

PHYSICAL ACTIVITIES ROLE IN SOCIAL INCLUSION OF PERSONS WITH AUTISTIC SPECTRUM DISORDER

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Abstract: Diversity and inclusion are fundamental to the evolution of society (European Union Agency for Fundamental Rights, 2011). The UN Convention on the Rights of Persons with Disabilities (2006), declares that we need to ensure that persons with disabilities have equal opportunities for recreation and sports. People with disabilities are 3 times less active and twice as likely to be obese as the able bodied population (CDC, 2009). The health impact of inactivity can have a more compounding effect on the person with the disability than the primary disability, leading to health compromising secondary conditions (Rimmer et al, 2010) that impact not only physical condition but also self-concept, self-esteem, societally engagement and social isolation and capacity for self-actualization. Engaging in sport and leisure activities has mental, social, spiritual, and physical gains for people with intellectual and developmental disabilities (Chawla, 1994). Social integration predicts morbidity and mortality, but its relationships with specific health behaviors that could explain this relationship, such as physical activity, have not been established.

The purpose of this study was to examine the association between social integration and physical activity for children with autistic spectrum disorder.

The subjects of the study were a group of 12 children with ASD (Autism Spectrum Disorder) which were enrolled on a 6 month program of physical activities. We assessed the social skills of the subjects, interaction with peers and teachers, appropriate and inappropriate behavior during the physical activities sessions and leisure activities.

The results of the study revealed that there were some positive and significant increases in the amount of appropriate behavior and significant decreases in inappropriate behavior pre-post physical activity sessions.

Keywords: Social inclusion, Autism, Physical activities

The etiology of Autism Spectrum Disorder (ASD) is approached from a complex perspective in the professional literature, from genetic to environmental factors. Davis III, et al., (2014) showed that in the past two decades there was an increasing number of children diagnosed with ASD. According to the DSM-5, the diagnostic criteria for Autism Spectrum Disorder are: a) persistent deficits in social communication and social interaction across multiple contexts, as manifested in various contexts; b) restricted, repetitive patterns of behavior, interests, or activities; c) symptoms must be present in the early developmental period; d) symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning; e) these disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay (American Psychiatric Association, 2013).

In a first instance, the accent in the education of people with ASD was on ***integration***, as a process of assimilating a person in an ordinary environment, an essential fusion between his/her personality and the elements of the system with which he interacts, but actually the general tendency is for inclusion, as a superior step in an educational system that aims to "capitalize and promote the diversity and equality of rights" (A. Gherguț, 2006).

Considering the particularities of the people with ASD, one of the major problems that they face is social inclusion. Social inclusion is a concept referring to the creation of equal opportunities for every person, so that they would be able to take part in the daily life activities of a society, such as education, work, access to services and resources that the community makes available to its citizens, and participate in its social life. (Rapper, Perkins, 2003). Social inclusion can be regarded as an important part of the therapeutic process for the people with mental health issues, or even as its goal. (Repper, Perkins, 2003; Ammeraal, et al., 2013). In the case of children with special educational needs, social inclusion regarded as just public school inclusion is a limitation. A true social inclusion presupposes the participation of these children in both the school activities and the activities that can be conducted outside the school environment.

Children with special needs have to perform almost any type of activities that typical children perform: they need access to educational and playing spaces, in school and outside it, they need to perform leisure time activities together with other children of their age, in places where they usually do this, they need to take part in cultural, sportive activities.(Vraşmaş et al., 2010).

After an analysis of the impact of the social inclusion process from the perspective of access to education, it has been observed that there is a series of major landmarks that favored the inclusive steps, using physical activities.

Physical activity has been identified as a means of addressing motor impairments, reducing stereotypical behavior (Levinson & Reid, 1993; Prupas & Reid, 2001), increasing appropriate responding (Kern, Koegel & Dunlap, 1984) and increasing the potential for social interaction (Berkeley, Zittel, Pitney and Nichols, 2001).

Interaction with typically developed peers can positively promote social interaction and communication, making definitive diagnosis more difficult.

According to Frith (2003), impairments in social interaction and communication are accounted for by the theory of mind-blindness. These impairments are present in every individual with autism, regardless of age or level of ability.

Physical activities and sports have joined the modern social demands, making available their opportunities for socializing and discovering top performances, even for the ones whose activity has objective limitations.

Tompson et al. (2011) shows that physical activities performed in moderate-to-consistent intervals have considerable benefits on the health, throughout the lifetime. The positive impact is not just about cardiovascular health or weight control, but aims also psychological aspects, such as cognitive performances (Anderson-Hanley et al., 2011) or emotional health. Todd & Reid (2006) quoting the National Research Council (2001) and Berkeley, Zittel, Pitney, & Nichols (2001), shows that the involvement in physical activities of persons with disabilities, including children with autism, can lower the number of occurrences of stereotypical behavior, on one hand, and can improve these persons' social skills, on the other.

Other studies show that physical activities determine a series of improvements also in the executive functions. Hilton et al. (2014) emphasize the fact that there is a strong correlation between the motor component and the executive functions. The subjects in the Hilton et al. (2014) study manifested a significant increase in their cognitive functions, working memory, and physically, an increase in their strength and agility.

The effects of such programs on the improvement of social skills, and implicitly, of social inclusion, have been highlighted in numerous studies, over the last few years (Siperstein, 2010; Özer, 2011; Bota, Teodorescu, Șerbănoiu, 2013). All these studies have confirmed the positive impact on the social-emotional behavior of people with disabilities, and on their social acceptance.

A strategy that is promoted in the physical activities adapted for the people with disabilities is learning through cooperation, which determines the accumulation of knowledge and social interactions with persons in an appropriate social group. In this context, people with intellectual disabilities develop both their motor skills that are specific to the programs they are involved in, and their social skills, to interact with the others. Also, cooperation favors social acceptance because working with other people facilitates the awareness of a sole purpose and of a need to join forces in a learning goal. This type of learning presupposes the following criteria to be respected (Le Fevre, 2002): all subjects must support each other to reach a common goal; each subject's efforts are accepted and appreciated; each subject participates and is actively involved in the activity; all subjects enjoy the fun and stimulating atmosphere.

Human encounters, exchanges, self-knowledge and people developing a clear relationship with their environment have been seen as facilitated effects of engagement in physical activities. Physical activity has the power to create a dynamic process and serve as a catalyst for developing other types of activities, through its popularity or play and entertainment value. It is a tool that can be used to gather people, build cohesion and facilitate social interactions with peers. Physical activities would involve a large number of people around a joint activity and can also facilitate communication and sharing centered on themes or concerns common to all.

Adapted physical activities takes into consideration the individual as a whole being, through a physical, psychological, cognitive and social approach that promotes growth of the person using empowerment to take personal responsibility for his/her own well-being.

Three main educational principles are at the base of this approach are success-based teaching, personalized teaching and differentiated teaching. Success-based teaching principle aims to create situations adapted to a person's abilities so she can succeed at the task and avoid obstacles that might set the stage for failure and lead to disappointment and frustration. Personalized teaching principle it is a person centred intervention that is done by listening to a person to understand her environment, needs, desires and resources (or abilities), the teacher can develop a proposed activity with that person to promote growth and achievement of her personal goals. Differentiated teaching method complements personalized teaching and incorporates the group aspect and its diversity. (Peynot, 2011)

The approach implements a wide range of teaching and learning methods and procedures. It enables students of varying ages, skill levels, abilities and aptitudes to achieve joint objectives through various means and, ultimately, educational success. Knowing the different characteristics of each participant therefore is vital in adapted physical activities. The instructor that is delivering the adapted physical activity program has to be able to adapt his posture and attitude to each person's trait, but must also share this knowledge of the other person, to the person to suggest adapted situations and activities that may suit them. To enable an individual to draw on her resources and develop personal abilities to achieve her goals set with the instructor, the professional must adapt the activity by modifying several factors: communication methods, environment, materials, rules and skills (Peynot L.,2011)

It is a common situation that people with disabilities are still too often seen as “unable.” Because of poor knowledge of people's potential, teachers, coaches, facilitators or even colleagues may exclude them from play. People with disabilities may also willingly exclude themselves for these same reasons of poor knowledge of their abilities, fear of failure, fear of being seen by others, or rejected by them.

Participants

The subjects of our study were children (N=12), who ranged in age from 10 -14 years old and are enrolled in a normal schools in the the city of Bacău. The participants were involved in a 6 month physical activity program with a frequency of 2 times per week during 1 hour. The physical activity program included a gymnastics circuit training, basketball drills and ball games.

All the 12 participants were diagnosed as having autism according to the guidelines of the Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition (DSM-V, American Psychiatric Association, 2013). The participants were recruited from a local NGO's which offer social services for individuals with autistic spectrum disorder and other intellectual disabilities.

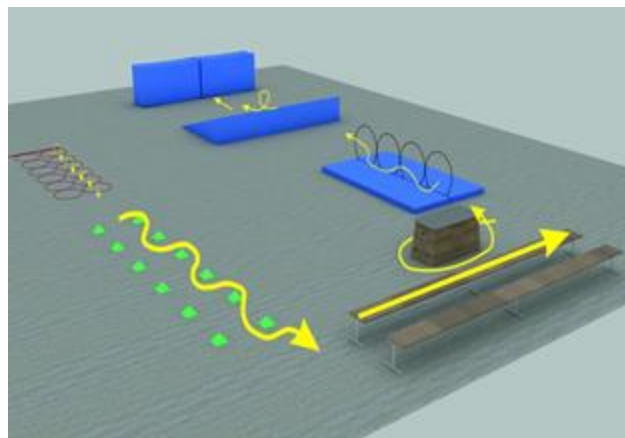


Figure no. 1 Physical activity circuit used for evaluation of the motor skill development.

The physical activity circuit was developed in a Special Olympic project unfolded during the years 2015-2016 for children with intellectual disability; „Development of motor skills in people with Down syndrome - essential step towards an independent life”.

Description of the circuit activity: We used a circuit composed of six distinct areas that are challenging the motor capacity of the children. The starting point of the circuit was marked with a white line and the finishing point was made of two high mattresses that had to be touched. The circuit starts with a set of twelve circles placed on the floor, that had to be crossed with six synchronized jumps on both legs from circle to circle, and it is followed by twelve stakes placed on two lines where the children have to run winding between them doing a slalom. The third area of the circuit consisted on two gymnastic benches where the children were required to lay on and crawl along with simultaneous or alternative traction until the end of the bench. In the fourth area we placed a gymnastic vault box, where the children was supposed to do a roundabout

running to bypass that obstacle on a given route. Following the vault box we placed 4 mattresses in pair of two, with big circles placed in the middle of mattresses in a vertical position so that the children could go through the circles in a dog position, moving on their knees and forward support. The last area of the circuit was made from two incline mattresses that were put side to side to form a wide incline surface where the children had to roll on a side face down transverse with arms up. The finishing act was running from the incline surface to touch the mattresses wall.

The competences that can be achieved during the circuit are: ability to fulfill dynamic tasks in special circumstances, the ability to control and adjust speed to fast changes of direction, the capacity to move in special circumstances, time and space appreciation, segmental coordination, motor control and retrieval.

The weekly adapted physical activity program was conducted as follows: one hour per week - gymnastics, circuit, and specific drills for coordination, posture, balance, work in pairs in the gymnasium; one hour per week - physical activity using balls, and drills with specific basketball elements, passes, dribbling, shoot-offs.

Fear of differences and ignorance can cause negative attitudes detrimental to successful social integration. In an effort to help children empathize with a variety of conditions, utilize simulations to educate and enlighten in a fun, non-threatening environment.

We have used several methods of instruction in the physical activities program which are helpful in individualizing and meeting diverse needs of the TSA children: peer tutors, circuit training, teach useful, functional skills. Peer tutors can provide extra hands and individualized attention. In this situation all participants benefit from the integration experience. Children with TSA make new friends, have an opportunity to interact in a social situation and receive needed assistance to meet objectives. Peer tutors get to experience differences, make friends, and help someone who needs it. Peer tutors may be regular education students of the same age, older, or other special education students. Behavior disordered students seem to rise to the occasion when asked to help another special education student who obviously needs help.

Circuit Training: These two teaching techniques offer effective methods of allowing for practice of a variety of motor skills. Stations may be set up to emphasize skills from one

particular unit (basket- ball, fitness etc...) or may provide skill practice in a variety of objective areas (strength, balance, eye-hand coordination, fitness). The organization of the class helps students to focus on the activity and their own performance, rather than lesser skilled classmates.

Movement Education as a teaching style is particularly helpful in allowing students the flexibility to solve movement challenges at their own level. Directions may be given to "skip or gallop". This allows those students who have learned to skip to practice that skill and to allow students at a lesser skill level to also follow directions and successfully meet the movement challenge. Movement education also helps decrease attention given to "clumsy kids" in that students do not have to perform to an imposed tempo.

Teach useful and Functional skills. Think in terms of lifetime recreation/leisure activities. What activities are most important for children? What are they most likely to do in their free-time, with friends in the neighborhood or family members? Winning a game, or becoming the best scorer in basketball should not be the primary emphasis, instead including a wide variety of recreational activities that are available in the community and help the child social integration process can built a fundamental phase to an independent life.

Results: To assess the progress of the subjects, the [ATEC](http://www.autism.com/ind_atec) (http://www.autism.com/ind_atec) scale was used, developed by Rimland, B and Edelson, S. M. of the Autism Research Institute, in order to highlight the learning changes in the children with ASD who were included in various therapeutic programs. The scale comprises 77 items presented as statements grouped in 4 subtests: I. Speech/Language Communication (14 items); II. Sociability (20 items); III. Sensory/Cognitive Awareness (18 items); IV. Health/Physical/Behavior (25 items). The scale is not copyrighted, and can be used freely by any researcher. Copies of the ATEC scale are available on demand at the Autism Research Institute.

N	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
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Initial evaluation	24	21	19	19	21	19	18	19	20	17	19	15
Final evaluation	21	17	14	13	16	12	11	13	12	11	12	13

Sociability Scale II results at the initial assessment are distributed as follows: 25% of subjects are included in the 16 to 18 percentile, 67% of subjects 19 to 21 percentile and the results contained in the 22 to 25 percentile being comprised 8% of the subjects.

After attending the program, the results obtained at the final evaluation at Sociability Scale II has 17% of the subjects falling in percentile 11 percentile in 50% of subjects 12 to 13, 8% of respondents in the 14 to 15 percentile, 17% in percentile 16-18 and 8% in the 19-21 percentile.

Low scorers reveal a specific operation running close to a neuro-typical children while high scores show the presence of problems that can significantly affect the operation of children with ASD in a social context.

From the results we see an increase in the number of subjects they managed to obtain lower scores on the social scale, subjects achieving decreases in scores between 2 and 7 points from baseline. Beyond the limits related to the child's developmental potential, we find that the subjects involved in physical activity program has resulted in improved social capabilities.

Conclusions

The results of the study revealed that there were some positive and significant increases in the amount of appropriate behavior and significant decreases in inappropriate behavior pre-post physical activity sessions.

We appreciate that physical activity programs tailored for people with ASD that was used as individual practice and exercise in pairs and in groups stimulated the development of

social interaction between study subjects and increased chances initiate positive social behaviors among group members.

Improving social skills measured by the rating scale used is confirmed through interviews conducted with parents, volunteer and accompanying person of children throughout the program. Interviews with parents and volunteers who were present in physical activities conducted have revealed significant behavioral changes in the subjects with ASD in terms of networking with peers, decreasing conflict situations triggered both in the context of the program and in other social environments in which they are present (school, family, neighbors)

The impact of physical activity programs adapted to the process of social inclusion of persons with ASD positive effect on both the individual concerned and the family and community of which it is part.

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