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The Effects of Physical Education and Sports Classes for the Mild Mentally Disabled Teenagers who were between the Ages of 12-16 to the Some Motoric Specialities (Turkish and German Model)

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Abstract

In this study; the effects of physical education classes that are teached at the Educable Mentally Handicapped Schools on educable mentally handicapped children's motor skills were examined and compared in Turkey and Germany. 30 Turkish and 30 German, in total 60 students (20 girl, 40 boy) that aged between 12-16 participated in this study. Only children that have IQ scores between 45-75 were included. Participants' motor performance improvements were evaluated by tests that were done before and after 13 weeks the physical education program. 30 m speed, standing long jump, medicine ball throw and 30 seconds sit-up tests were used in motor performance measurements'. It is found that physical education and sport programs significantly improved children's performance in motor tests at both Turkish and German schools ($p<0.05$). The improvements in motor performance were similar for both genders. In addition to that improvements in speed were higher for students in Turkish school. It is detected that physical education and sport classes aimed at motor skills, contribute significantly to educable mentally handicapped children's motor development. Adequate and proper participation in physical activities that are specifically designed for educable mentally handicapped children, seem to improve these children's motor performance, same as normal children.

Keywords: Mild Mentally Disabled, Physical Education and Sport Class, Motor Skills

1. Introduction

Disability has been an important issue for societies throughout the history. A person has always been thrived to find solutions to overcome this issue of disability. Generally the birth of a child is a source of joy. Father and mother think that their child is going to be successful and fulfill their expectations for the future. Unfortunately, birth of a handicapped child may shatter these dreams of parents. Even though disability is personal, it affects every individual in family. Therefore the birth of a handicapped child not only means a handicapped child, but also a handicapped family.

15% of world population is disabled according to World report on disability and 12% of population of Turkey is disabled according to Elderly Services Directorate (İstatistik Bülteni, 2016). Eighty million people are disabled between medium to serious level in European Nation according to 2013 State Personnel Mayorship Report (T.C. Devlet Personel Başkanlığı, 2013). One in every ten childrenis in need of special education when the data from above taken into consideration. It comes to light that there are over 10 million disabled people in Turkey It is certainly impossible and moreover not acceptable to overlook this majority.

Regardless of people's physical looks and skills, they must be evaluated to participate and produce. The disabled people in our society have a lot of problems including their treatment, working life, social improvements etc.(Öztürk, 2011).

In the memorandum, that is published in regard to human rights declaration by European Sport Committee in 1975,, "Every person has the right to sport" is written for disabled people that do not or cannot participate in sports. Disabled people also have the right to improve their life standards. It is said that "Their social and physical needs could be fulfilled with sport". Mentally handicapped people, that are in the group of "do not or cannot participate in sports" as stated above, are in the need of help and care mostly (Council Of Europe, 2001; Ergun, Dolunay, Olgun, 1990).

One of the most important qualities that distinguish individuals from each other, is intelligence. Incapability in intelligence affects the whole life negatively. Sport can be used as an important contributor in reducing the constraints that mentally handicapped people encounter in their lives. It must not be forgotten that participating in sports is the most effective and important factor in aiding disabled people to maintain their life with their disability (Brouver & Ludeke, 1995).

In addition, sport can help disabled person to fit into society, communicate, share, enjoy life and most importantly build self-confidence. At the same time a well-planned physical education and sport program, can improve mentally handicapped children's motor skills which are known to be connected to these children's social and cognitive skills, therefore affecting all development areas positively (Winnick & Nad, 1985; Winnick, 1990).
Carrying out proper physical education programs that are aimed at mentally handicapped children, is a matter of debate in Turkey (Biçer et.al. 2004). In this study; the effects of physical education classes on mentally handicapped children's motor ability developments in Turkey and Germany, a member of European Union, were examined.

2. Methods

2.1. Subjects

Thirty (30) students (20 male, 10 female) from the Tuzla Educable Mentally Handicapped School in Istanbul, Turkey and 30 students (20 male, 10 female) from Tanenhag Educable Mentally Handicapped School in Friedrichshafen, Germany participated in this study (Table 1).

The participation criteria were:

- Children's IQ levels must be between 45 and 75.
- Children should not be actively playing in any sports branch.
- Children should not be taking any personal sport classes other than physical education and sport classes in their school.
- Children should not have any injury during study.

Physical education and sport classes were done in the gymnasiums of both schools for 13 weeks, starting from the beginning of spring term. Turkish participants took 4 hours of physical education and sport classes in a week, whereas German participants took 2 hours of physical education and sport classes and additionally 1 hour of swimming classes.

2.2. Evaluation of Motor Performance:

30 m speed, standing long jump, medicine ball throw and 30 seconds sit-up tests were used in motor performance measurements. Weighing and Height scale were used for height and body weight measurements. The tests were done during physical education and sports classes in enclosed gymnasium and schoolyard with physical education and sports teacher along with other class teachers to aid. Students wore their sports outfits during measurements. Warm-up exercises were done before tests. Tests were explained and showed by the teacher and afterwards a voluntary student repeated the movements until other students fully apprehended the tests before starting application.

2.2.1. 30 m speed test

Test was carried out in the schoolyard. Starting and finishing lines were marked at the beginning and at the end of 30 m distance. Races were done with groups of three before individual tests, to help them familiarize with the distance. Firstly children waited 3-4 m behind of the starting line and after hearing "stand ready and take you place" command; they stood ready at the starting line. Start commands were given with whistle and tactually.

It is thought that giving two kinds of commands may be more convenient as they could react late to just one kind of command sometimes. Assistant teacher waited at the finishing line with chronometer. Children were warned not to stop suddenly beforehand and verbal encouragements were continued until the end of the race. Chronometer was started with start command and stopped when the participant reached at the finishing line. Two trials were done and the best time recorded.

2.2.2. Standing Long Jump Test

This test was done to measure explosive strength of leg extensor muscles. Tests took place in enclosed gymnasium. Preliminary preparations were made before application and a starting line was designated. Physical education and sports teacher showed the movement beforehand and then proceeded to application. Participant stood ready at the designated starting line, took their arms behind, flexed their knees slightly and, then jumped up and forward while swinging their arms upwards. Few trials were done because of the possible problems arising from mental conditions of participants. The best score, which is the longest distance traveled, was recorded as centimeters.

2.2.3. Medicine Ball Throw Test (2 kg)

This test was done to measure explosive strength of elbow extensor muscles. Tests took place in enclosed gymnasium. Preliminary preparations were made before application. Participant stood ready at the designated line, placed feet parallel to each other, hold medicine ball with two hands at chest length and threw the ball forward with swinging of torso and arms. Few trials were done because of the possible problems arising from mental conditions of participants. The best score, which is the longest distance between the participant and the point that the ball first touched ground, was recorded as centimeters.

2.2.4. Sit-Up Test (30 sec)

This test was done to measure strength of trunk flexor muscles. Tests took place in enclosed gymnasium. Warm-up and preliminary preparations were made before application. Participant laid down on mat with his/her hip and knee flexed, arms at chest length and performed as many sit ups as he/she could in 30 seconds time. Special attention was paid at observing the lifting of scapula from the ground. Other students counted the reps and gave encouragement during the test for motivation. Chronometer was stopped at the end of 30 seconds and sit-up number was recorded.

2.3. Statistical Analysis

Paired t-test was used to determine the differences in-group and independent t-test was used for comparisons between groups. The combined effect of school and gender differences was analyzed by two-way ANOVA test. Mean, standard deviation and standard error values were used as descriptive statistics. Significance level was set at $p \leq 0.05$ for all analysis.

3. Results

The participants' physical characteristics (Table 1) and, their pre- and post-test results (Table 2) are shown below. Participants' motor performance improved significantly in all tests, after 13 weeks physical education and sports program for both genders in Turkish and German schools ($p<0.05$) (Table 2). There was a significant difference in improvement of speed between two schools ($p=0.023$), in favor of participants from Turkish school (Figure 1). Standing long jump, medicine ball throw and sit-up test values significantly differed between participants from two schools ($p>0.05$).

4. Discussion and Conclusion

Incorporating physical activities in the general education of the individuals with learning and motor skill deficiencies due to the low level of intelligence would support their physical development. Also improvements in their physical abilities would increase their self-confidence, and motivate them to be involved in lifelong sports activities which are necessary for a healthy life style. Therefore educational studies meant for the educable mentally handicapped children would become more functional. Many studies support this idea. Özer at. al. (1999) showed that the mentally handicapped children's motor performance was lower compared to healthy children at their age and it does not progress with age. Our study shows, physical education and sports classes have a positive impact on the motor performance development of mentally handicapped children.

Auxerter & Pyeer (1985)mentioned that; getting involved in sportive activities have a major contribution on the mentally handicapped subject's psychology, social and motor performance development and due to this contribution, the study states that; getting involved with sports have a curing and developmental effect on motor performances. In addition, the motor performance have a direct effect on planning ability, strategic decision making and problem solving which are the executive functions necessary for functioning in the daily life(Hartman, Houwen, Scherder, Visscher, 2010). Improving the motor performance with the physical education and sport classes, could increase the mentally handicapped individual's independence during a daily routine.

In this study the increase in speed in both groups, is considered to be due to the renewed physical education and sport classes with more games and runs in the second semester. It is showed in the pre-test values that the Turkish boys and girls have a slower 30m speed compared to the Germans. This difference might be caused by the lack of qualified coaches in our country and therefore inadequate sports education for the mentally handicapped students.

It is documented that the Turkish male participants improved more than the German male subjects (Table 2). The reason for this difference might be due to the soccer matches and other group activities that the individuals do in between the classes and in their spare times. Boys had better 30m sprint performances than girls; this finding is in line with the studies done with the healthy individuals of the same age (Ziyagil, Zorba, Bozatlı, İmamoğlu, 1999). This difference could be explained by stalled speed development in girls with the beginning of puberty. Whereas this development continues in boys.

Both groups had positive results in standing long jump. In the standing long jump test Turkish girls scored 112 cm and German girls scored 155 cm in average. Özer at. al. (2000) recorded a score of89.47 cm for the 10 years old aged boys in the standing long jump test. When the age difference is considered, our results can be correlated with their study.

It is known that the standing long jump skill is correlated with the explosive power. Therefore the improvement seen in standing long jump is parallel with the 30 m sprint ability. This improvement was similar between the Turkish and German female groups. Whereas, when the male groups were compared it was found that the Turkish participants progressed more, compared to the German participants (Table 2). Turkish male subjects were more active and participative during the physical education and sport classes, therefore this difference in development is considered to be normal.

When results for the medicine ball throw test were analyzed, it was seen that the improvement in German girls was higher compared to the Turkish girls (Table 2). This positive development in the German girls might be considered to be due to the one hour of swimming classes that German girls participate, instead of two hours of physical education and sport classes that the Turkish girls participate. Swimming classes might have increased the power for the shoulder and elbow joints. Swimming offers a resistance against the water throughout the exercise, unlike medicine ball throws. Turkish boys doing the extra activities and games outside the physical education and sport classes might have closed the gap in power. The positive effect seen in this study, is in line with the results of the study that incorporated strength and power exercises in training program(Biçer et.al. 2004).Instead of training programs with standard movements, physical education classes involving games could improve planning and decision making abilities of mentally handicapped children.

According to results of the sit-up test, girls progressed more than the boys (Table 2). This difference might be due to the strength differences between boys and girls at the beginning of training program. The training program was same for the both groups. When the strength differences were considered between two genders, it could be expected that the intensity of training program was not enough to elicit same strength adaptations in boys. Özer et al. (1999)reported the male subjects' sit-up score as 19.93. When we analyzed the sit-up scored in our study, the results show that the Turkish participants' score was 15.53 and the German participants' score was 14.23 in average.

The difference between the two studies might be due to the age and body composition differences (Çamlıyar, 1995) narrated that according to one of the studies conducted by Oliver, the 10 week long intensified physical education and sports activities have a considerable effect on the development of mentally handicapped childrens' motor and mental abilities. The findings of this study support our research. Improvements in motor performance are considered to be a result of acute developments in nerve-muscle connection, as known from strength trainings. Therefore we believe that the improvements in both groups are not just in capacity also in functionality.

As a result of our research; it is determined that in both countries the physical education and sport classes have considerable and similar effects on the development of motor performances for the educable mentally handicapped children.

This study showed once more, physical activity plans designed with games develop not only normal children's physical and motor abilities but also educable mentally handicapped children's. In addition to this study, using physical education and sport programs in virtual environments might be an effective activity model for this population to increase the level of fun, game execution ability and sort with the help of instant feedback, besides for the increasing the physical performance.

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Table 1: Physical characteristics of Turkish and German educable mentally handicapped children

Nationality	Gender	N	Age (year)	Height (cm)	Weight (kg)
Turkish	Male	20	14.45±1.14	164±0.12	52.4±15.69
	Female	10	14.10±1.37	158±0.11	50.3±10.24
German	Male	20	14.05±1.19	163±0.11	56.6±22.83
	Female	10	14.80±1.22	156±9.05	53.0±15.60

Table 2: Results of pre-test and post-test motor performance tests

Nationality	Gender		30 m Speed (sec)	Standing Long Jump (cm)	Medicine Ball Throw(cm)	Sit-Ups (adet)
			Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD
Turkish	Male n=20	Pre-test	6.82 ± .99	1.35 ± .29	3.38 ± .76	12.60 ± 2.74
		Post-test	6.07 ± .76 *	1.64 ± .34*	4.13 ± 1.05*	15.85 ± 1.76*
	Female n=10	Pre-test	7.99 ± 1.17	0.97 ± .35	2.54 ± .53	8.60 ± 3.10
		Post-test	7.40 ± .97*	1.13 ± .42*	2,95 ± .65	11.90 ± 3.25*
German	Male n=20	Pre-test	6.56 ± .95	1.42 ± .33	3.33 ± 1.17	11.95 ± 3.33
		Post-test	6.21 ± .99*	1.65 ± .36*	4.07 ± 1.36*	14.80 ± 4.29*
	Female n=10	Pre-test	6.81 ± .83	1.31 ± .28	3.19 ± 1.18	9.30 ± 4.22
		Post-test	6.38 ± .83*	1.54 ± .38*	3.88 ± 1.30*	13.10 ± 3.84 *

* $p<0.05$

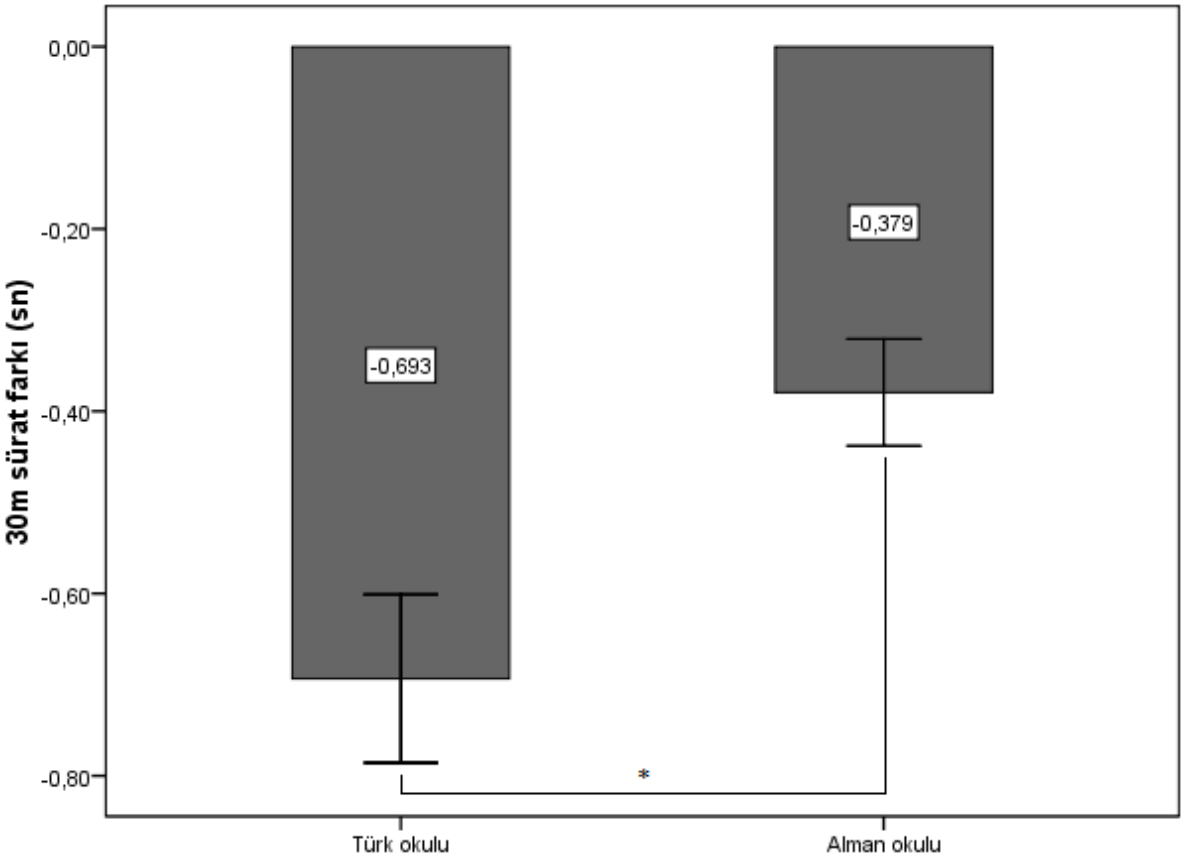

Figure 1: Improvements of 30 m speed in children from Turkish and German Schools.

*p<.05 (+/- 1 standard error). The improvement in Turkish school (9.57%) is higher than German school (5.71%).

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