



## THE EXAMINATION OF THE INDIVIDUAL MOVEMENT TRAINING PROGRAM WHICH IS APPLIED TO AUTISTIC STUDENTS WITH BROCKPORT TESTS

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### Abstract:

**Purpose of Study:** The aim of this research is evaluation with examining the individual movement training program which is applied to autistic students with Brockport tests.

**Material and Method:** Six male autistic students participated to the research. Student's ages were 8, 10, 12, 13, 15 and 17. The test battery was prepared for measured the student's physical properties with Brockport tests which are **age, height and weight** and the applied Brockport tests by the improved battery for the disabled which are **30 sec push-up test, hang to bar with straight arm, 1 mile (1600m) running, 20 m ramp walking test, 30 sec shuttle test, reverse shuttle test, sit-reach flexibility test, hang at the bar with twisted arms, right and left hand grip test**. The game materials and essential exercises for training (various sizes and softness of balls, various sizes of pilates balls, targets, jump ropes, various height of targets and boards, colored balls and targets, various weight of dumbbells, various weight of medicine ball etc.) were prepared. 50-70 sec trainings were done two days in a week. Sixth week in training, tests were done again and saved. At the end of the twelfth week, the selected tests were done as last test and were compared with other test results and evaluated. The obtained data were evaluated with interpretation and tabulated.

**Finding and Results:** According to research results, development were observed in tests of **30 sec push-up, hang to bar with straight arm, 20m ramp walking, 30 sec shuttle test, reverse shuttle, sit-reach flexibility, hang at the bar with twisted arms and right hand grip** in all students. Only in the tests of **1 mile (1600m) running, and left hand grip** there wasn't any development.

**Keywords:** autistic, individual, movement program, Brockport, tests

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## 1. Introduction

Autism can be defined as a disorder characterized by behavioral symptoms associated with elevated cortical functions which effect lifelong socialization, language, communication and many other activities and interests. (Fazlıoğlu and Yurdakul, 2005)

In last 10 years, autism cases have been increasing. It is thought that the main reason of this increase is the early and more accurate diagnosis of autism rather than the proliferation of cases. Autism is now being discussed and considered more in society. (Erkaya and Gürsel, 2011)

It is reported that although there is no precise information about the prevalence or autism disorder, in 2000s the incidence of autistic disorder is 5 in 10.000. In 2003, the scientific studies which is about autistic disorder and done in between 1966 and 2001 were examined and indicated that the ratio is 10 in 10.000 (Turnbull, Turnbull and Wehmeyer, 2007). According to 2007 year information as the most up-to-date information, the ratio is 1 in 150 in YGB. (Edi: Diken, 2011)

The biggest features of autism which were defined by Dr. Leo Kanner in 1943 are global and widespread language disorders, abnormal and stereotyped behavioral patterns, social isolation and often mental disabilities. Autism is primary shape of YGB (pervasive developmental disorder). Although there is no connection with intelligence many autistic kids have difficulty in completing academic procedures in school, delay in rough and thin motor development and also have difficulty in understanding and expressing the language. (Özer, 2010)

The term of Autism Spectrum Disorder (OSB) may be preferred in the field of writing instead of term YGB. While the term YGB has been taking a place first in 1980 in the book of Diagnostic and Statistical Manual of Mental Disorders which was quite common in diagnosing and has published by the American Psychiatric Association, the OSB term has a place in 1988. (Smith, Polloway, Patton and Dowdy, 2008) YGB or OSB includes five developmental disorders such as autistic disorders, Rett disorders, disintegrative disorder of childhood, Asperger's disorder and pervasive developmental disorder not otherwise named (including atypical autism). (Edi: Diken, 2011)

Some researchers deal four subgroups according to level of mental skills, the age of onset of autistic symptoms or the number/severity of symptoms. In the first group they call the atypical group, children with least autistic characteristics and the highest average level are included. The group with mild autism is the group with medium-level mental skills and functional language skills and the children in this group have social problems and they have a desire to protect the same in their environment. They don't want to change things in their daily routines. In the group with medium-level autism, the following characteristics are observed: repetitive movements such as swaying and clapping, limitations in social reactions, limited speech skills and medium-level mental disability. The last group is called heavily autistic group and the children who are closed, non-communicative and have severe mental retardation are included in this

group. The fifth group is called as autistic savant which is constitute about %5 of all autistic individuals. (Deutsch- Smith, 1988, akt. Edit: Ataman, 2003)

Sport and exercise provide the strengthening of muscles in autistic children to increase develop the hand, eye, balance coordination and the formation of social relations which are the biggest problem of autistic children and to develop the communication skills. Participation in sports and exercise programs contributes to build the self-confidence with individuals and groups instead of autistic child's family.

Sport is a tool that allows autistic children to be together with people they don't know before in an environment they don't know about with separating from usual limited family environment. With this, autistic children communicate with other people and participate to exercise activities with certain rules. (Atalay, Karadağ, 2011)

The development and elimination of deficiencies of basic motoric skills are possible with intensive and programmed sport therapies. It is aimed to introduce movements into a certain system using basic limitation skills. Because of the less self-confidence of autistic individuals, they seem to prefer to obey and imitate others rather than being leaders during exercises and sport group activities. (Short, F.X., 1995)

Nowadays if we consider that even healthy individuals take more times for sport, it is clear that how much individuals with autism need it. In this context, one of the most important educational tools of special education programs is sportive activities. It is important for developing the not only sociological and psychological but also physiological and motoric skills. The removal of disconnected from society, mental separation, physical deficits and the isolation in the social interaction in individuals with mental disabilities that have autism are the premise purpose of exercise therapies. (Atalay, Karadağ 2011)

## 2. Material and Method

6 autistic children participated to the research. The age of them are 8, 10, 12, 13, 15 and 17. The age groups and properties of these students are;

- 8 and 10 years old students are male and medium-level autistic symptoms,
- 12 and 13 years old male students and have mild autistic symptoms,
- 15 years old female students and have heavily autistic symptoms,
- 17 years old male students who are atypical which has least autistic properties

The test battery was prepared with choosing from Brockport tests which are age, height and weight and the tests of applied by Brockport test battery which are developed for disabled and included the 30 sec push-up test, hang to the bar with straight arm test, 1 mile (1600m) running test, 20m ramp walking test, 30 sec shuttle test, reverse shuttle test, sit-reach flexibility test, hanging at the bar with twisted arm test, right-left hand grip test.

First tests were done for each student and got information about their physical characteristics. According to these tests, the 12 weeks special movement training program which is aimed to develop the weak physical characteristics was prepared.

Two volunteer sport science faculty recreation department students were determined for all each students to apply the program. Volunteer students were educated with giving seminars about movement training, autism and behavior to children.

Proper exercise and game materials for practices (various sizes and softness of balls, various sizes of pilates balls, targets, jumping ropes, various height of targets and boards, colorful balls and targets, various weight of dumbbells, various weight of medicine balls etc.) were prepared.

4 days in week, practices for 50-70 sec were done. At the end of the 12 weeks program, the chosen tests were done as a last test and compared with other test results and evaluated. The obtained data were evaluated with interpreting and tabled.

### 3. Data

**Table1:** The Features of Students Who Were Applied to Research

Age	Number	Sex	Pervasive Developmental Disorder	Symptoms
8 and 10 aged	2	Male	Medium-level autistic	Repetitive movements such as swaying and clapping, limitations in social reactions, limited speech skills and moderate mental disability.
12 and 13 aged	2	Male	Mild autistic	Mild mental skills and functional language skills, desire to protect the sameness in their environment with social problems, do not want to make changes to the items in their daily routines.
15 aged	1	Female	Heavily autistic	Being closed, non-communicative and have severe mental retardation.
17 aged	1	Male	Atypical autism	Children with the least autism and with the highest average.

**Table 2:** The Applied Special Movement Training Program

Weeks	Days	Aim	Content	Earnings
1	Saturday	Walking, running, jumping.	Straight walking, slalom walking, straight running, slalom, standing jump, jumping while walking	Ability to walk, run and jump in balance.
	Sunday	Holding, gripping and throwing.	Holding the ball, throwing the ball, holding, gripping and throwing tennis ball, gripping and throwing puff ball,	Ability to hold, grip and throw objects accurate and robust.
2	Saturday	Walking, running, jumping.	Straight walking, slalom walking, straight running, slalom, standing jump, jumping while walking	Ability to walk, run and jump in balance.
	Sunday	Holding, gripping and throwing.	Holding the ball, throwing the ball, holding, gripping and throwing tennis ball, gripping and throwing puff ball,	Ability to hold, grip and throw objects accurate and robust.
3	Saturday	Holding and throwing	Holding the thrown ball and	Ability to hold, control

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		with hand, holding and hitting with foot, throwing to the target.	throw back, holding and hitting the rolling ball with foot, throwing the ball with hand and foot to the target.	and throw the various sizes and weight balls.
	Sunday	Hand and foot shot to the target.	Throwing the puff ball to the target, throwing the tennis ball to the target, throwing the football ball with foot to the target.	Ability to hold, control and throw the various sizes and weight balls with both hand and foot.
4	Saturday	Holding and throwing with hand, holding and hitting with foot, throwing to the target.	Holding the thrown ball and throw back, holding and hitting the rolling ball with foot, throwing the ball with hand and foot to the target.	Ability to hold, control and throw the various sizes and weight balls.
	Sunday	Hand and foot shot to the target.	Throwing the puff ball to the target, throwing the tennis ball to the target, throwing the football ball with foot to the target.	Ability to hold, control and throw the various sizes and weight balls with both hand and foot.
5	Saturday	Rolling, climbing, walking in balance, leaping.	Rolling on the straight matt, climbing to high matt, walking on gymnastic line, leaping one leg, two legs on rope ladder	Ability to roll on a balance and properly, climb, walk on a balance, leap.
	Sunday	Rolling, climbing, walking in balance, leaping.	Rolling on the inclined matt, climbing to inclined matt, walking on gymnastic line, leaping one leg, two legs on rope ladder.	Ability to roll on a balance and properly, climb, walk on a balance, leap.
6	Saturday	Rolling, climbing, walking in balance, leaping.	Rolling on the straight matt, climbing to high matt, walking on gymnastic line, leaping one leg, two legs on rope ladder	Ability to roll on a balance and properly, climb, walk on a balance, leap.
	Sunday	Rolling, climbing, walking in balance, leaping.	Rolling on the inclined matt, climbing to inclined matt, walking on gymnastic line, leaping one leg, two legs on rope ladder.	Ability to roll on a balance and properly, climb, walk on a balance, leap.
7	Saturday	Dribbling in the basketball, shooting, passing.	Working with sports-specific techniques	Ability to perform skills specific to sport branches in accordance with the technique.
	Sunday	Dribbling in the football, shooting, passing.	Working with sports-specific techniques	Ability to perform skills specific to sport branches in accordance with the technique.
8	Saturday	Dribbling in the basketball, shooting, passing.	Working with sports-specific techniques	Ability to perform skills specific to sport branches in accordance with the technique.
	Sunday	Dribbling in the football, shooting,	Working with sports-specific techniques	Ability to perform skills specific to sport

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		passing.		branches in accordance with the technique.
9	Saturday	Sportive educational games, Group exercises.	Exercises with educational games specific to sport branches.	Ability to hold the different size and weight balls with both hand and foot, control and throw.
	Sunday	Sportive educational games, Group exercises.	Exercises with educational games specific to sport branches.	Ability to roll on a balance and properly, climb, walk on a balance, leap.
10	Saturday	Sportive educational games, Group exercises.	Exercises with educational games specific to sport branches.	Ability to perform skills specific to sport branches in accordance with the technique.
	Sunday	Sportive educational games, Group exercises.	Exercises with educational games specific to sport branches.	Ability to play games as a partner and as a group, obeying rules.
11	Saturday	Sportive educational games, Group exercises.	Exercises with educational games specific to sport branches.	Ability to play games as a partner and as a group, obeying rules.
	Sunday	Sportive educational games, Group exercises.	Exercises with educational games specific to sport branches.	Ability to play games as a partner and as a group, obeying rules.
12	Saturday	Sportive educational games, Group exercises.	Exercises with educational games specific to sport branches.	Ability to play games as a partner and as a group, obeying rules.
	Sunday	Sportive educational games, Group exercises.	Exercises with educational games specific to sport branches.	Ability to play games as a partner and as a group, obeying rules.

**Table 3: Observation Form**

Situation	Expectation	1. Observation	2. Observation	Earnings
Willing to participation to practices	Willing	Shy	Willing	Participate willingly.
Adaptation to practices	Compatible	Incompatibility symptoms	Compatible	Adaptation to the group
Peer relationship	Compatible	Incompatibility symptoms	Compatible	Communication compatibly with peers.
Trainer-student relationship	Compatible	Incompatibility symptoms	Compatible	Communication compatibly.
Skill	Successful	Unsuccessful	Successful	Providing basic skills.
Coordination	Successful	Unsuccessful	Successful	Providing basic skills.
Participation to the games	Successful	Unsuccessful	Successful	Providing basic skills.

**Table 4:** Interview Form

Questions	Expectation	1. Observation	2. Observation	Participate willingly
Does your child participate in the study as willing?	Be willing	Shy	Willing	Adaptation to the group
How is your child's adaptation to the practices?	Being Compatible	Incompatibility symptoms	Compatible	Communication compatibly with peers.
How is your child compliance with friends?	Being Compatible	Incompatibility symptoms	Compatible	Communication compatibly.
How is your child compliance with trainers?	Being Compatible	Incompatibility symptoms	Compatible	Providing basic skills.
How is your child's skill?	Skillful in all movements	Unsuccessful	Successful	Providing basic skills.
How is your child's coordination ability?	Be coordinated in all movements	Unsuccessful	Successful	Providing basic skills.
How is your child's ability to participate in games?	Participate to all games	Unsuccessful	Successful	Participate willingly.

## 5. Analysis

The pre-test and post-test situations which were done in research and obtained data from volunteer observation form, meeting parents form (first observation, first interview and last observation, last interview) were grouped below.

## 6. Result and Evaluation

According to the research results, development was observed ( $p < 0.05$ ) in 2 male medium-level student's (8 and 10 aged) and 2 male mild autism student's (12 and 13 aged) tests of 30 sec push-up, straight arm hanging at the bar, 20m ramp walk, 30 sec shuttle, reverse shuttle, sit-reach flexibility, twisted arm hanging at the bar, right hand grip. Only in 1 mile (1600m) running tests, and left hand grip tests the development results weren't achieved.

Also according to the observation results, while in first observations generally shyness, failure and incompatible behaviors in children were observed, in second observations these negativities have left their place to more willing, desire to achieve and harmony.

In interviews with parents, it is determined that at the beginning students have shyness, unsuccessful and incompatible behavior, in the following weeks they were more willing, desiring to succeed and compatible.

As a result, it can be said that the special prepared movement training program which were applied to students contributes to students' physical and social development.

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