards while catching the ball is determined. Standing long jump Test; It determines how far the child can jump forward with both feet, bending his knees, while standing on a stable surface with the soles of his feet on the ground. Launch Test; It determines the child's ability to pick up the tennis ball at a designated point and throw it forward. The distance between where the ball lands and the starting point is determined.

Data Analysis

The data obtained was analyzed using the SPSS 23.0 (Statistical Package for Social Sciences) package program. In descriptive statistical methods, parameters such as mean values and standard deviation are determined. It was determined that pretest/posttest measurements showed normal distribution (P> 0.05) using Kolmogorov-Smirnov and Shapiro-Wilk tests. After determining that normal distribution was observed, Paired-Samples T Test was applied for intra-group comparisons and related measurements. With this test, after two tests are applied to a single group, it is determined whether the difference between the averages of the tests is significant (21). Statistical significance evaluations were made at $p < 0.05$ and $p < 0.01$ levels.

Ethical approval and institutional permission

It was unanimously decided that the research protocol complies with the Ethics Committee Directive with the decision of Selçuk University Faculty of Sports Sciences Ethics Committee dated 30.01.2024 and numbered 2024/21.

FINDINGS

The data obtained after the motor performance tests applied to 5-6 years old children studying in a pre-school education institution are presented in a table 1.

Table 1. Comparison of pre-test and post-test data of engine performance tests.

Variables	Test	Mean	SD	t	P	Df ($\bar{X}$)	%
Balance (sec)	Pre	9,42	0,57	11,757	0,000*	0,99	-10,47
	Post	8,43	0,48				
Agility (sec)	Pre	5,73	0,32	5,580	0,000*	0,45	-7,80
	Post	5,28	0,21				
Running (sec)	Pre	4,90	0,58	11,217	0,000*	0,74	-15,10
	Post	4,16	0,36				
Catching (m)	Pre	2,50	0,37	6,283	0,001*	0,49	-19,57
	Post	2,01	0,28				
Long Jumping (cm)	Pre	74,22	5,27	-11,837	0,000*	10,48	14,12
	Post	84,71	4,68				
Throwing (m)	Pre	4,62	0,59	-6,416	0,000*	0,61	13,24
	Post	5,23	0,45				

*P<0,01, P<,0,05 , SD:standart deviation, sec:second, cm: centimeter, m: meter, df: difference %: percent

According to the results of balance, agility, running, catching, standing long jump and throwing tests, which include performance criteria; When the data obtained in the post-tests were compared with the pre-test results, it was determined that positive progress was made in each parameter. This improvement shows statistical significance ($p<0.05$). It was observed that the participants completed the balance test in 0.99 seconds less time and 10.47% improvement compared to the first measurements, and completed the agility test in 0.45 seconds better time and 7.80% faster. A similar development was also observed in the running test. The experimental group completed the running track 15.10% faster, improving by 0.74 seconds. The best improvement in engine performance tests was achieved in the catch-up test. While the catching distance was 0.49 m better, a 19.57% better result was achieved. The results obtained in long jump distance and throwing distance are respectively; It produced better results: 14.12% with 10.48 cm and 13.24% with 0.61 m.

DISCUSSION AND CONCLUSION

This study was conducted to examine the effects of physical education and sports activities on the motor skills of preschool children. In the study, the motor skills of 30 preschool children aged 5-6 were tested. Pretest and posttest data of the movement inclination program, which included physical education and sports movements lasting 12 weeks, 2 days a week and 30 minutes a day, were compared. To evaluate motor performance criteria, balance, agility, running, catching, long jump and throwing tests were applied.

According to the research results, the data obtained showed that the process involving movement training had a positive effect on preschool children. These results are parallel to the study conducted by Şen (2004) in which static balance performance was examined (20). In another study comparing the balance performances of the control and experimental groups, it was reported that the results obtained were significant in favor of the experimental group (1). Durukan et al. (2016), in their study examining the effect of gymnastics training on balance performance in preschool children, concluded that the post-test data improved the balance parameter of the experimental group (8). These results are parallel to the results obtained in our study. Accordingly, it can be said that the applied movement training program can have a positive effect on improving balance skills.

Data on agility performance revealed that our study group improved after the training program. Yıldırım (2023) noted that there was a statistically significant improvement in agility skills after basic movement training applied 2 days a week (23). In other studies examining agility performance, while an improvement was observed in both groups (experimental, control), it was reported that the improvement in the experimental groups was at a higher level than in the control group and this improvement was significant ($p<0.05$). In the study conducted by Avcu (2016), it was reported that the game-based training program improved the agility performance in 5-year-old preschool children (2). The results obtained in our study are similar to other studies.

The post-test data obtained in our study indicate that the training program improved running performance. In studies examining the motor performance of preschool children, there are generally studies in which the post-test data obtained from the experimental groups are better than the pre-test data, the running times are reduced, and this is expressed as an improvement in performance (1, 2, 22). On the other hand, Çelebi et al. (2018), in their study where they applied the 9 m running test, reported that there was no significant difference in the pre-test and post-test data of the control group (5). It can be said that the contradiction of this situation with the positive development in our study may be due to the different running test applied (9 m).

The data obtained in our study in the catching, standing long jump and throwing tests indicate that the applied physical education and sports movement training provided positive development in the post-test values. When the literature was examined, Avcu (2016) reported that although the game-based education program had a positive effect on the catching performance of 5-year-old preschool children, it did not contribute to long jump and throwing skills (2). There are different studies reporting that physical education and sports activities provide improvement in catching performance (8, 9, 15). Erol (2022), in his study examining the effects of movement training on children in the 4-6 age group, reported that a positive improvement was achieved in throwing performance (9). Durukan (2016) similarly noted that the movement training program made a positive contribution to the development of standing long jump performances of preschool children (8).

In general, it can be said that educational program applications that include physical education and sports movements can have a positive impact on the balance, agility, running, catching, standing long jump and throwing performance of preschool children. This interpretation is similar to the data obtained in various studies. In addition, it should be evaluated whether the development in children's motor performance is a situation that occurs within the natural course of their growth period or is a result of the contribution of physical education and sports activities. For this reason, conducting more comprehensive studies in which physical education and sports movements are regularly applied in different and large groups will contribute to the literature.

REFERENCES

1. Aslan T, Yamak B. Examining the effect of movement training on motor skill development in preschool children. ROL Journal of Sports Sciences, 2021; 2(1), 60-72.
2. Avcu A.U. Examining the effect of the game-based training program on basic movement skills of children in the age group of five. Eurasia Journal of International Studies, 2016; (4), 8.
3. Cole M & Cole SR. The Development of children, 4"th edition, New york, Worth Publisher. 2001, 30-122.
4. Çoban B, Nacar E, 2010. Educational Games in Preschool Education, 2nd edition, Nobel Publications, Ankara, 2010, 5-58.
5. Çelebi C, Bayazıt B, Tuncil OS, Yılmaz O. The effect of movement education activities on motor development in the preschool period. SSTB International Refereed Academic Journal of Sports, Health and Medical Sciences, 2018, 29, 162-176.
6. Draper, CE, Achmat M, Forbes J, & Lambert EV. Impact of a community-based programme for motor development on gross motor skills and cognitive function in preschool children from disadvantaged settings. Early Chi Develop Care, 2012 182(1), 137.
7. Dursun, M. Z. Investigate the effect of physical education program on motor skill performance of six years old preschool children, Hacettepe University Institude of Health Science, Master Thesis, Ankara, 2004.
8. Durukan H, Koyuncuoğlu K, Şentürk U. İnvestigation of basic gymnastics program in terms of motor development among pre-school children. CBÜ J Physi Edu Sport, 2016, 11(2), 131-140.
9. Erol S. The effect of the movement training program applied in children aged 4-6 on motor development, Int J Bozok Sports Sciences, 2022; (1), 100-107.
10. Feldman R. Child development, 2"edition, NJ: Prentice Hall, 2001; 5-100.
11. Gallahue DL, Ozmun JC, Goodway JD. Understanding motor development .D.S. Özer ve A. Aktop (Çev.). Ankara: Nobel Akademia Publishing, 2020; 5-80.
12. Kail R. Children and their development, 2"nd edition, Verlag: Prentice Hall, 2001, 10-65.
13. McKenzie T, Acaraz JE, Sallis JF & Faucette FN. Effects of a physical education program on children's manipulative skills. Journal of Teaching in Physical Education, 1998; 17, 327-341.
14. Morris MA, Williams EA, Wilmore, HJ. Motor performance and antropometric screening measurements for preschool age children. Motor Development: Theory into Practice, Managroph 3 Motor Skills, 1980.
15. Özbar, N, Observing The Effect of Movement Education Programme Motor Skills And Body Composition for Children of 4-6 Ages. Marmara University Institude of Health Sciences, Phd Thesis, İstanbul, 2007 Özer DS, Özer K. Motor development in children (7.baskı), Ankara: Nobel Publishing, 2012.
16. Özkan İ. Evaluation of motor development and movement training (Ed.: A.Özyürek). Physical Education and Sports in Early Childhood. Vize Publishing: Ankara, 2017; ss: 5-117.
17. Saka T, Yıldız Y, Tekbaş ÖF & Aydın T. Effects of sports school on some anthropometric and functional tests of young adult men. Niğde University, Journal of Physical Education and Sports, 2008; 2(1), 1-8.
18. Sevimay D. Examination of motor performance of preschool children. Hacettepe University Institude of Health Science, Master Thesis, Ankara, 1986.
19. Şen M. Examining the effect of physical education activities on the motor development of six-year-old children attending kindergarten.. Mater Thesis, Ankara University Institute of Science and Technology, Ankara, 2004.
20. Ural A, Kılıç İ. Scientific research process and data analysis with SPSS. Expanded 2nd Edition. Ankara, Detay Publishing, 2006.
21. Yavuz NF, Özyürek A. Physical education and sport activities on motor skills of preschool children. Karaelmas Journal of Edu Sci, 2018 6, 40-50.
22. Yıldırım M. Comparison of the effects of basic movement training and gymnastics programs on gross motor skills in children. Master's Thesis, Istanbul Gelişim University Graduate Education Institute, Istanbul, 2023.