

Identifying the strategies and consequences of training sport activities to children with autism spectrum disorder

DOI: 10.22098/JPC.2023.12730.1167

Mohammad Zare Abandansari; Nasrin Azizian Kohan; Bahare Soleymani Tappesari

¹ PhD student in sports management, University of Mohaghegh Ardabili, Ardabil, Iran

² Associate Professor, Department of Sports Management, University of Mohaghegh Ardabili, Ardabil, Iran.

Corresponding Author: nasrinazizian@yahoo.com

³ Department of Physical Education, Adib Mazandaran Institute of Higher Education

Abstract

Aim: Participating in sport activities entails various advantages for children, and due to the special conditions of children with autism spectrum disorder; they should benefit from exercising in their lives. Unfortunately, due to the unfamiliarity and the lack of suitable conditions, the ground to participate in sport activities for this group of people in the society is not well prepared. Therefore, the purpose of the current research is to identify strategies and express the consequences of teaching sports activities to children with autism spectrum disorder. **Methods:** The present research carried out in 2023 via using a qualitative style based on a phenomenological approach and in the Collaizi method. Research Participants included: children with autistic disorder and their parents, sport instructors with the experience of working with autistic children, university faculty members in the psychology department, sport management, motor behavior, and autism therapists, from whom a sample of 17 people was selected. For the final validation of the research, the validity and reliability criteria were applied. **Results:** In the end, 87 final concepts were identified, including 7 main contents: motivational, environmental, individual, instructors', communication, social, and parental awareness; and its consequences entail 5 main contents of motor, physical, psychological, behavioral and social development. **Conclusion:** The results of the research will help to plan the proper inclusion of sport programs in the daily schedule of children suffering from autism, and finally the improvement of the physical and mental condition of this group of people in the society will be achieved.

Keywords: Children, Sport Activities, Psychological Development, Autism Disorder.

Introduction

Autism is a common growth disorder characterized by speech and behavioral problems such as lack of social abilities, repetitive behaviors, communicative disorders, activity disorders, and restricted interests (Huang et al, 2020) . In addition to the problems of social interactions, communication and stereotypical behaviors; the Motor skills of autistic patients are usually reduced as well (Fournier et al., 2010). The victims of this disease are mainly children and adolescents, but an explicit age limit for them has not been discerned yet (Orinstein et al., 2014). Autism spectrum disorder is basically a growth disability characterized by deficiencies in social interaction, communication, and exists in limited and repetitive behaviors (American Psychiatric Association, 2013). In general; Autism is a developmental disorder that usually appears in the first three years of life and is characterized by communicative problems, social interaction deficiency, and limited repetitive interests and behaviors. Although the criteria for diagnosing autism spectrum disorders does not entail the inability to cover motor skills, studies reveal that motor deficiencies and delays in children with autism are obvious (Rosso, 2016).

In this regard, doing sports is one of the ways to reduce the impact of autism in people. Sports are considered beneficial for they reduce movement disorder and provide social integration (Yanardağ et al., 2010). In the current world, doing sport is fundamentally one of the most significant indicators of real development and progress in countries. Exercise is one of the important factors in improving the mental health of families in the society (Mikkelsen et al., 2017). Physical activities provide people with well-being and mental peace, and play an important role in increasing the efficiency and growth of personality and moral patterns, moderation and self-esteem, and a person's understanding and feeling of beauty (Hughes, & Leavey, 2012). Participating in sport activities expands people's self-control skills and consequently it leads to the improvement of communication and proper interaction with friends, family and other members of the society, the development of social skills and the formation of positive emotions (Findley and Copeland, 2008).

Therefore, doing sports and physical activities improve the social skills in the disabled as well as their level of confidence and self-esteem (Reinders et al., 2019). And specifically, people with autism spectrum disorder who participate in sport activities enjoy cognitive, psychological and social benefits (Fang et al., 2019). Basically, in order to enhance health, social participation and personal satisfaction of people with autism spectrum disorder, there is a need to participate in sport activities, but unfortunately, children suffering from autism spectrum disorder often confront obstacles to take part in sports, therefore, they participate less in sports as compared to children without disabilities (Streach et al., 2022). Children with autism spectrum disorder also tend to maintain a sedentary attitude, which, along with low levels of physical activity, leads to short-term and long-term negative health consequences (Jones et al., 2017). Social challenges, lack of motor skills and sensory hypersensitivity can make sports challenging in childhood for those with autism spectrum disorder and result in negative experiences and unwillingness to participate in sports (Nichols et al., 2019).

The presence of social and behavioral problems in people with autism, basically results in less physical and sport activities (Pan, 2006); and this matter is the basis for some

chronic diseases such as obesity, which is very common in patients suffering from autism (Tyler et al., 2011). Children and adolescents with autism spectrum disorder have a lower level of physical fitness and experience more risks and problems relating to health such as inactivity and overweight as compared to normal growing children (Hillier et al., 2020). In addition, being deprived of social adaptation is the other disadvantage of not participating in sport activities by students with autism disorder (Pitetti et al., 2007); that through organized physical activities, individuals with autism have the opportunity to communicate with others (Zachor et al., 2017).

Next, a review of past studies relating to the sport activities of autistic children will be discussed. Brown et al. (2020), stated in their research; parental support plays an important role in the physical activity orientation of children and adolescents with autism spectrum disorder. Boucher et al. (2022), stated in their research; Four themes were inductively identified: intrapersonal barriers (factors that are within the person which impede physical activity involvement, such as exhibiting challenging behaviors that inhibit engagement), interpersonal barriers (factors external to the person, such as lack of community support), intrapersonal facilitators (factors within the person that enhance physical activity involvement, such as being intrinsically motivated to improve skills), and interpersonal facilitators (external factors such as supports from caregivers) It has an effect on the exercise of autistic people. Wohofsky et al. (2022), stated in their research; Assistive technology can help to increase autonomy and safety of people on the autism spectrum and thus decrease the burden of care. Duquette et al. (2016), declared in their research; In order for people with autism disorder to participate in sport activities, it is necessary to focus on the social environment, activity and communication strategies. Kimber et al. (2021), stated in their research; The findings suggested that coaches utilised environmental, communication, and behavioural strategies to support participation. Recognising the diversity of this population the findings suggest a person-centred approach to coaching is required, understanding individuals needs and developing a trusting relationship with the athlete and their families. Buffle et al. (2022), stated in their research; Early identification of children with autism is necessary to support their social and communicative skills and cognitive, verbal, and adaptive development. Stanish et al. (2015), stated in their research; the arduous learning of physical activities is one of the reasons why autistic people do not like to participate in these types of activities. Healy et al. (2013), stated in their research; according to the parents of children with autism, the barriers for their children not to participate in sport activities include: restrictions on children's movements and their motor skills, along with their medical conditions which have a key role in taking part in physical activities. It was also asserted in the research results of Feehan et al. (2012); children and adolescents having autism spectrum disorder did not welcome games and physical activities due to insufficient skills and were excluded from participating in physical activities. Menear, & Smith. (2011), in their research, stated that the obstacles for the people with autism spectrum disorder to participate in sport activities include: low motivation, poor motor performance, self-regulation, social dimensions, and weak skills in diverse fields. Gómez et al. (2020), expressed in their research; the participation of students with autism disorder in sport activities has an obvious positive effect on the health, sleeping and the

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quality of life of those suffering from this disorder. As Bernate et al. (2020) stated in their study; the profits gained through physical activity for students with autism spectrum disorder are emotional stability, increasing euphoria and self-esteem, reducing self-harm, decreasing tension and stress, and the like. Huang et al. (2020), proclaimed in their research; physical activity has a positive and substantial effect on social interaction and communication abilities, motor skills and autism degree of affected children, as well as social and communication skills of autistic adolescents.

According to the stated items; participating in activities by students with autism disorder is of high importance, but due to the existence of some obstacles, this group of people are not able to benefit properly from the advantages of taking part in sport activities. In this respect, it is essential to carry out a research in order to examine all aspects of this issue. A review of past researches revealed; despite the significance of the aforementioned issue and various researches carried out in other countries, there has been no research in Iran that scrutinizes all the features of the issue in this field, and the previous researches have only considered some elements of the sports for children suffering from this disorder as general; therefore, providing the basis for this group of people to benefit from sports by identifying effective strategies in instructing sport activities to students with autism spectrum disorder necessitated conducting the current research. Hence, the main research question is as follows:

What are the efficient strategies and consequences in training sport activities to students with autism spectrum disorders?

Methods

The current research was practical in terms of purpose and was carried out through a qualitative method using a descriptive phenomenological approach. The aim of the study was to identify the factors relating to the subject matter; thus, the phenomenological method was applied, and to analyze the data of the interview the Colaizzi's analysis method was used. Considering the nature of the research and the use of the descriptive phenomenology way; the Colaizzi method was singled out as the most practical method of descriptive phenomenology with regard to the research subject. Research Participants studied in the research consisted of university faculty members in the department of psychology, movement behavior and sport management, students with autism spectrum disorder, parents of students with autism disorder, sport instructors and autism therapists in 2023. The sampling method was purposeful. Therefore, the life, work and scientific experiences of the participating people and the complete satisfaction of them from attending the interview, their ability to conduct it and narrating the contents; were the inclusion criteria for entering and selecting the samples in the study. Exclusion criteria for people to leave the research was the lack of desire to continue working with the researcher. Finally, a sample of 17 people was selected through the statistical population mentioned in the above text.

In order to take into account the ethical principles in the current research; the goals and necessity of the research were primarily explained to the research participants before starting the interviews. Then, based on their own personal consent and initial familiarity

with the topic under study, the participants took part in the interviews. Before starting the interview, people were asked to allow the interview process to be recorded completely, and if they disagreed to do so; the interview process was written on paper with participants' permission. 15 out of 17 conducted interviews were recorded and 2 interviews were written on paper. In the following, the participants were allowed to withdraw from the interview at any time during its process. However, no participant withdrew during the interview and all of them were carried out. All the interviews were also conducted with former appointment in a place away from the crowd and without the interference and participation of others.

The semi-structured measurement tool of the research with open questions was applied. In order to gain a deeper comprehension of the content of the research, semi-structured interviews were conducted with people relating to the research. The duration of the interviews was between 30 and 45 minutes. The interviews continued as long as it was possible to extract entirely non-repetitive concepts from them (17 interviews); then the interviews started with designing pivotal questions. According to your experience, what are the efficient strategies in training sport activities to students having autism spectrum disorder? 2. Based on your experience, what are the consequences of participating children with autism disorder in sport activities? In the following, due to the semi-structured nature of the interviews, the rest of the questions were asked from the research participants.

For the final validating of the research, the validity and reliability criteria were used as it went on. For this purpose, the interviews were given to the interviewees after being analyzed, and their opinions thereof were applied and the necessary modifications were considered. Reliability refers to the stability of data over time and under different conditions. In order for the research to be reliable, the intra-subject agreement method of two coders was used. Two expert coders, familiar with the coding method as well as the subject of the research, coded the interviews and the percentage of agreement between the two coders equaled 82%. In qualitative researches, validity and reliability criteria are generally used to make the study valid and reliable. That is, the tool that we have used to measure and review the research has the feature of repeatability. To verify the research, several sport management professors and experts in the related field who were not engaged in its process, reviewed all the stages of the study and their points of view were applied.

Results

Since obtaining information through conducting interviews only with autistic children was not sufficient; and due to the fact that the subject of sport activities of children with autism can be investigated from different perspective, interviews were taken from various sport groups dealing with autism. In this regard, parents of children suffering from autism in 38-50 age group who have direct familiarity with their conditions ; sport instructors have experience working with autistic children in 40-55 age range; university faculty members in psychology department, movement behavior and sport management with experience of research activities such as articles and books in the field of autistic children

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with the age range of 43-49; autism therapists having experience of more than 5 years working with autistic children with the age range of 40-47 were chosen as the participants of this research. From the mentioned people above, 17 participants were selected, and the results are presented in Table 1.

Table 1. Demographic characteristics of research participants

Experts	Position/specialty	Gender	Marital status
1	Faculty member of psychology department	Male	Married
2	Faculty member of psychology department	Female	Married
3	Faculty member of movement Behavior	Male	Married
4	Faculty member of movement Behavior	Female	Married
5	Faculty member of sport Management	Male	Married
6	Faculty member of sport Management	Female	Married
7	A child with autism spectrum disorder	Male	UnMarried
8	A child with autism spectrum disorder	Male	Unmarried
9	A child with autism spectrum disorder	Female	Unmarried
10	Parents of students with autism	Male	Married
11	Parents of students with autism	Male	Married
12	Parents of students with autism	Female	Married
13	Sport instructor	Male	Married
14	Sport instructor	Male	UnMarried
15	Autism therapist	Male	Married
16	Autism therapist	Male	Married
17	Autism therapist	Female	Married

According to Table No. 1, the participants in the research include: 2 university faculty members in the psychology department, 2 people in the motor behavior department, 2 people in the sport management department, 3 children with autism, 3 people among parents of autistic children, 2 sport instructors and 3 autism therapists

Through analyzing the findings obtained from the information of the participants in the research, the codes that were identified in the first stage of the interviews were located in the sub-content part of the study. In the following, the authors placed the contents that were related to a specific field in the main content section, and final table of the main and sub contents of the study were drawn in relation to the Practical strategies in training sport activities to students with autism. Table 2 demonstrates the Effective strategies of the participating students with autism spectrum disorder in sport activities.

Table 2. Effective strategies in training sport activities to students having autism spectrum disorder

The Main Content	Subsidiary Content
Motivational Awareness	1.Encouraging one's efforts during success or failure in sports, 2. Making sports enjoyable for affected children, 3. Attending sport events as spectators, 4.Diversification in sport activities, 5.Participating in sport competitions, 6.Maintaining the person's motivation while performing sport activities, 7.Identifying the interests of the person with autism, 8.Attracting the person with autism before starting sport activities, 9.Using special and attractive content regarding sport activities according to the person's age, 10.Avoiding the feeling of failure at the time of failing in sports
Environmental Awareness	11.Perceiving the environment, 12.Understanding physical spaces, 13.Feeling safe in the environment of doing sports, 14.Lowering the sounds of the environment, 15.Doing sports in social environments, 16.Appropriate temperature of the playing environment, 17.Suitable lighting for the playing environment
Individual Awareness	18.Understanding shapes and symbols while doing sports, 19.Comprehending programs, 20.Perceiving written information, 21.Understanding the rules of sport activities, 22.Having cognizance of when to do sport activities, 23.Knowing how to do sport activities, 24.The significance of sport activities for the affected person
Instructors' Awareness	25.Ensuring that a child with autism is not tired before doing sport activities, 26.Finding suitable sports for the child, 27.Not involving children with autism in sport with high concentration, 28.Using dynamic sports, 29.Use of exercises engaging the whole body, 30.Use of verbal signs, 31.Considering shortness of breath, muscle cramps and dizziness during activities of the affected child, 32.Use of visual signs, 33.Gradual participation of the affected person in sports, 34.Giving appropriate time to the affected person in order to understand the question and adopt the proper answer. 35.Ensuring that the person is justified in relation to the way of doing the activity and understanding the questions, 36.Supporting the affected person during exercise, 37.Paying attention to the frequency and intensity of the sport activities, 38.Considering the age and physical condition of the affected person, 39.Giving The opportunity to rest during sport activities, 40.Postponing sport activities during the stress of the affected person, 41.Supporting the affected person during stress and anxiety, 42.Clarity of expectations from the person, 43.Choosing predictable activities, 44.Considering the personal preferences and interests of the affected person, 45.Not focusing on

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	competition, 46. Identifying the strengths and weaknesses of the affected person, 47. Utilizing computer games, 48. Choosing practical sport activities, 49. Using game therapy, 50. employing music therapy
Communication Awareness	51. Applying specific and well-known words, 52. Not giving long explanations, 53. Presenting concrete examples, 54. Showing examples of activity, 55. Not providing too much information, 56. Talking slowly with the affected person. 57. Providing guidance during activities
Social Awareness	58. Increasing awareness among peers, 59. Increasing awareness among educators
Parental Awareness	60. Increasing the awareness of parents on how to communicate with children having autism, 61. Teaching how to improve the physical condition of the family, 62. Improving the quality of life of children with autism, 63. Timely diagnosis of children with autism, 64. Proper interaction with therapists. 65. Selection of qualified therapists such as: psychologists, physiotherapists and sports rehabilitation, 66. Use of proper diet in the nutrition program of children with autism disorder.

According to the results obtained from the information of the participants in the research; efficient strategies in training sport activities to students with autism spectrum disorder; include 7 main contents: motivational, environmental, individual, instructors', communication, social and parental awareness, as well as 66 subsidiary contents.

Through analyzing the findings obtained from the information of the participants in the research, the codes that were identified in the first stage of the interviews were located in the sub-content part of the study. In the following, the authors placed the contents that were related to a specific field in the main content section, and final table of the main and sub contents of the study were drawn in relation to the Consequences in training sport activities to students with autism. Table 3 demonstrates the consequences of the participating students with autism spectrum disorder in sport activities.

Table 3. Consequences of participation of students with autism spectrum disorder in sports activities

The Main Content	Subsidiary Content
Motor Development	1. Increasing the range of motion, 2. Expanding muscle power, 3. Improving physical coordination, 4. Improving motor skills, 5. Awareness of the spatial situation, 6. Improving the function of the senses, 7. Increasing alertness.

Physical Development	8.Weight loss, 9.Reducing affliction to physical diseases
Psychological Development	10.Increasing the feeling of peace, 11.Reducing the feeling of hopelessness, 12.Lessening stress and anxiety, 13.Experiencing the feeling of success and predominance, 14.Reducing the affection of mental illnesses.
Behavioral Development	15.Reducing maladaptive behaviors, 16.Decreasing aggressive behaviors, 17.Turning attention away from repetitive behaviors, 18.Reducing hyperactivity, 19.Improving activity in the environment
Social Development	20.Improving social interactions, 21.Developing the quality of life

According to the results gained through the information of the participants in the study; The consequences of participating students with autism spectrum disorder in sport activities entail 5 main contents: motor, physical, psychological, behavioral and social development; as well as 21 subsidiary contents.

Discussion

Fundamentally, the participation of children in sport activities entails numerous advantages. Moreover, according to special conditions of children with autism disorder; The need to do sport activities is much more in this group of people. In this regard, the present study was conducted with the aim of identifying efficient strategies and consequences of participating children with autism spectrum disorder in sport activities. In relation to efficient strategies in training sport activities to children having autism spectrum disorder, 7 main contents were identified in which the motivational awareness is the first recognized content in this field. Basically, the attraction of the educational content is one of the main factors in creating children's interest in learning programs, hence, the sport programs established for children with autism disorder should enjoy adequate attractiveness and be capable of attracting the attention of the affected children. It is also essential to identify the interests of children with autism before planning in this field, so that appropriate physical activities can be established for them. Another thing that should be considered in this section is diversifying sport activities. Relevant managers can also use children with autism as spectators in sport events to strengthen their interest in sports. The results of the study in this section are in line with (Menear et al., 2011) and (Boucher et al. 2022), for the importance of the motivational dimension in participating of the autistic children in sport activities.

The second content recognized in the section of effective strategies in training sport activities to children with autism spectrum disorder is environmental awareness. Substantially, security is required for children to trust to attend sport venues and perform physical activities, children with autism spectrum disorder are included in this issue as well. Therefore, all the aspects of the security development of sport facilities where children with autism attend should be taken into consideration. Factors such as excessive

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overcrowding, noisy environment, and poorly-lit or strongly-lit environments can cause disturbance to the exercise of autistic children. In addition, doing sports in social environments has a positive effect on this group of people. The results of the research in this section are in line with (Duquette et al., 2016) and (Wohofsky et al, 2022) and the reason for such an alignment is the role of the environment for the children's tendency to participate in sport activities.

Individual awareness is the third identified content. In general, children with autism disorder have serious problems in understanding, using, analyzing, combining and evaluating materials. Accordingly, it is necessary that the sport programs considered for them be simple and not so complicated so that it can be easily implemented for autistic children with a proper understanding of the programs and rules of the game. The results of the research in this section are aligned with (Stanish et al., 2015), (Boucher et al. 2022), (Boucher et al. 2022), and the reason is the importance of skills in the autistic children's tendency to participate in sport activities.

The next identified content is the instructors' awareness, which is the most expressed concept by the participants in the research in this section. This issue shows the importance of the role of instructors in the process of training sports to children with autism. One of the very important things to which instructors should pay attention is the lack of fatigue in children with autism before starting to do sport activities. Trainers should also take into consideration signs such as: shortness of breath, muscle cramps and dizziness of the affected children. A useful factor at this stage is to rest the children during the activity so that they do not get somehow exhausted. In addition, sport instructors should regard age conditions, frequency and intensity of sport activities when designing training programs for children with autism as well. Children with autism may also experience sudden stress during sport activities, so instructors should support them properly in these situations. Another factor that should be taken into consideration by the instructors in this section is to make sure that the children with autism have understood the plan they are about to do. Instructors can have immediate feedback in this stage to ensure about what the children should do by asking them questions. The expectations of instructors towards the children with autism should be obvious. The results of the research in this section are aligned with (Kimber et al, 2021).

Communicative and social awareness are the next two contents recognized in relation to efficient strategies in training sport activities to children having autism spectrum disorders. In general, when communicating with children with autism disorder, giving a lot of information and long explanations should be avoided. It is also recommended to speak slowly with the affected person and use simple, clear and well-known words. Another factor that should be regarded in society is increasing awareness among peers about how to interact and communicate with children having autism spectrum disorder. Of course, increasing awareness and developing knowledge among educators can also involve positive effects. The results of the study in this section are aligned with (Huang et al., 2020), and the reason for being so is the role of social interaction and skills, ability and communication strategies in boosting the number of children with autism disorder who participate in sport activities.

The last identified content in the section of effective strategies in training sport activities to children with autism spectrum disorder is parental awareness. Basically, the younger the autism disorder is diagnosed, the faster the recovery process and the reduction of the severity of the disorder in the individual. Hence, families should fairly monitor suspicious behaviors of autism disorder in their children, such as: weakness in verbal and visual skills, feebleness in making eye contact, repetitive and aggressive behaviors, obsessions, lack of understanding emotions and having unexpected reactions to the normal life flow and other similar cases. Therefore, timely diagnosis of a child suffering from autism is a very important and vital process in which families play the most important role. Families should use qualified and appropriate therapists when diagnosing their child's disorder as well. The results of the research in this section are aligned with (Brown et al., 2020) and (Buffle et al., 2022), and the reason for the alignment is the importance of parents' support from children with autism spectrum disorder to participate in sport activities.

In addition to the strategies mentioned above, regarding the participation of children having autism disorders in sport activities; taking part in these activities will also result in positive consequences, the first recognized content of which in this section is motor development. Basically, if children with autism take part in sport activities continuously, the motor skills of them will also develop over time. Improving the function of the senses and awareness of the spatial situation are also some other factors discovered in this section. The research results are in line with (Nichols et al., 2019) and (Huang et al., 2020) because of the importance of developing motor skills through exercise in children with autism spectrum disorder.

Physical and mental developments are the next two identified contents relating to the consequences of participating in sport activities by children with autism spectrum disorder. Participating in sport activities predominantly improves physical and mental conditions, and children with autism disorder can also benefit from this issue. For instance, improving physical fitness, reducing stress, depression, and increasing calmness in the affected children are some of the presented benefits. The research results in this section are in conformity with (Fang et al., 2019) and (Bernate et al., 2020) due to the improvement of physical and mental condition, reduction of tension and stress in children with autism owing to participating in sport activities.

Behavioral and social development are the two final contents identified in relation to the consequences of participating in sport activities by children with autism. When the affected children participate in sport activities, their attention from the repetitive behaviors they perform throughout the day will be distracted. Reducing incompatible behaviors will not be far from expected either. Finally, with the benefits of the behavioral and social consequences mentioned in this research, we will have the improvement of social interactions and the development of the quality of life resulting from the participation of children with autism in sport activities. The research results in this section are in compliance with (Reinders et al., 2019) and (Huang et al., 2020) for the improvement of social skills, the development of social interactions, and the promotion of communication and behavioral skills in children with autism who participate in sport activities.

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To conclude, it can be said that doing sports by children with various diseases has a wide range of benefits. There are some barriers which make the participation of autistic children in sport activities unfavorable; accordingly, the present study tried to solve the stated problems and increase the participation of children with autism in sport activities through examining this issue comprehensively. The results of this research help to properly plan the inclusion of sport programs in the daily schedule of children suffering from autism and finally lead to the physical and mental growth and development of this group of people.

As a limitation of the current research, we can refer to the indiscernible stated influence of each recognized content, considering the qualitative method of conducting the study; therefore, the subject discussed in other societies should be investigated in this regard with a combined method to determine the impact of each factor. Finally, it is suggested to other research authors to carry out researches regarding the obstacles sport activities for autistic children and also to compare the sport activities of children with autism in developed countries with Iran.

Conclusion

According to the results obtained from the information of the participants in the research; efficient strategies in training sport activities to students with autism spectrum disorder; include 7 main contents: motivational, environmental, individual, instructors', communication, social and parental awareness, as well as 66 subsidiary contents. According to the results gained through the information of the participants in the study; The consequences of participating students with autism spectrum disorder in sport activities entail 5 main contents: motor, physical, psychological, behavioral and social development; as well as 21 subsidiary contents.

Disclosure Statements

The authors state that there is no conflict of interest in the present study.

ORCID

0000-0002-3698-0632

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