



## EVALUATION OF PARENTS' THOUGHTS ON EFFECTS OF SPORTS ON CHILDREN DIAGNOSED WITH AUTISM SPECTRUM DISORDER

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### Abstract:

The aim of this study was to assess opinions of families whose children are diagnosed with autism spectrum disorders on the impact of participation in sports on children. The research was carried out using qualitative method in a phenomenological design. The study group consists of 8 families of children with autism spectrum disorders that are doing sports for at least one year, and those families are selected according to "convenience sampling" of purposeful sampling methods. The data were collected by a semi-structured individual interview form based on review of literature, expert opinions and pilot practice. Content analysis technique was used to analyze the collected data. The questions in the interview form were designed to cover the development of children's motor skills, mental skills, daily life skills, problematic behaviors, social skills and sporting branches. According to research findings, it has been found that children's motor skills, mental skills, daily life skills, problematic behaviors, social life skills and sport skills have been developed and changed positively in so many ways.

**Keywords:** autism, sports, children

### 1. Introduction

Autism is diagnosed as a neurological disorder that can affect the structure or functioning of the brain, which is under developmental disorders (Hollender-Nowinski, 2003). Autism causes people to encounter some problems in their behavior and in

interacting and communicating with other people. Autistic children, who seem physically healthy, differ when their motor development is compared to their peers. In terms of physical functioning, although they seem to be able to perform many talents at any time, performing some talents takes time. It is seen that while the autistic individuals perform any movements, their preparedness of motor skills is not as good as coevals' (Fazlıoğlu, 2004). Since autistic individuals cannot express themselves smoothly, participation in physical activity positively affects their physical, social, and emotional structures, resulting in reduced uniform behavior and the development of more complex skills. "*The development of skills supports the acquisition of complex abilities by laying the foundation for other body movements*" (Sarol, 2013). Although sport activities are essential for all people to have a healthy life, it is an extremely ignored subject for children with autism. Participating in physical activities as much as possible is a neglected field despite its effects on children with autism like reducing their repetitive movements, making the desired reactions more viable, socializing and providing reflex (Penny 2008). Creation of body awareness in autistic individuals, the cooperation with other children may be possible with the application of motor skills programs in the development of adaptation process to the environment (Kayaoğlu, 2008). Autistic individuals, who are identified as disinterested in all events in their environment and asocial people who have torn their ties with the outside world, may put their families in difficult situations due to the behavior they exhibit in society. For this reason, families want to continue to train their children in the house. Sports activities also help autistic individuals to get out of their accustomed family experiences and communicate with different people in different places. By this means, they can communicate with the individuals they have not known before and can participate in physical activities (Atalay, 2011). There are many benefits of participating in physical activity for individuals with autism, such as reducing self-stimulating attitudes, raising appropriate responses, and creating opportunities for socialization (Yanardağ, 2007). Physical activities prepare an environment for people with autism to move away from their parents and to communicate with different people in different social areas, in an unfamiliar environment, with people whom they have not communicated with before. Therefore, autistic individuals can communicate with different people they do not know, and may be involved in activities that require a certain order (Atalay, 2011). Regular sports and physical activities play an important role in preventing the problems of autistic individuals. Physical activities have an important role in reducing behaviors composed of meaninglessly repeated stereotyped movements of children with autism, as well as settling and relieving them (Todd, Reid, 2006).

Physical and motor activities not only improve the quality of life of autistic individuals, but they also provide behavioral and mental development. According to Şahin, mental development is the development of competencies such as perception, thinking, reasoning, and comprehension that are necessary for learning, in consequence of learning by doing through activities (Şahin, 2002). The effects of regular sports activities on body systems of trainable mentally disabled children and autistic individuals can be arranged into four groups. The first of these is the effects on the cardiovascular system. As a matter of fact, the sport reduces the heart rate, the amount of blood and oxygen going to the heart-feeding coronary arteries increases as the time between two beats increases. Each beat increases the amount of blood pumped into the body. Blood pressure gets regulated. It improves blood distribution in skeletal muscles. The second is hemodynamic effects that improve the fluidity of the blood and increase the tendency to clot. The third is the effects on metabolism. These include changing the cholesterol structure, increasing the level of glucose in the blood, reducing insulin and uric acid levels by increasing the amount of myoglobin in the muscle cells and beneficial lipids in the heart and also by reducing the harmful ones. The last one is endocrinological effects. It increases the levels of adrenaline, cortisol and growth hormone. The most important feature that distinguishes a mentally disabled child from his/her peers is the way he/she behaves. Mental development involves personal changes in every child, as well as some general characteristics related to mental processes and functioning (Güven, 2003). Learning of individuals with autism and mental disabilities is difficult and takes time. At the same time, some concepts and talents cannot be gained at a later age. Mentally disabled people need to have, even a little, special training to gain abilities to detect and learn like their healthy peers. In such disorders, it is aimed to develop creativity and playful skills with special physical education activities (Özer, 2001). From the group of trainable mental disabilities, autistic children and individuals demonstrate both physical and mental recovery by joining social life through sports. Sports have contributions such as reintroducing them to society, discovering their talents, and recognizing their interests. Also, healthy individuals should be aware of and support autistic people who must be reintroduced to society and who develop their physical activities together with their families. In this respect, the findings of this study are presented based on the opinions of the parents who have children with ASD in terms of determining the effects of sports on children, their motor skills, mental skills, daily life skills, problematic behaviors, social life skills and developmental effects in sports branches. In this context, the main problem of the study is "*What are the remarks of families with children with autistic spectrum disorders on the effects of participating in sports on their children?*". Sub-problems related to the main

problem can be ordered as *“What are the remarks of the parents on benefits of sports for ASD children’s motor skills, mental skills, daily life skills, problematic behaviors, social skills and development in sports?”* In this study, it is assumed that parents were following their children's experiences and interacting closely with their children during and after the activities; that their families have observed their children objectively and have fully perceived the contents of the questions; that the families responded sincerely and honestly to the questions directed at the interviews.

The aim of this study that the data is limited with observations and remarks of 8 families with ASD-diagnosed children in Istanbul province, is to examine the effects of participation in sport activities of children diagnosed with autistic spectrum disorder on the basis of the views of their families.

## **2. Material and Methods**

This study is a qualitative study designed with phenomenological pattern. The qualitative method has been preferred in order to minimize the conceptual uncertainty that may arise due to the inadequacy of studies related to the topic. The qualitative study will provide in-depth and detailed explanations of sport involvement of children with autistic spectrum disorder, based on the views of their parents, on its impact on children.

### **2.1 The Study Group**

The study was conducted between February and May 2016 with families with child or children with ASD diagnoses. The study group consists of families of 8 individuals who is doing sports regularly for at least one year and diagnosed with ASD, which is selected by means of "convenience sampling" from the purposeful sampling methods. These eight families were selected among those who volunteered to remark on this issue and with ASD child or children who regularly participate in sports activities. The "convenience sampling" from purposeful sampling methods was used to reach out to volunteer families that would be useful in exploring and explaining the phenomenon of effects of sports on children with OSB and to increase the external validity of the study.

### **2.2 Figures and Tables**

As a result of the interviews, comments and observations about the children in the sport activities of the families were collected under six topics (main themes). These topics are listed as motor skills, mental skills, daily life skills, problematic behaviors, social skills and sports development as mentioned before. Parental statements about these main

themes are also tabled with different codes. In line with the results obtained, a total of 129 different codes (parental expressions) were obtained in children. Each of these codes represents development in a separate area. The repetition of the findings of these codes indicates the areas where children are developing. Now six topics or main theme will be evaluated respectively.

### 2.3 Motor Skills

The results, based on observations and expert opinions, including the effects of participating in sport activities of children with ASD on them, obtained from the interviews with the parents are presented in Table 1.

**Table 1:** Families' Opinions about Motor Skills of Their Children

Behavior Code	Repetition of Finding	Behavior Code	Repetition of Finding
Motor age progression	1	Not drooling	1
Strengthening of the finger muscles	3	Improvement in walking	2
Development in comprehension skill	1	Holding pen	1
Improvement in fingertip walk	1	Development in muscles	6
Improvement in balance profile	3	Increase in pushing and pulling ability	1
Climbing stairs	1	Leap	1
Inflating a balloon	1	Tumble	1
Candle blowing	1	Carrying objects	1
Strengthening of hand muscles	1	Balanced walking	1

When we look at Table 1, we can see that the highest finding (6) is "development in muscles". In this context, six families have stated that muscle development occurs after the child has started to do sports. Three families reported that "strengthening in finger muscles" and "improvement in balance profile", and two families "improvement in walking". Other codes or expressions are findings that have been observed and transmitted by only one of the families of ASD-diagnosed children. Family discourses and family codes related to the subject are exemplified in Table 2.

**Table 2:** Example Family Discourses and Family Codes in Terms of Motor Skills

Sample Family Discourse	Family Code
<i>"He never felt his fingers, now he can hold and grasp something with his fingers. His fingers did not work at all, but this has improved with the sport."</i>	B
<i>"There was a very big balance problem when walking. With the sport, this problem has gone."</i>	G

**Table 3:** Family's Opinions about Children's Mental Abilities

Behavior Code	Repetition of Finding	Behavior Code	Repetition of Finding
Increased perception	8	Increase in eye contact	1
Increased awareness	7	Learning the sequence concept	1
Increase in command fetch	8	Listening	1
Follow-up instructions	1	Increased attention span	1
Progress in mental age	1	Expressing requests	2
Recognizing the dangers	1	Reduced anxiety	1
Imitation skill	1	Increased self-confidence	1
Learning	2	Performing assigned tasks	1
Increase in concept learning	2	Ability to generalize	1
Increase in understanding	6	Self-control	1
Object recognition	1	Self-expression	1
Self-control of movements	1		

All eight families stated that "mental increase" and "increase in command fetch" among the mental activities of children who were diagnosed with ASD occurred. Seven families expressed "increase in awareness", six families "increase in understanding", two families "learning", "increase in concept learning" and "express their requests" and other topics stated in table is expressed by one each family. They all agree that these developments are linked to sport activities. Family discourses and family codes related to the subjects are exemplified in Table 4.

**Table 4:** Example Family Discourses and Family Codes in Terms of Mental Skills

Sample Family Discourse	Family Code
<i>"At that time, my child's behaviors were like 1.5-2 years old when he was 3.5 years old. My two children are 4,5 years old. The last test we made is showing at 4 years old."</i>	A
<i>"Now that he comprehends our commands, he can understand and do things."</i>	H

The results of family interviews are shown in Table 5, which shows the results of daily life skills seen in ASD-diagnosed children doing sports. In this context, the seven families stated that they observed development in "eating on his/her own", five families in "wearing and taking off their own clothes", three families in "brushing teeth", "using spoons", "using forks" and "disappearance of toilet problem", while two families stated that they observed development in "zipper use" and "wearing shoes", and at least one family observed developments in other issues in Table 5.

**Table 5:** Family's Opinions about Children's Daily Life Skills

Behavior Code	Repetition of Finding	Behavior Code	Repetition of Finding
Awareness of dressing	1	Fruit peeling	1
Zipper use	2	Order	1
Use of snap clippings	1	Wearing shoes	2
Eating on his/her own	7	Disappearance of toilet problem	3
Wearing and taking off clothes on his/her own	5	Drinking water on his/her own	1
Brushing teeth	3	Using shoe rope	1
Brushing his/her hair	1	Folding clothes	1
Using spoons	3	Preparing his/her own drink	1
Using forks	3	Kitchen skills	1
Using knives	1	Showering on his/her own	1

**Table 6:** Example Family Discourses and Family Codes in Terms of Daily Life Skills

Sample Family Discourse	Family Code
<i>"My child could not eat his own food. He could not hold a spoon. Now he can separate and use forks and spoons."</i>	A
<i>"As I said, he could not use his hands very well. His muscles were weak. Of course, he could not wear his clothes. Now that his muscles are developing, his perception and understanding are increasing, he can clothe himself by holding his clothes"</i>	G

**Table 7: Family's Opinions about Children's Development in Problematic Behaviors**

<b>Behavior Code</b>	<b>Repetition of Finding</b>	<b>Behavior Code</b>	<b>Repetition of Finding</b>
Reduced hyperactivity	8	Not throwing stones into water	1
Not hurting people around	6	Not yelling	1
Decrease in stereotyped movements	1	Decrease in hitting himself/herself	2
Not biting his/her hands	1	Decrease in hitting others	1
Decrease in biting himself/herself	1	Decrease in obsessive requests	5
Not hitting objects	1	Decrease in persistence of requests	1
Not breaking objects	1	Reduced hair pulling behavior	1
Not throwing objects	2	Decrease in escape behavior	1
Reduced obsession of hitting his/her eyeglasses	1	Reduced running behavior	5
Not throwing glasses	1	Decrease in playing with his/her hands	1
Not throwing forks	1	Decrease in holding his/her fingers	1
Not throwing plates	1	Not playing with his/her fingers	1
Increase in waiting time in the table	8	Not jumping on the spot	1
Being calm	1	Not tampering around	1
Reduced swinging behavior	8	Decrease in liquid pouring obsession	1
Not crying	5	Not jumping on the spot	1
Not throwing herself/himself on the ground	1	Decrease in eating obsession	1
Not stamping	1	Decrease in anger outburst	1
Not hitting his/her arms	1	Not throwing stones into water	1
Not putting objects in his/her mouth	1	Not screaming	1



All eight families declared that they observed “reduced hyperactivity”, “increase in waiting time in the table”, “reduced swinging behavior”, six families declared “not hurting people around”, five families declared “not crying”, “decrease in obsessive requests” and two families declared “not throwing objects” and “decrease in hitting himself/herself”. For each respect in Table 7, one family stated that they observed positive developments in their children. Table 8 shows the sampling of behaviors that are registered and can be defined as a decrease in problem behaviors that the families of ASD diagnosed children doing sports stated.

**Table 8:** Example Family Discourses and Family Codes Related to Positive Changes in Problematic Behaviors

Sample Family Discourse	Family Code
<i>“He was very peevish before. He/She was inflicting damage to surroundings. He/She is not like that anymore.”</i>	A
<i>“He/She used to start running as soon as we left his/her hand and ran towards road, but now he/she walks without running around.”</i>	H
<i>“Problems such as biting, hair pulling, etc., which we think are important for us, have begun to disappear.”</i>	G

**Table 9:** Family's Opinions about Children's Development in Social Life Skills and Activities

Behavior Code	Repetition of Finding	Behavior Code	Repetition of Finding
More open in communication	1	Start talking	1
Communicating with parents	5	Communication by touching	3
Playing with parents	6	Communicating with friends	5
Adaptation to the social environment	6	Communication	1
Adapting to a friend group	1	Listening	1
Playing with friends	5	Expressing requests	1
Playing with toys	1	Accepting guests at home	2
Waiting in people except parents	5	Social activities with parents	2
Involvement in social activity	1	Helping others	1
Letting others touch him/her	1	Ability to stay alone at home	1

When Table 9 is examined, it is seen that the six families have expressed that their children are improving on "playing with parents" and "adaptation to social environment". Five families have said that their children are improving on "communicating with parents", "playing with friends", "waiting in people except parents" and "communicating with friends". Three families identified progress on "communication by touching", two families on "accepting guests at home" and "social activities with parents", and one family stated that they are progressing on each issue listed in Table 9. Table 10 provides an illustration of the increase in social skills generated by the voice recordings of the family members.

**Table 10:** Example Family Discourses and Family Codes Related to Positive Changes in Social Skills

Sample Family Discourse	Family Code
<i>"Previously, he/she did not accept the guests at home. Now he/she accepts and even communicates with the incoming guests."</i>	G
<i>"We used to go to places where nobody else was. We used to go to the beach where no one else was. We used to go to the shopping center where people went less often. We used to live this way. But now we have no such fear. We can go everywhere very comfortably."</i>	Y

According to the results obtained from the interviews with the parents, there was a positive change in the sport performance and increase in interest in these sport branches. The data related to these situations are presented in table 11.

**Table 11:** Family's Opinions about Children's Development in Skills of Sport Branches

Behavior Code	Repetition of Finding	Behavior Code	Repetition of Finding
Cycling	4	Skiing	1
Ice skating	5	Ping pong	2
Swimming	5	Roller skating	1
Horse riding	1	Basketball	1

When Table 11 is examined, the increase in interest in ice skating and swimming branches and the development of children in these branches are at the top level. Apart from this, children also make progress in sports branches such as cycling, skiing, ping pong and skating.

### 3. Results and Discussion

The data obtained after the examination of the audio recordings made with permission from the parents regarding the main themes or topics mentioned above constitute the main data source of this research. These data were analyzed in five steps. These are resolution, reliability analysis, coding of data, themes and categories, interpretation of results (Ok, Erdoğan, 2010). In the resolution phase, individual interviews and voice recordings made with participants were transformed into texts. The texts prepared separately for each participant were read by participants and their confirmations were taken. Thus, it was tried to increase the internal validity. As a matter of fact, the examination of the written documents of the individual interviews by the participants is an important reliability study for qualitative studies (Patton, 2001). Then, the data is encoded. At this stage, the data have been read and studied in detail by the researchers. Every word, sentence or paragraph examined is coded line by line by taking five expert opinions and the concepts presented with the data is explored by researchers (Kasalak, Aksu, 2016). During the theme and category building phase, similar narratives have been identified with detailed comparisons and reviews between interviews. In these narratives, a general categorization was made and the themes were formed (Miles, Huberman, 1994). As a result of all these studies, six main themes and 129 codes which will be placed under these main themes have been reached. The "content analysis" technique was used, and direct quotations from the interviews were also included in the research. In this context, it is aimed to "*transfer the raw data as faithfully as possible to the nature of the data without adding comments to the reader in a rearranged way according to the emerging concept and data*" (Yıldırım, Şimşek, 20).

### 4. Conclusion

Development in motor activities is a condition that every human being gains from sports. Families of children with ASD stated that they observed developments in many motor activities such as muscle growth and body balance in children. The development of the skills and the coordination of the muscles of children with ASD who is doing sports are changes that will increase the quality of life of both children and their families. The most common situations that are assessed and recorded as mental development are that children respond more healthily and promptly to the commands they receive and there is a visible increase in perceptions and awareness. The families also expressed that sports have led to an increase in ASD-diagnosed children's ability to understand. It can be said that such mental development is important in terms of

children's acceptance and adaptation in society. Children with ASD who are regularly engaged in sports activities have started to accomplish the tasks that they have not been able to achieve in their daily lives before. Eating on his/her own, wearing and taking off clothes on his/her own come first. Apart from that, ability to accomplish many different daily jobs will reduce their dependence on their families. In this context, individual areas of both parents and children may expand. Families of children who can handle daily activities themselves have indicated that it is a result of sports activities.

Children with ASD can have many different problematic behaviors that can be mentioned. According to the data obtained from the families of the children doing sports, this type of behavior began to decrease and disappear after regular participation in sports activities. The most common situation is that children with ASD who are hyperactive have a decrease in their hyperactivity after regular participation in sporting activities. In addition, they began not to harm surroundings, and there was an increase in waiting times at the desk. Because sports give every individual an opportunity to socialize and gain competence, the families of the children with ASD stated that their children were also socialized and showed behavioral development in the social environment. According to the observations of the families in their children, it has been stated that children are strengthened in their adaptation to social environments, in communication with both their parents and strangers. Such social development situations play a major role in children's sense of that they belong in the society and in the acceptance of individuals with ASD by the society. At the same time, the parents also added that in time their children succeeded and developed in the sports branches they had not succeeded before. It would be useful to develop a scale, and conducting a validation and reliability study of this scale for assessing the opinions of families with children with autism spectrum disorder, their children's sports involvement, and its impact on children. In this context, 129 different codes (parents' expressions) with interpretations and observations about the children in sports activities of the families collected under the six topics (main themes) of our study can be helpful in further studies. Therefore, it will be possible to ensure that the validity and reliability of future studies are higher.

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