

3C THERAPY IN RECOVERY OF INFANTIL AUTISM

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Abstract: *Introduction.* Autism is a brain disorder that affects the ability to communicate and interact with others. A decisive role in the onset of autism, in addition to its genetic significance, is played by environmental factors. At first-degree relatives is observed an increased incidence of affective disorders (including those bipolar), social phobia, obsessive compulsive disorders and the "autism brain disorder", and the presence of learning disabilities and mental retardation. Infantile autism is described as a mild form of the disorder and it has a frequency of 3-4 times higher in boys than in girls.

Content. Severe deficits in communication, sociability and imaginative ability of children with autism require special approaches other than those needed for children with mental retardation without autism. As long as the intervention is instituted, and the greater the chances of some significant improvement. 3C therapy (awareness-coordination-concentration) is an innovative method of recovering of the deficiencies encountered in children with autism, a method developed in order to help them to become aware of their own body and psychologically autonomous.

Conclusions. 3C therapy contributes to obtaining basic physical and psychomotor automatisms. The 3C therapeutic program stimulates the acquisition, by the people with autism, of the state of awareness of their own body, but also of the capacity of perception, orientation and spatial-temporal organization. The application of the adapted and correctly dosed physical exercises decrease the aggressiveness, the self-aggression, the hyperkinetic behavior and the functional stereotypes in the children with autism.

Keywords: *3C therapy, autism, adapted physical exercise, psychomotor activity.*

Introduction

Autism is a brain disorder that affects the ability to communicate and interact with others, with implications in the behavioral, cognitive, but also fine and coarse motor skills [1].

Worldwide, in 2015, it was estimated that autism affects 24.8 million people [2], and in developed countries, in 2017, 1.5% of children were diagnosed with autism [3].

Childhood autism is described as a mild form of the disorder and is more frequent in boys than in girls [4].

Many children with autism have severe mental retardation and a low IQ (intelligence quotient). In these, the incidence of autism tends to be equal in boys and girls [5].

Although the incidence of autism is very high, its causes are not fully known. The etiology of autism is represented by genetic factors, environmental factors, but also by other factors such as autoimmune diseases, alcohol, drugs (cocaine), and / or pesticides [6].

According to some studies, children and adolescents that suffering from autism manifestations, have a large number of synapses in the brain [7], and at rest, the brain of an autistic child produces on average 42% more information than the brain of a psychically healthy child [8].

Moreover, autism affects the analysis and processing of information in the central nervous system, a phenomenon that will reflect negatively on the activity of the nerve cell and the connections between neurons [9].

Peeters, T. [10] asserted that autism is one of the behavioral disorders in children that has become a major issue, but also an unknown one, but in the same time and a great problem for many parents, educators and specialists in the field of social and psycho-pedagogical services addressed to children of different ages with special requirements.

Although there is no treatment for autism [11], specialists in the field believe that the application of kinetic therapy can positively influence the manifestations of the disease and the evolution of the small patients.

The purpose of the kinetic attitude is to facilitate language, to improve the environment, to optimize independence, but also to support families on a daily basis to deal with bullies.

Early behavioral therapeutic interventions and speech therapy can help children with autism to become psychologically autonomous [12]. Unfortunately, there are few children with autism aware of their own bodies and physically and mentally independent [13].

Content

Specialists studying autism claim that autistic symptoms are a syntactic response to a dysfunctional cerebral organ substrate. Autism is a complex complex neurodevelopmental syndrome [14], whose symptoms are very various and the writings of the diagnoses are exclusively of a syntactic nature.

The autistic child does not show any reaction when he is expected to pay attention, he does not smile any longer, he does not give the interest to be held in the arms, do not establish a visual vision,

avoiding this with both parents and others, she cries for no reason and calms herself hard, repeat certain behaviors, look fix, for more than a minute certain objects or in certain direction, does not bring the requested objects and does not look at certain objects or persons, does not speak non-verbally, give the impression that you do not hear when you speak to him, suffers from sleep and nutrition, step on the toes, don't notice when someone is coming or leaving, protests when they are urgently asked for something or when a response is requested [15]. Autism is frequently associated with a number of developmental disorders: awkwardness, dyslexia, dysfunctional attention, Tourette syndrom, dyspraxia.

One of the most common medical disorders associated with people with autism are gastrointestinal problems [16]. They can lead to aggressive behavior towards him and his neighbors, sleep disorders, mood swings and severe language disturbances, the autistic intelligence being rigid [17].

Autism involves all levels of development - cognitive, behavioral, coarse motility, fine motor skills, being affected by all aspects of the normal development of a child.

From a kinetic point of view, we can conclude that in childhood autism are affected the following:

- Eye-motor coordination, the most important being hand-eye coordination,
- The evolution of perceptual-motor structures and behaviors is very slow, they do not have a reflex of overcoming the obstacles, they do not see the obstacle, the danger, they do not have a balance reflex.
- The body schema, the laterality are affected, the autistic child cannot relate to the context and automatically not understanding it, in other words, the autistic person does not have an emotional thinking mechanism.
- Static and dynamic balance.

Severe deficits in communication, sociability and imaginative capacity of people with autism there are different approaches, different from the ones that need mental retardation without autism. The sooner the intervention was instituted, the greater the chances of significant improvement.

Physiotherapy contributes to the improvement of your motor skills and sensorials, to the improvement of the behavioral control, to the appearance and development of the language.

3C therapy (awareness-coordination-concentration) is a method of recovering from the deficiencies encountered in children with autism, developed by sports teacher and martial arts coach Paul Cojocar, being "*the first psychomotor*

therapy for people with autism, invented by a Romanian and registered as such, worldwide, which helps children to become aware of their own body and psychologically autonomous"[18].

3C therapy aims to achieve the following general objectives:

- Awareness - awareness of one's own body scheme and the environment in which the subject is at a given moment,
- Coordination - optimization of general coordinating capabilities,
- Concentration - capturing and maintaining attention

3C therapy aims to achieve the following specific objectives:

- The acquisition, by people with autism, of the state of awareness of their own body,
- Creation or restoration of some basic psychomotor automatisms,
- Development of adaptive psychomotor behavior,
- Development of general motor skills,
- Development of fine motor skills and motor skills, necessary for self-service and various practical activities,
- Static and dynamic balance education,
- Rhythm education and movement coordination,
- Development of lateral dominance,
- Development of the capacity of perception, orientation and spatial-temporal organization.

During the physical therapy session, the physical therapist will notice his or her mental state. If it is restless, it will warm up at a slower rate.

During the kinetic program, the child's ability to perform the tasks in exercise alone, the duration of the execution time, the exits from the task (how often and how long they have), the visual contact (if the movement of the arms or legs) are monitored. At each exercise, the physiotherapist asks the child to indicate the parts of his or her body as required. In children with functional or high-functioning autism, one can work through play by positioning a small object on the head, shoulder, knee, etc. After the child recognizes his own body pattern and manages to perform simple coordination exercises, it goes to the use of sensory modalities in the process of knowing the context. The materials used may have a different structure (wood, plastic, sponge), or may have different temperatures (a hot water bottle and a cold water bottle or at room temperature).

At the end of the program, the child helps to gather the materials, which helps him to plan and organize his motor actions better.

The 3C therapeutic program includes the following exercises:

1. The child is inside a circle and the physiotherapist in front of the child. There are flexions and extensions of the neck, lateral inclinations of the neck, left-right, to promote the elasticity of the neck muscles and awareness-coordination of the head. Perform 10 repetitions for each movement.

2. The child sits inside a circle, hands on hips, and the physiotherapist in front of the child. Wide and slow rotations of the head are performed in one direction and the other, shears of the arms, followed by the lateral bearing of the arms to

promote the elasticity of the muscles and the coordination of the arms. Perform 10 repetitions.

3. The child is inside a circle and the physical in front of the child. Shears of the hands are performed, first the right hand over the left hand, then followed by the left hand over the right hand. The exercise is continued with the lateral movement of the arms in order to promote the awareness-coordination of the arms and the execution of the movement based on imitation. Perform 10 repetitions.



Fig. 1 Exercise 3 (personal source)

4. The child is inside a circle and the physiotherapist in front of the child. The arms are raised alternately, with the elbow extended, above the head, rotating the arms back and forth, one by one, to optimize the ability of coordinative combination of movements. Perform 10 repetitions.



Fig. 2 Exercise 4 (personal source)

5. The child is inside a circle and the physiotherapist in front of the child. The flexion of the trunk is performed with the arms outstretched, followed by the extension of the trunk and the raising of the arms in order to know the body segments and to optimize the ability to coordinate movements. Perform 10 repetitions.

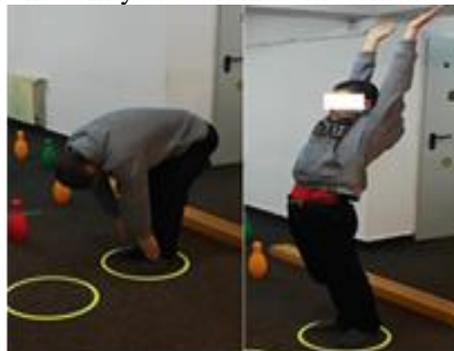


Fig. 3 Exercise 5 (personal source)

6. The child sits in the dorsal decubitus, with his legs slightly apart, his hands near body, with a tapered milestone at the ankle level. At the last hole of the milestone, a stick is placed horizontally. The physiotherapist

stands in front of the child. Perform the flexion of the trunk on the thigh, then apply the hands sideways on the stick and, in the end, both hands are placed on top of each other on the tip of the cone. It is used to increase the strength of the abdominal muscles, the spatial-temporal orientation and the widening of the visual field. There are 2 series of 10 repetitions.

7. The child is in front of a ladder, and the physiotherapist is near the child. The child jumps with his feet close to the orthostatism and then he jumps from the orthostatism with his feet close to the orthostatism with his legs apart, on traced signs. It is used for spatial-temporal orientation and widening of the field of vision, eye-foot coordination. Perform 3 repetitions.



Fig. 4 Exercise 7 (personal source)

8. The child is orthostatism in front of the hopscotch, and the physiotherapist is near the child. The child jumps in one leg and tells what figure he has reached. It is used for spatial-temporal orientation and widening of the field of vision, eye-foot coordination. Perform 3 repetitions.



Fig. 5 Exercise 8 (personal source)

9. The child is in front of five rows of circles, and the physiotherapist is next to the child. The child takes the stick from the support on the left side with his right hand and moves the cane into the right circle; it is moving forward; take the stick from the right hand with the left hand and move to the left; it is moving forward; take the stick from the right side with the right hand and move to the left; it is moving forward; take the stick from the left with the left hand and move to the right; it is moving forward; take the baton from the right side with the right hand and move to the left hand. Place the baton on the left hand. It is used for coordination, precision, balance, hand-eye coordination, hemisphere coordination, optimization of the ability to coordinate combinations of movements, execution of the movement based on imitation, development of ambidexterity, optimization of the motor reaction. Perform 3 repetitions .



Fig. 6 Exercise 9 (personal source)

Conclusions

1. The psychomotor recovery of children with autism is based on physical exercises adapted to optimize the general coordinative capacities.
2. The 3C therapeutic program contributes to diminishing aggression and self-aggression, diminishing self-stimulation, hyperkinetic behavior and stereotypes in children with autism.
3. The 3C therapy, correctly dosed and applied leads to the acquisition, by people with autism, of the state of awareness of their own body, but also of the capacity of perception, orientation and spatial-temporal organization.
4. The 3C therapeutic program contributes to obtaining basic physical and psychomotor automatisms.

References

- [1]. Mitasov, T. (2005). *Elemente de intervenție în autism*. Editura Stef, Iași, p. 42.
- [2]. GBD 2015 Disease and Injury Incidence and Prevalence Collaborators (2016). *Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015*, Lancet 2016 Oct 8; 388(10053): 1545–1602.
- [3]. Lyall, K., Croen, L., Daniels, J. et al. (2017). *The Changing Epidemiology of Autism Spectrum Disorders*. Annual Review of Public Health. (38): 81-102.
- [4]. Newschaffer, C, J., Croen, L., A., Daniels, J. et al. (2007). *The epidemiology of autism spectrum disorders*. Annual Review of Public Health. (28): 235-258.
- [5]. Mureșan, C. (2007). *Autismul infantil- structuri psihopatologice și terapie complexă*. Editura Presa Universitară Clujeană, Cluj Napoca.
- [6]. Ornoy, A., Weinstein-Fudim, L., Ergaz, Z. (2015). *Prenatal factors associated with autism spectrum disorder (ASD)*. Reproductive Toxicology. (56): 155-169.
- [7]. Tang, G., Gudsnuik, K. et al . (2014). *Loss of mTor-dependent macroautophagy causes autistic-like synaptic pruning deficits*. Neuron. 83(5): 1131-1143.
- [8]. José, L., Velásquez, P., Gálan, R. (2013). *Information gain in the brain's resting state: A new perspective of autism* . Frontiers in Neuroinformatics. (7): 37.
- [9]. Levy, S., E., Mandell, D., S., Schultz, R., T. (2009). *Autism*. Lancet. 374 (9701): 1627–1638.
- [10]. Peeters, T. (2016). *Autismul – teorie și intervenție educațională*, Editura Polirom, București, p.8.
- [11]. Myers, S., Plauché, J., C. (2007). *Management of children with autism spectrum disorders*. Official Journal of the American Academy of Pediatrics. 120 (5):1162-1182.
- [12]. Sanchack, K., E., Thomas, C., A. (2016). *Autism Spectrum Disorder: Primary Care Principles*. American Family Physician. 94 (12): 972–979.
- [13]. Steinhausen, H., C., Mohr-Jensen, C., Lauritsen, M., B. (2016). *A systematic review and meta-analysis of the long-term overall outcome of autism spectrum disorders in adolescence and adulthood*. Acta Psychiatrica Scandinavica. 133 (6):445–452
- [14]. Predescu, L. (2001). *Cu autismul la psiholog*. Editura For You , București.
- [15]. Munteanu, I. (1987). *Diagnostic diferențial pediatric. Ghid clinic. Diagnostic și tratament în pediatrie*. Editura Medicală, București.
- [16]. Narek, I., Margolis, K., G. (2018). *Serotonin as a Link Between the Gut-Brain-Microbiome Axis in Autism Spectrum Disorders*. Pharmacol Res (Review). (132): 1–6.
- [17]. Wasilewska, J., Klukowski, M. (2015). *Gastrointestinal symptoms and autism spectrum disorder: links and risks – a possible new overlap syndrome*. Pediatric Health, Medicine and Therapeutics. (6): 153–166.
- [18]. Cojocaru, P.,C. (2012). *Suport de curs Terapia 3C*. București.