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COMPARISON OF THE EFFECTS OF BASIC MOVEMENT TRAINING AND GYMNASTIC PROGRAMS ON GROSS MOTOR SKILLS IN CHILDREN[1]

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ABSTRACT

The aim of this study is to compare the effects of basic movement training and gymnastics programs on gross motor skills in 5-6 year old children. 18 female and 12 male students, who were registered to a sports facility in Bayrampaşa district and did not have any previous sports activities, participated voluntarily and were divided into two groups, each consisting of 15 students. Basic movement training was given to the first group and gymnastics training was given to the second group. Gross motor skill test was used to collect the data. The suitability of the research was approved with the decision numbered 2022-10-15 of the Ethics Committee of Istanbul Gelisim University Rectorate. Results were made using SPSS 25.0 package program. Obtained data were analyzed by t-test (independent samples t-test) in dependent groups. When the in-group measurement values of the experimental groups were examined, a statistically significant difference was found between the pre-test and post-test comparisons of standing long jump, static balance, dynamic balance and quickness parameters ($p<0.05$). In the pre-test and post-test comparison between the two experimental groups, a significant difference was found in the static balance parameter ($p<0.05$). As a result, it has been determined that gymnastics and basic movement training exercises have a positive effect on the parameters of standing long jump, dynamic balance, static balance and quickness. The duration of the research was arranged as 6 weeks. If the period is extended to 10-12 weeks, progressive changes in children can be revealed more clearly. At the same time, it is recommended to increase the number of participants and arrange them as three days a week instead of two.

Keywords: Movement education, child, gymnastics, motor.

[1] This study was carried out by Melis Yıldırım, a graduate student of Istanbul Gelişim University, Graduate Education Institute, Department of Coaching Education, Department of Movement and Training Sciences, with the reference number: 789271, titled *'Comparison of the effects of basic movement training and gymnastics programs on gross motor skills in children*' derived from the master's thesis.

INTRODUCTION

People need to move in order to lead a quality and healthy life. Simple movements that start with reflexive movements in the womb give way to more complex movements over time. As it is known, childhood is the period when growth and changes in the body are most rapid. This period is also the period when the body is most affected by external factors. Regular physical activities of the individual from an early age not only create a healthy physical structure, but also delay the deterioration of this structure in old age (Özbar et al. 2004).

Movement Education is a type of education in which movements are selected in accordance with the growth, development and behavior patterns of the individual through physical activity (İnal, 2003).

All of the movements consisting of large and small muscle movements such as running, catching, jumping, skipping, holding the ball, which form the basic for sports and advanced activities, are called basic movement skills. Massive muscle movements, in other words gross motor skills, which; although it includes the use of massive muscles in our body, main factors such as strength, flexibility and balance are needed in motor skills. Major muscle movements are examined in three large groups. Locomotor Movements; Movements that require displacement, such as walking or running. Non-Locomotor Movements; Movements such as turning and bending without displacement. Balance; It is the movements of maintaining a certain position in a place. (Özer and Özer, 1998).

One of the most striking characteristics of preschool children is their mobility.Basic movement skills acquired in the first years of life form the basis of movements to be acquired in the following years. Motor development not only covers movement skills in line with biological and physiological changes, but also interacts with other areas of development (Haywood and Getchell, 2009).

In the content of the studies applied in the classes on gymnastics; Due to the fact that there are exercises such as running, jumping, bending, stepping in different directions, jumping in different directions, pushing and pulling; it develops by contributing to individuals in more than one direction, such as the development of individuals' muscle and joint structures, increasing muscle strength, and the development of their physical structures (Kesilmiş, 2012).

The aim of this study is to compare the effects of gymnastics and basic movement training programs on gross motor skills such as walking, running and jumping in preschool children aged 5-6 years and randomly selected from groups of girls and boys.

METHOD

Research model

Experimental method from quantitative research was used in the study. Experimental research is used to examine any event, phenomenon, object, person or factor to determine cause and effect relationships between variables and to measure results by comparing them (Ekiz, 2013).

Research group

18 female and 12 male students, who were registered in a sports facility in Bayrampaşa district and did not have any previous sports activity history, has participated in this study. In order to examine the effects of gymnastics and basic movement training programs on gross motor skills in 5-6 year old girls and boys, 30 students were divided into two experimental groups, each of 15 students.

Data Collection Instruments

The 'Gross motor skill test' developed by Hirst and his friends in 1986 was used to collect the data. This test was administered to 320 children aged 4-5 years in Turkey, consists of four subtests. These; standing long jump test, dynamic balance test, static balance test and quickness test (Müniroğlu, 1995).

Standing Long Jump, Dynamic-Static Balance And Quickness Test

It was recorded how many cm the child jumped forward in the horizontal plane. The measurement was recorded from the heel level of the student, who was placed on the determined starting line with the tips of his toes, as a result of the jump. The measurement was performed twice and the best rating was recorded. Children were jumped on one leg in a prepared field of 50 cm2. The numbers jumped were recorded separately as the right and left feet. Finally, the number of right and left foot jumps were summed and the value found was calculated as points. The time that the child could stand on one foot by balancing on one foot in the designated area was recorded separately for the right and left feet. The child was asked to get up as fast as possible from the supine position with his/her heels behind the starting line, run around the designated area 155 cm away, and return to the starting line and get back to the supine position.The child was given two try attempts and the best rating was recorded (Özer and Özer, 1998).

Implemented Study Program

The study program was implemented in the form of 50 minutes, 2 days a week for 6 weeks. Basic Movement Training was applied to the first experimental group 2 days a week, and Gymnastics training was applied to the second experimental group 2 days a week.

Basic Movement Training Program

Inside of the applied basic movement training program, displacement movements, balancing movements and object control movements in the syllabus were applied week by week.

Table 1. Basic movement training program (6 weeks)

	monday	wednesday	duration
1st week	walking– running exercises	walking – running exercises	50 min
2nd week	skipping –jumping-bouncing -troping practices	skipping - jumping - bouncing -troping practices	50 min
3rd week	rolling-climbing-bending practices	rolling-climbing-bending practices	50 min
4th week	push-pull studies	push-pull studies	50 min
5th week	throw-hold-catch practices	throw-hold-catch practices	50 min
6th week	target-hit studies	target-hit studies	50 min

Gymnastics Training Program

In the content of the applied gymnastics program, it is aimed to strengthen the gross motor muscles of the children by actively maintaining parameters such as elasticity, strength, quickness and balance by developing activities that mostly involve the work of massive muscle groups.

Table 2. Gymnastics training program (6 weeks)

	monday	wednesday	duration
1st week	animal walks – forward somersaults exercises	animal walks–forward somersaults exercises	50 min
2nd week	animal walks - backflips - spagat stretch	animal walks - backflips - spagat stretch	50 min
3rd week	animal walks -bridge-eagle yawn	animal walks-bridge-eagle yawn	50 min
4th week	handstand studies	handstand studies	50 min
5th week	circle studies	circle studies	50 min
6th week	kartvil studies	kartvil studies	50 min

Analysis of Data

IBM SPSS 25.0 package program was used, and analyzes were made through this program. Data normality was verified by using the Shapiro-Wilk test, which initially allowed the use of parametric statistical analysis. The data obtained were evaluated as mean and standard deviation, and analyzed with T-Test (Independent Samples T-Test) in dependent groups.

FINDINGS

The pre-test and post-test values of the static balance right foot, static balance left foot, dynamic balance, standing long jump and agility performances of the groups receiving basic movement training and gymnastics training were compared during the 6-week program. Statistical analyzes are given in the tables below (table 3, table 4).

Table 3. Comparison of pre-test results of the groups

	group	n	x	ss	t	p
Standing Long Jump	basic movement	15	93,00	15,34	,037	,971
	gymnastics	15	92,80	14,01		
Dynamic Balance	basic movement	15	14,80	2,43	-1,422	,166
	gymnastics	15	16,27	3,17		
Static Balance Right	basic movement	15	8,29	1,31	-2,913	**,007***
	gymnastics	15	9,67	1,27		
Static Balance Left	basic movement	15	6,21	1,39	-,639	,528
	gymnastics	15	6,60	1,88		
Quickness	basic movement	15	5,83	1,03	1,440	,161
	gymnastics	15	5,28	1,05		

**p<,050; **p<,001*

When table 3 was examined, it was determined that there was a statistically significant difference between the static balance right foot pre-test values of the groups (p<0.007). It was determined that there was no statistically significant difference in other parameters.

Table 4. Comparision of post-test results of the groups

	group	n	x	ss	t	p
Standing Long Jump	basic movement	15	97,20	14,70	,393	,698
	gymnastics	15	95,13	14,12		
Dynamic Balance	basic movement	15	19,60	3,40	1,131	,268
	gymnastics	15	18,20	3,38		
Static Balance Right	basic movement	15	8,53	1,39	-5,166	**,000****
	gymnastics	15	11,17	1,40		
Static Balance Left	basic movement	15	7,01	1,60	-3,575	**,001***
	gymnastics	15	9,27	1,85		
Quickness	basic movement	15	5,09	0,76	,362	,720
	Gymnastics	15	4,97	1,03		

**p<,050; **p<,001*

When table 4 was examined, it was determined that there was a statistically significant difference between the static balance right foot (p<0.000) and static balance left foot (p<0.001) post-test values of the groups. It was determined that there was no statistically significant difference in other parameters.

Table 5. Comparison of basic movement training group pre-post test

	Test	n	x	ss	t	p
Standing Long Jump	Pre-Test	15	93,00	15,34	-6,136	**,000****
	Post-Test	15	97,20	14,70		
Dynamic Balance	Pre-Test	15	14,80	2,43	-8,668	**,000****
	Post-Test	15	19,60	3,40		
Static Balance Right	Pre-Test	15	8,29	1,31	-3,898	**,002***
	Post-Test	15	8,53	1,39		
Static Balance Left	Pre-Test	15	6,21	1,39	-6,397	**,000****
	Post-Test	15	7,01	1,60		
Quickness	Pre-Test	15	5,83	1,03	4,593	**,000****
	Post-Test	15	5,09	0,76		

**p<,050; **p<,001*

When table 5 was examined, it was determined that there was a statistically significant difference in the parameters of pre and post-test standing long jump (p<0,000), dynamic balance (p<0,000), static balance right (p<0,002), static balance left (p<0,000), quickness (p<0,000) in the basic movement training group.

Table 6. Comparison of gymnastics group pre-post test

	Test	n	x	ss	t	p
Standing Long Jump	Pre-Test	15	92,80	14,01	-4,915	**,000****
	Post-Test	15	95,13	14,12		
Dynamic Balance	Pre-Test	15	16,27	3,17	-7,250	**,000****
	Post-Test	15	18,20	3,38		
Static Balance Right	Pre-Test	15	9,67	1,27	-5,873	**,000****
	Post-Test	15	11,17	1,40		
Static Balance Left	Pre-Test	15	6,60	1,88	-12,663	**,000****
	Post-Test	15	9,27	1,85		
Quickness	Pre-Test	15	5,28	1,05	12,357	**,000****
	Post-Test	15	4,97	1,03		

**p<,050; **p<,001*

When table 6 was examined, it was determined that there was a statistically significant difference in the parameters of pre-test and post-test standing long jump, dynamic balance, static balance right, static balance left, and quickness in gymnastics group's ($p<0.00$).

CONCLUSION and DISCUSSION

The aim of this study is to compare the effects of basic movement training and gymnastics programs on gross motor skills in 5-6 years old children. Research results associated with literature studies are presented in this section. When the literature is examined, Boz (2011) found in his study that basic movements training applied to children improves gross motor skills and balance skills of 5-6 years old children. In the study conducted by Ballı (2006) on children aged 5-6 years, it was determined that there was a significant difference in terms of balance efficiency for the benefit of the experimental group. In the study conducted by Aslan (2020) with children aged 4-6 years, it has shown that significant the differences in pretest - posttest balance measurement averages. In our study, as the age range was 5-6, the development of balance showed a significant difference. Şen (2004) found that the static balance scores of the experimental and control groups showed a significant difference between before and after the experiment. Our study results for the balance parameter show parallelism with the literature. It was determined that there was a statistically significant difference in the parameters of the pre-test and post-test standing long jump, dynamic balance, left static balance, and quickness in the basic movement training experimental group (Table 5). Şen (2004) found that the fixed long jump scores of the experimental and control groups showed a significant difference from pre-experiment to post-experimental. Kırıcı (2008) also reached similar results in his study on children between the ages of 4 and 6 and found that movement training contributed to the long jump performance in a beneficial way. The increase between the pre and post-test measurement values of this study is quite high. Although there is a significant difference in the pre and post-test standing long jump measurements in our study, the range of developmental norms is not very large. It is anticipated that the reason for this may be due to the content of the programs implemented. When the literature was examined, Özbar (2007) determined that there was a statistically significant difference between the first and last test norms of static balance in his study investigating the contribution of movement training on the motor

development of children aged 4-6 years. In the study of Çelebi (2010), the age range was determined as 5-6 years, and by carrying out a similar study, it was determined that it contributed positively to the benefit of the experimental group in terms of the norms of single leg balance skill. Yarımkaya and Ulucan (2015) examined the extent to which 12-week movement training improved the balance parameter and stated that there was a significant difference in favor of the experimental group. It is seen that the results of the above studies have produced similar results with the research we have done. Canlı et. al. (2021), who examined the effect of multi-skill movement training program on the body composition and motor performance of preschool children aged 5-6 years. They applied a movement training program for the development of multiple skills, which lasted for 8 weeks, 45-50 minutes, 2 days a week to the experimental group. As a result of the motor performance measurements, a significant difference was found in favor of the experimental group in the pre-test and post-test in-group and inter-group comparisons in dynamic balance skill ($p<0.05$). In this study conducted by Canlı et. al. (2021), the development range of dynamic balance values differs from the development range of our study. This may be due to the 6 weeks of our study. Progress is more visible because the studies are 8 weeks old. In a study carried out with the movement training application, the relationship between the applied movement training program and the motor skills of the participants was examined, and as a result, it was stated that a significant difference was determined between the experimental group first test quickness dimension average and the last test quickness dimension average (Özbar, 2007). In a study conducted by Çelebi (2010), in which he investigated the effect of movement training on physical and motor development of 5-6 year old children in pre-school education institutions, he reported that movement training studies positively affected the quickness skills. The results of Çelebi's (2010) study, and our study show similarity. In the study conducted by Akgün (2019), he continued a planned movement training application for 8 weeks, and in the pre-test, post-test comparisons, it was concluded that many motor skills, including the quickness skill, improved and developed in the movement training group. It was determined that there were statistically significant differences like pre-test and post-test standing long jump, dynamic balance, static balance right-left, and quickness parameters in the gymnastics group's (Table 6). He has been revealed that 12 weeks gymnastics and swimming exercises applied to 5-6 years old children positively affected and improved their power motoric characteristics such as standing long jump and vertical jump (Zülkadirlioğlu, 1995). When a total of 80 (boys and girls) athletes in the junior category in artistic gymnastics and trampoline gymnastics branches were compared in terms of their motor characteristics, a significant difference was found between the values of long jump while standing (Koca, 2016). In his study that he carried out a 12-weeks gymnastics training program on the bio-motor qualities of children aged 4-6 years, he stated that gymnastics training improved bio-motor abilities at a significant level (Kesilmiş, 2012). The range of dynamic and static balance development in our study is less than the range of balance development in this study. It was assumed that this is due to the duration of the study. When the literature was examined, there was not many studies examining the quickness parameter in the groups in which the gymnastics program was applied. However, in the studies found, it was observed that the quickness parameter improved in the experimental groups in which the gymnastics program was applied. There was no study found similar to our study.

As a result, it is revealed that there is a significant difference in the effect of basic movement training and gymnastics programs applied to the children participating in the study on gross motor skills. It is revealed that there is a significant difference in the effect of the training program applied in basic movement training on gross motor skills in static balance, dynamic balance, quickness, standing long jump parameters. Development was observed in all parameters. It is also revealed that there is a significant difference in the effect of the training program applied in gymnastics training on gross motor skills in static balance, dynamic balance, quickness, standing long jump parameters. As in basic movement training, improvement is observed in all parameters in gymnastics training. When the difference between the two experimental groups are examined, a significant difference is found in the static balance right left foot parameter of the children participating in the gymnastics program. In this case, the development of static balance has become more prominent in gymnastics training programs. When we look at the general framework, we can summarize that both training programs have a positive effect on gross motor skills. The content of the study program can change the outcome of these effects, either positively or negatively.

RECOMMENDATIONS

Since the duration of the study is 6 weeks, if this period is extended (like 10-12 weeks), the progress can be revealed more clearly. The number of participants in the experimental groups of the study can be increased. The study can be arranged as three days a week instead of two days. The effect of the study on motor skills can be examined by making the program content for the targeted skills to be developed. It is thought that gymnastics and basic movement training in preschool children can be beneficial in developing the basic motoric features of children. From this point of view, it is thought that it would be beneficial to allocate sufficient time for basic gymnastics training in training programs. In order to support motor development at an early age, children can be directed to basic movement training with gymnastics. School administrators, teachers and families should be informed about the contribution of basic movement education to children, and cooperation should be ensured by increasing their awareness. It is thought that conducting research by specifying only one age group in future studies will make a significant contribution. Information on movement training for the 'preschool age group' can be added to the curricula in the Faculties of Sport Sciences or the Schools of Physical Education and Sports. In these courses, the opportunity to practice in the relevant schools can be provided. Due to the fact that there is no planning for movement education in the curricula of the current departments of classroom teaching, preschool teaching or child development, it is thought that the need for movement education of the most critical age period can be supported in this way.

ETHICAL TEXT

In this article, journal writing rules, publication principles, research and publication ethics rules, journal ethics rules were followed. The author is responsible for any violations that may arise in relation to the article.

The research was approved by Istanbul Gelişim University Rectorate Ethics Committee at the meeting dated 27.04.2022 and numbered 2022-08, with the decision number 2022-10-15.

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