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## **Analysis of Physical Fitness Norms of Students Aged 10-15 With Learning Disabilities Using Euro fit Tests (Erzurum City Sample)**

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### **Abstract**

The objective of this study is to research the physical fitness norms of female and male students aged 7-15 with learning difficulties in Erzurum using Euro fit tests. The research was conducted on the students studying in private education and vocational schools in Erzurum. The research population consisted of 26 students randomly selected among 80 students studying at schools. Students were aged 10-15. These students were subjected to height and weight, flamingo balance, plate tapping, sit-and-reach, standing broad jump, handgrip, sit-ups in 30 seconds, bent arm hang and 10x5 meter shuttle run tests. After the first measurements were performed on the students as preliminary tests, they were subjected to a 4-month (16 weeks) specially designed exercise training program. Exercises were performed for 50-60 minutes twice a week. At the end of program, the last test measurements were taken and their improvements were compared. SPSS 16.00 packaged software was used for the statistical analysis of the data obtained from the research. Minimum and maximum values of children, their arithmetic mean and standard deviation and Z-scores were evaluated as a statistical method. As a result of the research, a significant improvement was detected in flamingo balance test, sit-and-reach, standing broad jump, handgrip, bent arm hang test results of the students. No significant improvement was observed in plate tapping, sit-ups in 30 seconds and 10x5 meter shuttle run tests. In conclusion, it was found out that regular physical exercise positively contributed in the physical features in students with learning disabilities.

Keywords: Learning Disability, Disabled, Euro fit Tests, Fitness

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## 1. Introduction

As is known, sports are a necessary activity for a healthy and happy life and important for all people. However, sports have a rather different importance for disabled people. This is because sport can open a new door for disabled people who already encounter many obstacles in their life and live with the stress caused by such obstacles (Azeem & Ameer, 2011).

Children with mental disabilities cannot find the opportunity to do physical exercise that is necessary for using and improving large and small muscle groups due to several reasons. However, physical exercise they may take part in starting from preschool period may greatly contribute in their developmental features. Physical education and sports lessons offer the best environment where they can have the chance to exercise at school age (Rimmer & Kelly, 1999).

Participation in sports activities makes an individual happy and the pleasure taken in exercising is a great means for the individual to meet his needs to have fun and succeed while it increases life motivation. Sports contribute in the social integration of the disabled by improving them physically, mentally and socially (Pitetti & Yarmer, 2002).

It is a stubborn fact that individuals canalized to sports will adapt to society faster while sports will have a positive effect on their physical and physiological capacities. The problems experienced by the disabled are not only a concern for the disabled but also their environments, families and all members of the society<sup>2-3</sup>.

Many studies report that muscular force power of an individual with mental disability is lower than that of an individual without ant disabilities (Ozbar & Kayapinar, 2007). When they are engaged in a physical activity, they fail to show the sufficient motivation and easily get bored (Ozer, Ozmen & Yildirim, 2011).

This study uses an exercise and physical activity training program specifically designed for children with learning disabilities and investigates its contributions in the physical features of children.

## 2. Methodology

The research was conducted on the students studying in private education and vocational schools in the city center of Erzurum. The research population consisted of 26 students (6 female + 20 male students) randomly selected among 80 students (54 male + 26 female) studying at schools. Students were aged 10-15. Students were allocated to three groups as age 7-9, age 10-12 and age 13-15.

Prior to starting the research, we obtained the necessary permissions of both the Directorate of National Education and the parents of the students. We obtained the necessary medical reports of the students that would participate in the activity and exercise program from relevant healthcare institutions, and the group allocations were performed as per these reports.

A special exercise program was prepared together with the academic members of the Department of Special Education and Faculty of Sports Science Department of Recreation. This program was prepared considering the physical features of children (force, speed, balance, skill and coordination).

These students were subjected to height and weight, flamingo balance, plate tapping, sit-and-reach, standing broad jump, handgrip, sit-ups in 30 seconds, bent arm hang and 10x5 meter shuttle run tests.

After the first measurements were performed on the students as preliminary tests, they were subjected to a 4-month (16 weeks) specially designed exercise program. Exercises were performed for 50-60 minutes twice a week. At the end of 3 months of exercise program, the last test measurements were taken and their improvements were compared.

SPSS 16.00 packaged software was used for the statistical analysis of the data obtained from the research. Minimum and maximum values of children, their arithmetic mean and standard deviation and z-scores were evaluated as a statistical method.

### 3. Results

**Table 1: Sex, age, height, weight and grades of subjects**

| <b>SEX</b>            | <b>N</b> | <b>%</b> |
|-----------------------|----------|----------|
| Male                  | 20       | 67       |
| Female                | 6        | 23       |
| <b>AGE</b>            | <b>N</b> | <b>%</b> |
| Age 7-9               | 4        | 15,3     |
| Age 10 -12            | 8        | 30,7     |
| Age 13 -15            | 14       | 54       |
| <b>HEIGHT</b>         | <b>N</b> | <b>%</b> |
| 110-120 cm.           | 4        | 15,3     |
| 121-130cm.            | 6        | 23       |
| 131-140 cm.           | 12       | 46,4     |
| 141 and more          | 4        | 15,3     |
| <b>WEIGHT</b>         | <b>N</b> | <b>%</b> |
| 30-40 kg.             | 8        | 30,7     |
| 41-50 kg.             | 14       | 54       |
| 51 and more           | 4        | 15,3     |
| <b>GRADE</b>          | <b>N</b> | <b>%</b> |
| 5 <sup>th</sup> grade | 14       | 54       |
| 6 <sup>th</sup> grade | 6        | 23       |
| 7 <sup>th</sup> grade | 6        | 23       |

According to Table 1, the subjects of the study was comprised of 20 (67%) male and 6 (23%) female students. 4 (15.3%), 8 (30.7%) and 14 (54%) subjects were allocated to groups of age 7-9, age 10-12 and age 13-15, respectively. Heights of the subjects were measured as 110-120 cm for 4 students (15.3), 121-130 cm for 6 students (23%), 131-140 cm for 12 students (46.4%) and 141 cm or more for 4 students (15.3%). Weights of the subjects were measured as 30-40 kg for 8 students (30.7%), 41-50 kg for 14 students (54%) and 51 kg and more for 4 students (15.3%). 14 subjects (54%) went to 5<sup>th</sup> grade, 6 students (23%) went to 6<sup>th</sup> grade and 6 subjects (23%) went to 7<sup>th</sup> grade.

**Table 2: Preliminary and final test results of the subjects**

| Tests Performed             | Preliminary test<br>X± s | Final test<br>X± s | Z       | Significance Level |
|-----------------------------|--------------------------|--------------------|---------|--------------------|
| Flamingo Balance Test       | 14,21±13,31              | 18,52±13,90        | -7,615  | ,000 ***           |
| Plate Tapping Test          | 14,99±2,75               | 14,70±2,49         | 2,256   | ,975               |
| Sit-and-Reach Test          | 7,20±3,01                | 8,50±3,19          | -13,186 | ,000 ***           |
| Standing Broad Jump Test    | 1,39±,11                 | 1,45±,14           | -3,079  | ,000 ***           |
| Right Handgrip Test         | 18,00±4,65               | 20,19±5,32         | -8,417  | ,000 ***           |
| Left Handgrip Test          | 17,91±4,97               | 17,41±4,99         | 1,925   | ,619               |
| Sit-ups in 30 Seconds Test  | 19,11±2,57               | 20,75±2,88         | -10,935 | ,000 ***           |
| Bent Arm Hang Test          | 7,53±7,89                | 9,32±7,97          | -10,944 | ,000 ***           |
| 10x5 meter Shuttle Run Test | 21,64±3,30               | 21,09±3,07         | 4,540   | ,000 ***           |

Results of the preliminary and final tests performed on subjects and significance levels ( $p > 0.001$ ) are given in Table 2.

#### 4. Discussion And Conclusion

According to the results of the study, it was found out that a specially designed exercise program applied for children with learning disabilities positively contributed in many of their physical features. A significant improvement was detected in the results of the students in flamingo balance, sit-and-reach, standing broad jump, handgrip and bent arm hang tests. No significant improvement ( $p > 0.001$ ) was observed in plate tapping, sit-ups in 30 seconds and 10x5 meter shuttle run tests.

No significant improvement was observed in plate tapping, sit-ups in 30 seconds, 10x5 meter shuttle run and 1500 m endurance shuttle-run tests.

Scientific studies conducted also indicate that sports activities and exercise programs contribute in the physical, social and mental improvement of individuals with learning disabilities.

As a result of a fitness exercise Un et. al (Siegel, Marchetti & Tecklin, 1991). Conducted on children aged 11-18 with mental disabilities, they found out significant improvements in knee flexion-extension muscular forces.

Rimmey and Kelly (Stadler & Pitetti, 1996). observed a significant improvement in lower extremity muscular force as a result of the weightlifting exercise. They suggest that a force exercise program for these individuals should include progressive activities specially designed for and enjoyed by such individual and that aim for special muscle groups in body, arms and legs (Un, Erbahceci & Ergun, 2001).

In their studies, Azeem, K. and Ameer, A. A. (2011). indicated that starting physical exercise at the earliest age increased success to a greater extent in terms of physical and motor performances of disabled students. Furthermore, they did not detect any significant difference between male and female students in terms of improvement.

Ozbar and Kayapinar (2006) detected significant improvements in hand-eye coordination of children as a result of six-month exercise program in their studies for preschool children.

In conclusion, it can be said that exercise and sports activity training programs contribute positively in children with disabilities, improve their coordination and hand skills and result in significant improvements particularly in muscular force.

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