Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XIV, ISSUE 2 Supplement, 2014, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

Science, Movement and Health, Vol. XIV, ISSUE 2 Supplement, 2014
September 2014, 14 (2, Supplement): 531-537
Original article

PHYSICAL ACTIVITY AT CHILDREN WITH AUTISM

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Abstract

Problem statement: This paper aims to describe important aspects of specific behaviors related to physical activity and not only, in children with autism and ways of therapeutic intervention.

Autism affects 1 in 150 children in the United States (according to the Center for Disease Control of Atlanta and of the 600,000 people affected by autism in the UK 80,000 are of school age (under the Youth Sport Trust, 2008). In Romania there are no statistics the number of children with autism.

*The aim of the research***:** Autistic disorder was considered to be more common in higher socioeconomic classes, but newer studies proving that this statement was made under the influence of preconceived ideas, unrealistic.

Autism , according to several studies , is more common among boys than among girls , the rate of 3:1 or 4:1 being. ("Link" store, no. 34/2002, Autism Europe).

Conclusions: Sometimes children with autism have associated problems can include problems with hearing, vision, motor coordination weak or nonexistent , which affects the need for education and access to physical education and sport in schools where they are enrolled.

*Key words***:** *autistic children, physical activity, therapeutic intervention.*

Introduction

Therapy for children with autism elements is based primarily on education. It must be adapted to each child with autism separately, depending on symptoms and needs, because each autistic child presents its own particularities.

Due to the broad spectrum of manifestations of a child with autism, we have to mention that exercise is not a method of treatment / recovery for all children.

Exercise reduces aggression, hyperactivity and stereotypic behavior in children with autism and it's universally accepted among specialists that physical activity is a key component when working with such children. (Ozonoff S., Dawson, G., McPartland, G.)

It is possible that certain improvements to occur only as a result of normal development and, therefore, not as a result of therapy. Such improvements are more the result of a larger amount of attention that was given to individual children (no matter what type of therapy is used).

A number of international declarations and documents stipulates the right of all children to education, the need to integrate children with disabilities in compulsory education regardless of type and level of disability, their right to " a full and decent life, in conditions which ensure dignity and autonomy and in conditions that facilitate their active participation in community life." (UN Convention on the Rights of the Child).

Based on the specific needs of children with autism regarding education and given the new orientation of educational policy in special education in Romania (in an attempt to render the romanian educational system with european standards, the law consider "integration as a fundamental principle of the Romanian education school activities" and encourages the integration of the children with disabilities in society by considering public school the first chance at education for them regardless of their learning abilities), we consider it appropriate to integrate children with autism into a physical activity program, that will allow the continuity of the existing therapy (http://www.oecd.org).

Our desire is that these children to have the same opportunities and rights as typical children, this requirement arising from the fact that studies in education of children with autism demonstrate the positive impact of children without disabilities in improvement of the social interaction, for the children that have autism. We also try to develop a role model from the typical children for the children with autism, a model that adults can not provide regardless of the methods used.

Aspects of Autism Spectrum Disorder (ASD)

Is the job of all children to play. Through play they learn about the world, how things work, their bodies, and relationships.

Due to the specific particularities of learning the autistic children, the structure of individual programs for learning is very important.

Characteristics of learning for autistic children require composition of some programs, because the

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Received 2.04.2014 / Accepted 10.05.2014

autistic children:

- do not understand verbal explanations on what will happen next;
- do not remember sequences of events, so they cannot predict;
- feel uncomfortable not knowing what will happen next;
- have difficulties in any change due to the uncertainty of what will be;
- their activity depends on the context in which learning was accomplished.

Also, autistic children have difficulties to organize themselves beyond known space, in making choices (they try several things at once), to initiate play with a toy alone and knowing how to use the materials independently (Schetter, P).

Autistic children have problems understanding group instructions. They cannot follow the group and they require individual instructions. They can't understand the words from the instructions, songs, activities, and also they cannot wait too much without doing something, they always wait for feedback and they cannot predict when it's their turn.

Unforeseen changes in the program, like the absence of the teacher, for example, creates problems and confusion for them.

The program models which organize the information that prepare children for the upcoming events lead to increased motivation and reduce behavioral problems associated with confusion and stress. In consequence, the program becomes the structure on which new activities are developed.

In composition of the individual programs we must alternate the favorite activities with the ones that the child likes less, or not at all. An activity that the child does not like should be planned before the one preferred by the child because it is considered that, in time, the child will come to value the one that initially was unpleasant for him. Also, actions that are not approved by the child may attend after an indifferent action (familiar for the child).

Children with autism need multiple information based on different levels (programs organized by days, months, weeks). Some of them require even more detailed programs.

Young children need a program that includes activities for the whole day, in their sequence, and a mini-program for the period of work (directed activity).

For those who have already learned the routine of the day, creating a mini-program specifying the difficult periods (core activities) is also very necessary.

The time allocated to each activity depends on the age and the focus of the child and also depends on how much he prefers or not that activity. Time spent in unwanted activities should be very short.

Dancing on music improves body image. Music and dance games involving different limb movements lead to improvement of the psychomotricity.

Communication and social interaction are great challenges for children with autism. Many children with autism develop special interests, and these special interests often provide years of pleasure and fulfillment. The child may need encouragement to play with toys, textures, or people outside his comfort zone or apart from special interest. If an activity is perceived as too complicated or too long, many children will not engage. To be motivated, they need to perceive activities as being fun because the children who don't have a clear picture of where to begin and where the activity is heading will reluctant to participate. Therefore one of the keys when teaching a child a new game or activity is to break the activity exclusive to the other parts. Once a child understands and mastered one part, you cans start adding more parts to the activity. (Grandin,T.)

Children with neurological difficulties often do not track to established developmental-age charts. When deciding which activities will best promote a child's development, it is important to remember that a child's skill level may be different from his or her chronological age.

Some children require more opportunities to learn in a direct manner since they are not as likely as other children to learn through observation. When introducing the concepts that set up learning in specific areas such as mathematics and reading comprehension, it makes sense to infuse them into fun activities that capitalize on the strengths or sensory needs of the child; that way, they can generalize information. Thus, introducing or solidifying academic concepts through fun games and activities will help increase the child's opportunity to learn them.

Three dimensional manipulation of objects and one's body as a way of learning is not the norm as the children progress up the grade levels. Within a few years of the child's entering school, most learning becomes pen-and-paper based (two dimensional) or computer based (one dimensional). But as we've known, children with autism, Asperger's or sensory disorders learn best in the three-dimensional world, by interacting in or with the environment, which is often a prerequisite to two- and one dimensional learning. Learning in a three-dimensional way allows the brain and body to internalize complicated concepts to such a degree as to be able to understand the gestalt of the concept, thus allowing generalization of the information to other settings. Further learning through experience, meaning active engagement in the learning process,

has a much more powerful and residual imprint on our brain and body, thus establishing a stronger base for higher-level processing. (Sage,G.H.)

Programs of physical activities for ASD children. General aspects

Motor learning. If a child appears not to know how to make his or her body do what a teacher is asking, then the child's brain may not be able to learn more tasks by observation only. Physically teach the child by moving his or her body through the new activity while verbally saying what the child's body is doing.

Visual cues. One of the most powerful tools to use when teaching anything, new or familiar, with all children is a visual schedule. It has been well documented that children on the spectrum rely heavily on their visual systems to understand their environment. Visual cues are powerful tools to any child to increase the understanding of what to expect from a situation or what is expected of him or her. When verbal or physical directions are accompanied by visuals, a child has something to refer to if he or she is not able to retain the auditory information. Picture can be used to show the sequence of an activity or even the rules of a game.

Play with peers. When introducing peers into new game or activities, start with a small amounts of time and familiar activities. Learning from peers has been widely encouraged by many professionals working with children with autism, because this peer learning usually occurs in numerous settings, is dynamic, and lends to increased generalization to other people and environments.

Programs of physical activities for ASD children. Practical aspects

Sensory development.

All senses depend on each other and are integrated with other. As such difficulties in one system are likely to impact another system. Difficulties in systems can also impact a child socially, because where and how a person's body relates and interacts to its surroundings is the kind of information he or she will likely need to feel secure in new environments and around new people. If a child is sensitive to touch, he will likely experience difficulties with fine motor skills that are related to academics and self-care skills.

Activity no.1

Bonding rock. Two adults lock arms to create a hammock and hold the child between them in a horizontal position. Be sure both of adults are close enough to apply a small amount of pressure to the child with their bodies. The entire time sing a familiar song. The key is to maintain constant deep pressure on child's body while maintaining eye contact with child.

The two adult bodies provide deep proprioceptive input, which is calming in much the same way swaddling a baby provides comfort. The rocking back and forth provides controlled vestibular input. This basic activity encourages early eye contact while jointly taking part in an activity with another person.

Activity no.2

Making hot dog. Lay a heavy blanket on the floor and tell the child that you're going to make hot dogs and he or her is the hot dog. Then have the child lay at one end of the blanket on the floor, making sure that the child's head is off the blanket before you start rolling him or her in the blanket. Keep talking constantly with the children. Then apply pressure to arms, back and legs while saying "I'm putting ketchup on the hot dog's right arm/leg…". Finally pull one end of the blanket so the child rolls out of the blanket, which will make him/her laugh. If the child becomes anxious being rolled up, have him/her put him/her arms outside the blanket.

Wrapping the child in a blanket and applying the "condiments" provide deep pressure that stimulates proprioceptive receptors, thus having a calming effect on the nervous system.

While physically interacting with the child you are also helping him/her indentify body parts. While unrolling the child at the end of the game, you are eliciting rotary motion of the head and body, which excites the vestibular system.

Rotary input is alerting to the nervous system and can be overwhelming to children who are sensitive to movement. But in this activity, rotary input is linked to proprioceptive input, which is calming to the nervous system.

Activity no.3

Tic-tac-toe. On a flat surface cover an area of approximately 15cm by 15cm with shaving foam about 1cm thick. Have the child draw the four lines (two vertical, two horizontal) to create the tic-tac-toe grid in the shaving foam. Play tic-tac-toe in the shaving foam. At first you can practice just making 0's and X's in the boxes.

Shaving foam provides a tactile environment to practice fine motor skills. This activity requires the child to use the whole hand to establish the shaving foam surface, but then the child needs to use the pointer finger in isolation to make X's and 0's. this activity involves also planning and organization, as well as strategy, of where to place the X's and 0's.

Gross motor skills.

What many people do not realize is that there is more to gross motor skills than the simple act of moving. Gross motor skills rely on effective sensory processing of a number of different skills and systems, especially body senses: tactile, proprioceptive and vestibular processing. They also require an understanding of the properties of our physical world. Coordinated gross motor actions also call for sufficient muscle tone, trunk control and muscle strength. If all of this is present, then the key to good gross motor skills is effective motor planning.

Activity no.1

Jumping bears. Place a small number of same-colored bears on the mini-trampoline. Be sure that the child has him/her shoes on for this activity. Then hold the child's hand and ask him/her to show to the bears how to jump. It may be needed physically cue to the child to jump. Once he/she is jumping encourage her to keep jumping until all the bears have jumped off.

Since the child has to think about how to jump to get the bears to bounce off, the activity requires increased motor planning. Watching the bears jump off requires following the bears' movements as they "jump off".

Jumping on a trampoline increases deep pressure input to the body, which has an integrating, calming impact on the nervous system. The child use his/her eyes to scan while his/her feet are off the ground.

Activity no.2

Balloon soccer. Have the children play balloon soccer, where they use their knees and their head to keep the balloon afloat. This is geared toward older children because it requires more motor coordination and is more physically taxing as well. The advances activity requires and stimulates core strength and is much more motivating than sit-ups.

Activity no.3

Floating balloon. Bat a large balloon back and forth a few times at first until the child gets the concept of the game. Then integrate peers. Have all participants hit the balloon to keep it afloat as long as possible. For added challenge the adult calls out which hand the children use to hit the balloon.

These two activities require trunk rotation to turn and hit the balloon. A key to gross motor coordination is readying the body to respond to things or people moving around it. Keeping the shoulders and arms in an extended periods of time helps promote physical endurance. These activities require the child to use both sides of the body to hit the balloon. The child must also integrate the auditory information and translate it into motor action. It also allows children who struggle with language skills to participate in an interactive game with a peer.

Activity no.4

Biking through the maze. Using chalk, draw a zigzag path on the ground. Put the child navigate the path on the tricycle. Increase the difficulty over time by drawing paths with ever more turns and sharper turns. (First the child must learn to pedal the tricycle. Once the skill for pedaling becomes automatic, introduce the path. This will further challenge his/her body and brain because he/she will have to think about when and how to steer the tricycle in order to keep it on the path.)

This is an excellent activity for strengthening the pelvic region and legs. It is required to the child to focus the eyes forward to follow the chalk path. This activity is alerting the vestibular system since the child's feet are away from the ground while they are in motion.

Activity no.5

Pillow balance. Put the child keep the pillow balanced on his/her head while walking in a straight line. Increase the difficulty by having the child walk heel to toe while balancing the pillow on his/her head while walking on a straight line.

This activity requires body control around the midline, which demands that the musculoskeletal system respond to the changes in the child's movement to keep him or her balanced. Midline is the invisible plane that separates a person's right from left and is roughly located about where the nose is. By adding a proprioceptive input to the head (the pillow), the vestibular-proprioceptive-visual systems must integrate to maintain balance.

Fine motor skills

"Fine motor skills" is a term used to describe how hands work. Many therapist and medical professionals use this term to talk about the muscles, coordination, and dexterity of the hands. The hands are observed when they are doing something, not when they are at rest. Most of the activities we do on a daily basis can be categorized as fine motor skills. Some of these skills include dressing, hygiene, school, and craft activities. As the child develops he uses his hands to learn about the world and about himself. Children with autism may be reluctant to use their hands for a variety of reasons. Some of those include lack of interest, weakness, or a dislike of how things feel. The delay of hand use causes the many small muscles of the hand to remain immature or weak. Encouraging hand use in a variety of ways allows the child to explore the world. As he is exploring the world, he is learning and helping those hand and finger muscles to grow strong.

The ability to hold on to something and to use it effectively comes after a great deal of learning and development, such as holding a pencil, a crayon, or eating utensil. The hand needs to develop and then learn the proper way to manipulate a tool and use it as intended. As a child manipulation skills continue to develop, the child increase his or her sensory development because the nervous system takes in more detailed information about the properties of the people and objects in the surrounding environment. It is essential that the children with neurological difficulties, who may avoid fine motor activities, be encouraged to develop these skills in fun ways with various materials.

Activity no.1

Grab a piece of the action. Lay stuffed animals, squishy balls, beanbags out on the floor, and have the child pick them up with the tongs (barbecue type) and put them in the bag. Next place the items under and on top of various places throughout the gym hall. The child picks them up using the tongs.

Have the child chase a small car around the gym hall, and let him/her win if he/she can pick it up with the tongs before it stops.

Another option is to have the child try to pick up objects off the floor using the tongs while bouncing or lying on the bouncy ball with the items spread out in front of her.

Grasping the bag in one hand and stuffing objects into the bag with the other hand develops bilateral coordination. This activity develops strength in the hand as well as fine motor skills. The motor response to visual input both fixed and moving, challenges the eyes and hands to work together to grasp the items.

Activity no.2

Coins in the piggy bank. Have the child pick up coins using the pincer grasp (thumb and index finger). Child places the coins in the plastic "piggy bank". Next put a coin in the palmar surface of the child's hand, and instruct him/her to move the coin to the tips of the fingers without using the other hand, which must stay on the table.

If the child continues to rake the coin using the whole hand instead of just the fingers, tell your child that the pinky and ring finger are going to sleep and only three workers are the index finger, middle finger, and the thumb. Isolate the two other fingers by wrapping them in gauze or plastic adhesive bandages.

The child must use the arches of the hand to control the coin without the assistance of the other hand.

The shoulders must be stable so the arms can move away from the body in a controlled manner to allow precise movement of the hands and fingers.

Activity no.3

Pickup speed. Have the child pick up the small items by using tongs or tweezers. Have the child put the items in the toy dump truck. Have the child transport the items in the truck to the piece of construction paper and dump them out. The child is done when the construction paper is covered (or almost covered). You have to keep in mind that the item's size will determine whether the child will use tongs or tweezers. Once the child understands the game and is able to use the tongs and the tweezers, you can add a timed element.

This activity helps develop grip strength, which is essential for handwriting and other fine motor tasks.

This activity develops good thumb opposition to first finger (prerequisite for handwriting).

Activity no.4

Walks and talks. There are innumerable ways to make a hike interesting, especially as a mean to elicit communication.

Walk behind, in front of, or next to each other and talk about the prepositions: for example, "I'm next to you." This is the best way – concrete and three dimensional – for the child to understand these concepts.

Pick-up sticks along the way, and analyze the stick collection: for example, "Which one is longer (shorter, heavier, lighter, sharper, or smoother)?" For more advanced children, this can take form of a question-and-answer game: for example, "Who has the longest stick?"

Alternate fast-slow walking, and describe the rate of walking and any changes such as stopping, turning, or taking big or small steps.

Use counting steps as a mean to teach direction, and follow by saying things like, "two steps forward, four steps back." For children who have difficulty with directions – specifically children who have receptive language or motor planning difficulties – it may have to motor them through it. Hold the child's hand while you walk him/her through the directions.

Play the "look up and down" game. Ask, "What do you see?" For example, use the carrier phrase, "I see a something…" to start a conversation.

To make the hike into a game, choose an object and see how many you can count. For example, ask, "How many pine trees do you see?"

Play "follow the leader" as you walk around the neighborhood.

Count the cars in the driveways. Chose and find a house or car of certain color.

Conduct the walk in the park whenever possible. The sensory experience and opportunity for expand language opportunities are nearly infinite.

Although walking requires very little praxis and is done quite naturally, hiking in an unfamiliar environment or over a new terrain requires the brain and body to work together to navigate the novel environment.

Having the child hike up a hill provides a significant amount of proprioceptive input, as compared to walking on a level terrain that is familiar to the child's brain and body.

Having the child learn to comment on him/her environment is a great conversation starter and is essential for the development of social language.

This activity sets the stage for teaching expanded language, specifically questions about what is being observed and answers to questions.

This activity promotes visual-spatial understanding of the environment by attending to similarities and differences in the properties of things the child sees every day. It also links words with observations.

Use of dance and movement lessons

Dance/movement lessons are ideally suited for working with autistic population (Levy,F. J.).

Movement is a universal means of communication. All children move in some way, and those who are autistic are no exception. Because the autistic child usually has not developed communication speech, but has a unique movement "language", nonverbal communication is an effective means of contact.

"Few experiences involve the total person as completely as that of dance action: the body, the emotions, and the mind. Moving with other people in a similar rhythm often helps relationships to form" (Chace, 1957, as cited in Sandel, Chaiklin, and Lohn, 1993).

Communication through movement helps a child to be more aware of him or herself and more able to interact with others. Through various techniques, dance work towards the development of trust and the formation of a relationship between the child and the teacher.

Body image is one of the most fundamental concepts in human growth and development and one that appears to be lacking in children who are autistic. The more defined one's body image, the better one is able to differentiate oneself from the environment and from others. This differentiation is necessary for the formation of relationships. (Schilder,P. 1950). Therefore, movement and the body image are two of major concerns when addressing the needs of children with autism.

The initial goals of dance or movement lessons are to reach the child at the level at which he or she seems to be functioning-the sensorimotor level, to establish a relationship, and to work toward the formation of a body image. These goals are concurrent and ongoing, woven into the fabric of interactions between teacher and child.

Mirroring, a form of reflecting back but not imitating another's movements, provides a powerful means to understand a child's experience, on a body level. The teacher does not mirror a child who is out of control, or when action does not seem to offer the possibility for a positive change in either the relationship or movement pattern. The teacher constantly monitor the mood, tone, and energy level of the child in order to assess when to change or modify activities or movement intervention.

In addition to mirroring, the use of eye contact, touch, vocalization, rhythmic body action, music, various props, and a variety of sensorimotor activities all contribute to the building of a relationship, as well as to the development of body image.

The session begins with a warm-up, which, in time becomes an opening ritual, something familiar and secure that the child anticipate, and something that sets this time apart from the rest of the day.

The warm-up is both an emotional and a physical preparation for what is to follow. It varies in length and type of movement, depending on the level of functioning, energy, and awareness of the child.

During the warm-up, the child is usually seated in a chair because it is often difficult to remain focused while sitting on the floor or standing. Eye contact is encouraged.

Integration of body parts to whole-body awareness is developed through rhythmic movement-by bending, stretching, swaying, swinging, shaking, and stamping.

The child progress from moving body parts while seated to moving the entire body in a contained space to moving through space in the gym hall. It is helpful if props and materials are kept out of sight until ready for use.

As the session progress a higher level is often reached. This part of session, he development, is a time for working on concepts, developing themes, teaching and practicing motor skills, and developing socialization skills (if the lesson is for a group of children).

The closure of the session brings back to the chair. It is a time for calming and for singing a "good bye" song, which repeats the format of the "hello" song. It is also a transition that helps the child to return to their classroom with a sense of completion and accomplishment.

Music and props are two important things in a lesson. It is important to use music with a simple rhythmic structure as more complex rhythm may confuse an already fragmented or disorganized child. Serene or meditative type of music may

promote a mood of quiet at the end of the lesson or whenever deemed appropriate by the teacher.

Lesson structure provides the child a sense of having experienced something "whole" – with a clear beginning, middle, and end. When the structure is predictable and secure, the child feel safe enough to begin to take more risks in movement exploration and growth. Furthermore, the use of such reliable and repeated structure facilitates the development of trust in the relationship between child and teacher.

Conclusions

In much of the literature on autistic children, it is written that they do not form relationships with others. If one approaches these children with an open mind and heart, however, one can see that they have their own ways of relating. Their ways of relating are so unconventional that anyone coming into contact with them will inevitably have many questions. "The children hold the answers, and one must accept their way to find those answers". (Erfer Goldsand, Weinstock, 1988).

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