

# Multidisciplinary training in children with Autism Spectrum Disorders

Geranda Hoxhaj

Department of Education, "Kristal" University, Tirana, Albania

**Email address:**

[h.geranda@yahoo.com](mailto:h.geranda@yahoo.com)

**To cite this article:**

Geranda Hoxhaj. Multidisciplinary Training in Children with Autism Spectrum Disorders. *International Journal of Elementary Education*. Vol. 3, No. 1, 2014, pp. 6-13. doi: 10.11648/j.ijeedu.20140301.12

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**Abstract:** Autism Spectrum Disorders refer to a combination of cognitive, social and emotional deficits. Continuous expansion of autism cases do not correspond to reported figures of efficient treatment through a certain philosophy. Successful cases due to certain treatment been often reported. But there have also been reported cases when the treatment was not followed by any changes. We cannot refer to one successful treatment for all individuals with Autism Spectrum Disorders as every person displays a specific combination of the severity of the disorder, difficulties and learning skills. Is it the right time to refer to a multidisciplinary treatment of children with ASDs as long as we can prove that they suffer from a variety of comorbid deficits? This is a qualitative research in the form of a casual comparative study trying to explain: What is the influence of multidisciplinary treatment in the improvement of cognitive, social and emotional skills in children with Autism Spectrum Disorders? A qualitative design was selected for a detailed study of the phenomenon and especially because each autistic individual displays a unique combination of disorders.

**Keywords:** Autism Spectrum Disorders, Cognitive, Social and Emotional Skills, Multidisciplinary Treatment

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## 1. Introduction

It is difficult to talk about professional treatment of autistic children at the age of 5 to 10 years old for countries like Albania, as the term "Autism" was almost unknown 7 or 8 years ago. Their parents are constantly looking for professional treatment, but at the same time they feel frustrated. We lack tradition and schools for preparing professionals who could evaluate and treat people with autism. The heavy burden falls on parents. Despite the numerous problems that co-occur with autism, parents have to deal with their children's education also. Due to improvement of the information technology and the possibility to freely move, parents efforts get different shapes. They again have to decide on a possible treatment, when nobody can give a definitive solution. Many treatments for Autism Spectrum Disorders are being performed today around the world. Each treatment man nerhasa certain view on ASDs according to which certain treatments are drawn up. Behavioral disorders, cognitive system disorders, or imbalance of hemispheres sharing of information, are some examples of how disorders are conceptualized and treated. "Decades of research have shown that behavioral therapy can improve cognitive skills

and language. But it is yet not explicit if behavioral intervention has in fact "treated" disorders or it has just reduced autistic symptoms. In other words, is it possible that a behavioral effective treatment could change brain biology which manifests autism spectrum disorders?" [01]. Additional information comes from research in this area. Biochemical analysis of samples taken from children with ASDs, bring in evidence of disorders of neuro-biochemical parameters in their body. While autism is rapidly spreading, possible treatment is evolving. Autism symptoms are already known, but their cause remains still hypothetical. There are two clear indicators, a complexity of cognitive, emotional, and language disorders which need to be treated and various mineral, vitamin and immunity system equilibration, completely proved by laboratory tests. As the causes of disorders are unknown it has been impossible to develop a proper treatment for Autism Spectrum Disorders. There has been too much talk and too much writing about the absence of an efficient treatment for autism. May be it is the right time for another treatment which should consider indicators of disorders, not concentrated just in one philosophy, but in a possible combination according to peoples' needs.

## 2. Review of the Literature

### 2.1. History of Autism at a Glance

1943s, Leo Kanner publishes “Autistic Disturbance of Affective Contact” describing 11 socially isolated children who share an obsessive desire for sameness. 1950s-1960s Autism widely regarded as a form of “childhood schizophrenia.” Psychoanalysts blame emotionally cold mothering. 1970s Autism understood as a biological disorder of brain development. 1980 DSM-III distinguishes autism from childhood schizophrenia. 1987 DSM-III-R lays out a checklist of criteria for diagnosing autism. 1994-2000 DSM-IV and DSM-IV-TR expand definition of autism and include Asperger syndrome. 2013 DSM-5 folds all subcategories into one umbrella diagnosis of autism spectrum disorder (ASD). It is defined by two categories: impaired social communication and/or interaction and restricted and/or repetitive behaviors [02].

### 2.2. A New Point of View for Autism Spectrum Disorders According to the Diagnostic Manual DSM V

There are five changes approved by the American Psychiatric Association.

The five major changes are:

1. The new classification system eliminates the previously separated subcategories on the autism spectrum, including Asperger syndrome, PDD-NOS, childhood disintegrative disorder and autistic disorder. These subcategories will be folded into the broad term Autism Spectrum Disorder (ASD).
2. Instead of three domains of autism symptoms (social impairment, language/communication impairment and repetitive/restricted behaviors), there will be only two categories: social communication impairment and restricted interests/repetitive behaviors. Under the DSM-IV, a person gets an ASD diagnosis by exhibiting at least six of twelve deficits in social interaction, communication or repetitive behaviors. Under the DSM-5, diagnosis will require a person to exhibit three deficits in social communication and at least two symptoms in the category of restricted range of activities/repetitive behaviors. Within the second category, a new symptom will be included: hyper- or hypo-reactivity to sensory input or unusual interests in sensory aspects of the environment.
3. Symptoms can currently be present or reported from past history.
4. In addition to the diagnosis, each person being evaluated will also be described in terms of any known genetic cause (e.g. fragile X syndrome, Rett syndrome), language and intellectual disability level and presence of medical conditions such as seizures, anxiety, depression, and/or gastrointestinal (GI) problems.
5. The work group added a new category called Social

Communication Disorder (SCD). This will make possible diagnosis of disabilities in social communication, without the presence of repetitive behavior [03].

### 2.3. The Way the Conception and Treatment of Autism Spectrum Disorders

**2.3.1. Applied Behavior Analysis** is one of the most popular treatments in the world. It started since 1960s and 1970s with Doctor Lovaas in the University of California. Since 1980 students of Doctor Lovaas have worked hard to find different treatments for children with autism by using various methods. Applied Behavior Analysis is a kind of behavior analysis based on the traditional theory of behaviorism to change behaviors as part of the treatment. Behaviorists used to be concentrated on the objective measurement of behaviors which can be observed, by thinking that all behaviors could be defined by environment stimuli [04]. Behavioral analysts used to focus on clear relations between behavior and environment [05]. Behavior Analysis principles have been systematically applied to improve important behaviors [06]. Behavior modification is a traditional term which empirically describes behavior change techniques, helps to grow or reduce the frequency of behaviors and reactions through negative or positive reinforcement. The main principle of ABA is generalization, which means behavior goes on with the passing of time, in different environments and covers other behaviors which are not treated directly through intervention. An example of generalization is the continuous change in the specified behavior [07]. Direct and frequent measurement makes therapists achieve success, aiming at making changes in order to increase success and reduce failure [08].

**2.3.2. The Miller Method** is based on cognitive systems. The single most unique aspect of the Miller Method is its work with systems. By *system* we mean any organized behavior with an object or event that the child produces. If we can find a way to help the child modify or transform these repetitive action systems so that they become functional and interactive, then we have contributed to the child's development. For children who show little or no organized systems—even maladaptive ones—our first task will be to find ways to help them form systems. When the nonverbal or limited-verbal child is involved in an action system, the child's reality *is* that action system.

Miller highlights: “We still maintain that there is a basic drive in all children—no matter how withdrawn or disorganized they may be—to find a way to cope with a confusing and inconstant world. Children with autism express this drive in spite of major challenges with experiencing their bodies and how they relate to the world. Our task is to help these children use every capacity or fragment of capacity to achieve this goal of coping. This becomes possible when we introduce both order and carefully gauged disorder into their lives” [09].

### 2.3.3. Brain Balancing

All conditions that negatively affect behaviors and learning are related to the imbalance of electric activity between brain zones. Many of these children could not use more than one sense at a time. If they have to use more than one sense simultaneously, they feel shocked. It is impossible for them to get concentrated as they get easily distracted from everything they see, hear or feel. As a result, they become slaves of their system. They get socially and emotionally distressed. They cannot interpret facial expressions or recognize voice tones telling so as to think of another person. They cannot understand other people's emotions. This leads to social and emotional distress, by making it quite difficult or even impossible to make up friendships or relations. The way how brain imbalance is manifested, affects individual behavior symptoms and education problems. In fact, the brain is quite plastic, so it means it has the ability to physically and chemically change. The change is the result of proper stimulation. Brain imaging scans show that with proper stimulation, the weak side of the brain will improve and make new connections between cells. The new connections in the weak side re-connect with the functioning side of the brain and rhythm is restored, resulting in a wholly functioning brain [10].

### 2.3.4. Treating Autism Through Music

Music Slows Down and Equalizes Brain Waves. Preferred Music can generate a sense of safety and well-being. The slower the brain waves, the more relaxed, contented and peaceful we feel. Ordinary consciousness consists of *beta* waves which occur when we focus on daily activities, as well as when we experience strong negative emotions. Heightened awareness and calm are characterized by *alpha* waves. Listening to music with a tempo of around 60-70 beats per minute can shift you from *beta* toward *alpha*, enhancing alertness, reducing stress and giving a sense of well-being. Music Reduces Tension and Improves Movement and Coordination. Researchers have found that music will reduce muscle tension and relax children with severe physical and mental disabilities. Music Establishes Emotional Equilibrium. Children on the autism spectrum battle with emotional equilibrium. Their emotions are frequently out of control, swinging from total shutdown to loud outbursts. Listening to Preferred Music calms and helps create emotional equilibrium. Another sound therapy called Auditory Integration Training (AIT) was developed by a French doctor, Dr. Guy Berard, after he worked with Dr. Tomatis. Dr. Berard's efforts worked to exercise the muscles in the middle ear. This stimulates the brain relating to auditory pathways, which helps to normalize the brain's response to sensory input and improves the body's reaction to sensory overload. In 2003, six components were listed as they felt necessary to be found in a successful autism therapy: a curriculum of basic pivotal skills (i.e., imitating others, paying attention), a highly structured environment, predictable routines, a systematic approach to behavioral

issues, an emphasis on skills that facilitate transition from preschool to first grade (i.e., complying with adults, taking turns, listening and following instructions), family involvement. "Children on the spectrum thrive on highly structured, specialized and carefully planned programs. Several other findings also converge to suggest that creating predictable and structured situations might be an appropriate starting point for intervention in autistic children" [11].

### 2.3.5. Problems Faced in Treating Children with Autism in Classrooms

Teaching children with autism is a professional challenge and an opportunity to grow as an educator. These children will relate to others in a different way, perceive their environment differently, communicate with greater difficulty and each child has a unique original learning style [12]. Team work is the way of treating children at school. The team who treats the individual diagnosed with autism consists of: behavior analyst, speech and language specialists, professional therapists, teachers and educational psychologists. Every professional has his own role in the effectiveness of the treatment [13].

### 2.4. Notions of Treatments for Children with ASDs

Individual Program. Every child must have a framed program regarding his/her specifications of strong points and needs; tasks analysis; skills analysis or tasks which must be learnt by splitting them in smaller components or by steps which will help; discrete judgment and suggestions; touch of every step; reinforcement; planning to reinforce steps through motivation; partial repetition and stimulation; practicing repetitive steps to the point that the students can do it without being stimulated; skills development; systematic performance of steps until the moment that the child can independently perform the activity; collecting information; frequently collecting information to monitor the development of the student and program efficiency; generalization- preparing the child to complete his/her task in different times and places and with different people; concretization- development of implementing skills in establishing a strong foundation to help influence learning in everyday life [14].

#### 2.4.1. Opportunity for Medical Intervention

In addition to behavioral impairment, autistic persons have a high prevalence of gastrointestinal disease and dysbiosis [15] autoimmune disease [16] and mental retardation [17]. Children with autism spectrum disorder (ASD) suffer from an ongoing neuroinflammatory process in different regions of the brain involving microglial activation. Microglial activation can result in loss of connections or underconnectivity which in many studies is reported as autism [18].

#### 2.4.2. Biochemical Theories of Autism

Observing models of repetitive behaviors in autism has led to biochemical deficits theory. Metabolism in children

with autism and the etiology of observed models remain still unclear. Groups of patients with deficits display autism characteristics [19].

### **2.5. Research on the Liaison between the Way of Eating and Behavioral Disorders**

Several studies of genuine scientific-research institutions have come to the conclusion that eating has direct effect on chemical reactions within our organs and on the respective behaviors of children with ASDs. The effect of some food ingredients reactions have been scientifically proved and argued.

Historically, many doctors have scoffed at the idea that diet, food additives, sugar, etc. can affect behavior. They believed that there was no supporting scientific evidence. During 2008, this turned a corner, when the American Academy of Pediatrics recognized and published the change in "ADHD and Food Additives Revisited" by Alison Schonwald. Thousands of parents throughout the world have put their children on special diet and they have noticed great development [20]. The brain is highly dependent on the vitamins, minerals, amino acids, essential fatty acids, and calories found in food. For instance, if your child is not getting enough of certain key nutrients, it compromises his neurotransmitter production, the synthesis of his brain's visual and cognitive processing. If he's consuming too much sugar and artificial additives, it can compromise his brain function and contribute to behavior and learning problems [21].

Particularly during the last 50-100 years, consuming non-natural food and its additives, fat such as margarine and pressed oil, as sunflower and grain oil led to the reduction of fresh fruit and vegetables consuming and cookware food. Our genetic structure and the following chemical reactions cannot fully manage non natural food [22].

The intestinal tract is filled with billions of digestive bacteria essential for health. Autism researchers are exploring how disturbances in this community can affect brain development and/or worsen autism symptoms. An analysis from the Harvard Medical School, from electronic medical data discovered that some autistic children have some common medical problems. The Harvard Research published on 3<sup>rd</sup> February 2014 described those subgroups of children with ASDs suffered also from health problems of some categories [23].

For the first time in 15 years, the American Academy of Child and Adolescent Psychiatry has updated its treatment guidelines for autism spectrum disorder (ASD).

The comprehensive new guidelines urge physicians to look beyond behavioral issues to assess medical conditions associated with autism. They also call for multidisciplinary care by a coordinated team of specialists. Other key recommendations include genetic testing and the careful use of medications as needed in a treatment plan that includes behavioral therapies [24].

## **3. Research Methodology**

In order to describe the methodology of research, researchers answer some questions.

What do we want to research? Is the multidisciplinary treatment of children with ASD followed by development of cognitive, social and emotional skills?

Which is a suitable way of research? This study is based on the quasi-experimental design, which has to do with manipulating variables but the choice of participants is not casual. So, the manipulating variable is the biochemical intervention, the psycho-pedagogical treatment and treatment through music. Children undergoing the treatment are not selected by chance.

The research is based upon several instruments:

- Literature Study
- Confessing Interviews with Parents
- Documentation Research
- Semi-structured Interviews for therapists, doctors, psychologists and teachers.

But who would we like to study? In order to make a detailed study about the phenomenon of Autism Spectrum Disorder and about its proper treatment, a casual comparative study was necessary. Two children were chosen for the study, for a period of two years. This is a qualitative research in the form of a casual comparative research. The children used for the comparative research are the boy nine years old and a girl ten years old.

As focusing on their lives it was possible to study their development indicators. They were studied based on documentation from psycho-pedagogical evaluation and anomalies based on biochemical evaluation. Both children were studied comparatively according to their performance.

Which is the best way to find information on these children? In order to study the phenomenon in the complexity of factors, information will be asked to every person in contact with the children and information will also be found in documents accompanying them.

What is the best way to interpret and analyze information found? Information analysis is thought to be performed in a comparative way for each of the development indicators and parameters of biochemical tests. All data for both children will be considered in the beginning and in the end of the study. They can be interpreted in the parents', doctors', and educators' language.

But how and with whom will be findings shared? It is thought to share findings with parents, educators who are working with children with Autism Spectrum Disorders and with any other interested institutions as well.

## **4. The Beginning of Autism Spectrum Disorders**

### **4.1. First Symptoms of Disorders Taken from Interviews with the Mother of Each Child**

The girl: around the age of 1 year and a half she had high

temperature. It did not go lower than 39 degrees for three days. She did not react when calling her by name. For about two months she used to hold her head down. She used to tilt her head down on one side or the other. She could hardly sleep and stereotypes increased.

The boy: he was about 20-22 months old when he began having sleep disturbance, he continuously cried, he had difficulty in eating, he used to move a lot, he used to run almost all the time, he was emotionally aggravated, yelling so as to express disagreement, he did not play, he lacked verbal communication, he displayed stereotypes, he used to continuously rotate objects, he did not accept commands, his level of comprehension was very low.

#### **4.2. How does Eye Contact Change in Accordance of the Severity of the Disorder?**

This indicator is observed since the beginning of the study. The girl: there was a direct interrupt of eye contact as soon as disorders were displayed. Her mother believed her daughter could not have eye contact not even as long as taking a photo. The boy: eye contact was present but often in a limited time. Eye contact lasted longer when he was emotionally calm, while it was shorter when he was anxious.

#### **4.3. Stereotype**

The girl: "At first, stereotypes were so frequent that it was impossible to separate them from one another- they created a system which became every day more tightened. She used to take her clothes off; especially her socks. She used to watch TV for too long and soon she learnt how to use the remote control by herself so as to look for advertisements. She used to replace her sleeplessness time with car ride and she would refuse to get off the car."

The boy: "If we would classify many of the disorders or difficulties, stereotypes would definitely rank as the horror of autism. They were not manifested separately from each other. It was noticed that after the first stereotype, the second one would come. When the first stereotype was becoming minimized, the second one was arising. While the first stereotype was becoming limited in time and intensity, the second one was becoming stronger by occupying him during all the day. Mother tells that he would ask for his favorite toy as soon as he would wake up, and also when going to bed.

#### **4.4. In which Way and How much do Sleeping Disorders Affect Emotional Reactions?**

The girl: "Sleep stability has been and will be her major problem after emotional irritation. She could hardly have an easy sleep, or she couldn't at all. Sleep intervals lasted at maximum 4 to 5 hours. Awakening made her display strong stereotypes or stay in front of the TV or she would like to travel by car.

The boy: sleeping disorders were part of the first symptoms displayed as soon as it was found that he had

development problems. Sleeping turns were becoming shorter and shorter. It used to take hours to calm him down and make him sleep. Sleep was becoming more and more fragmented. Waking up meant completely lacking the desire to sleep, it was like he had filled out his sleep even though in fact, he had had a few minutes or at maximum two hours of sleep. After waking up, he had to turn back to stereotypes, it was impossible for him to lie in bed.

#### **4.5. Emotional Stability**

The mother of the girl states that the members of the family have been under persistent pressure because of her emotional reactions accompanied by violent irritation against others and herself. The worst thing was that it lasted in time and familiars could do nothing to stop them. Their interference just used to worsen the situation and used to prolong irritation.

The boy: "His disorders were all-embracing. The child was could not be recognized nor by his outer appearance neither by emotional reactions. Irritation was always greater. There was hardly any moment during the day when he could be calm. It was impossible to stay anywhere together with him; it was impossible for him to sit down. He was constantly crying or writhing, without finding tranquility."

## **5. Treatments Performed with Children under the Study**

### **5.1. Development Examination**

The girl: she was given the diagnosis of Autism Spectrum Disorders by psychiatrists outside and inside the country. Referring to tests performed that time, her mother recalls that doctors, despite disorders, found a relatively high level of intelligence which made them think she would be better in a shorter period of time.

The boy: he was two years old when the long odyssey of his situation's study began. Various examinations on brain development and various analysis performed by some doctors in Turkey, came to the diagnosis "mild symptoms of autism". It was the first time for his parents to listen to this. When parents asked what symptoms, the psychiatrist answered "he does not use words to communicate, and rhythmically slams his hands on his body."

### **5.2. Individual Treatment**

*How does individual psycho-pedagogical treatment influence in softening autism symptoms?*

The girl: her first treatment was performed when she was three years old but it was not successful because of her deteriorating emotional condition. She could not adapt to the environment, she used to cry and became aggressive. When she was 3 and a half, she started therapy treatment although with the same persistence of refusing it, she was kept inside the therapy setting crying, for three months. At

first she received “the developmental therapy”. Then, from 5 to 7 years old, she received “the ABA therapy” with the same therapist, emphasizing that at the time she had become already familiar with her. She received this treatment for two years, two hours per day. ABA therapy resulted very successful in many indicators. At the beginning she could not speak a word while after these therapies she could speak words, short sentences; she could recognize, write and read numbers and letters, she improved social relations. She improved a lot but, her improvement was not reflected outside the therapy setting in her daily life. Her mother told she was unwilling to use words, even she could know them. She kept yelling becoming irritated when asking for anything. In different situations she used to affirm or deny by adding only “yes” or “no” before the words heard.

The boy: “They tried to provide him treatment at the age of 4. He received therapy two hours per day. At the end of the first year of treatment no positive changes were noticed. It seemed like symptoms were not softening but on the contrary. The therapist was the only person to decide on and perform the intervention. Two years later, so as to complete the puzzle of disappointment, the boy started to attend the Motor Development Therapy, while in fact he did not suffer from motor problems. Instead of treating disorders, stereotypes (which disappeared two years ago) were being stimulated. At the age of six, he was sent to another center where treated with ABA therapy for six months. For the first time he was evaluated and they framed an individualized program of intervention, which he performed for one month.”

### 5.3. Family Work

What is the influence of the family in the cases of the studies? The girl: she had a positive performance - ABA therapy influence on the familiar setting also, especially in communication. The girl started making up sentences by using new words. She learnt how to read and write numbers. Soon she could count up to 100. This made possible for her grandmother to practice what recommended by the therapist. Soon she could read and write short sentences. At home, they started to take a glance at illustrated books by reading sentences also. Even though family insisted too much to get her complete tasks, she could not deal with her controversy and irritation.

The boy: firstly family tried to work with the use of the pencil, and then they proceeded with models and interactive simple games with a ball. In the beginning, they helped him by holding his hand but then, gradually they started giving him easier tasks. They tried to work especially with prepared models, tracing models with provided lines or dots. After this, they tried to reduce help in order to increase independence. He could then, gradually work independently, starting with models to partly independent requirements so as to perform easy tasks. The boy has had the opportunity to stay on the beach during summertime and during almost every weekend of the year. His family members admit to have noticed a considerable positive change in his emotional stability and in his sleep stability

as long as he stays at the beach. He could swim without help since he was almost five- a sport that he used to do without time limits.

At the age of eight, he has received treatment through music by listening to his favorite music, and also he is attending piano classes – two sessions of 30 minutes each per week. Listening to music was his first activity which made him take care of his devices- his MP3 and his headset. According to his parents, all this helped him to improve his concentration. It was evident when he could complete his tasks and gradually increase his working time while listening to music. The time when he was listening to music was the time when he improved his performance in assimilating concepts and his ability to work independently used to grow day by day.

## 6. Doctor’s Interview

Reading and commenting analysis. As regarding this issue, it was decided to present just those parameters and comments of the doctor and laboratory which can be understood by the parent. By the given data, the researcher cannot bring in one way of treatment, as it is the duty of doctors. The research just brings in facts which prove the link between the Autism Spectrum Disorders and the biochemical parameters disorders taken from each child. The researcher just brings in arguments for the need of neuro-biochemical intervention.

Both children, who serve as a compared case, have some common indicators. They have performed various analyses in the same laboratory, almost at the same time. The same doctor has read their analysis. Disorders of the same kind were found, but with a different intensity. Many analyses were taken from hair, blood, face and urine.

About the age of four, based on his analysis the doctor found various disorders. The alarming presence of mercury and the high presence of toxic substances in his body were the toughest disorders. Problems were manifested everywhere. His metabolism suffered vitamin and mineral problems. According to the analysis there was a need for B1 and B12 vitamins. Also, it was found a low level of B6, B7 and B9 vitamins and need for Magnesium and Zinc. It was found high presence of *Candida Albicans*. According to the doctor, this kind of *Candida* was very rare and also difficult to be treated up to elimination. He also highlighted that its treatment was essential to the whole treatment effectiveness. The damaged micro flora of the gut was another characteristic of the disorder. He was recommended to eat according to a sugar, casein and gluten free diet. As there was a high presence of toxics, detoxification, which would be possible through this long and tough treatment, would bring softening of autism symptoms, such as: reduced hyperactivity, sleep stabilizing and stable emotional state. The doctor also clarified that, it is hard to measure treatment effectiveness as it is difficult to monitor the accuracy of this intervention.

### 6.1. Did they Perform the Recommended Treatment?

The mother of the girl writes, “the neuro bio-chemical

intervention at the same time covered dietary supplement and handled with problems found from the analysis. I could say that we failed in our attempt to conduct this treatment. The girl could not perform a dietary treatment because she did not want to eat. She used to eat conserved food only. She did not swallow capsules and so the neuro bio-chemical intervention was impossible.”

While referring to the boy, his mother says that she has tried to follow the dietary with absolute precision by eliminating conserved products. Everything seemed very difficult in the beginning. We had to think of this different concept of eating for the whole family. But in fact, it was healthier as there was no more consumption of conserved food, but fresh food only. The boy had appetite for fruit and vegetables. The neuro bio-chemical intervention has been performed for two years. He has received 100 oxygen sessions or Hyperbaric Oxygen Treatment or HBOT.

## 7. Education in Classrooms of Public Education

Teacher’s descriptions. Part of the interview with the preschool teacher. Academic year 2012-2013.

“She came to school with her grandmother. She was a nice girl, her eyes were shining, but not when insisting in leaving the school. She became completely another person. She knew letters; she could read and write them. She knew numbers and she could count until but she would refuse to continue counting if told. In some cases it seemed she had the same level of knowledge as her peers and in other cases did not react when spoken to her. Then she began to be absent. When being present she used to be perturbed so then I had to call her familiars to pick her up. She came to school for three months (she often would be absent) and then her family could not bring her back to school.”- Her teacher says.

Her first grade teacher- for the academic year 2013-2014- says: “she faced difficulties when she had to complete successive tasks and when she had to answer questions. Other students’ and my biggest challenge was yelling and aggression. So, under this condition she could not continue to be present in the classroom. She used to come just for a few days.”

“It was difficult for me to understand the boy’s behavior as it was the first time for me to work with a child with ASDs. I talked to him the first day, but there was no reaction from his part. We gradually associated. He obeyed when I talked to him and he was willing to come and play music games. Often his activity was observed by his mother, but he could also do simple tasks with his classmates, such as: drawing, coloring and cut and stick activities. I can tell he was very calm when staying in the classroom. Often I asked one of the boys to associate him and involve him in group activities. He welcomed his friend with a smile and always obeyed to him. He was very active. He would complete tasks rapidly, and the spent time

by rolling parts of objects or toys. He used to write numbers, to draw upon models in dots or lines. He worked under continuous influence.” – says his preschool teacher for the academic year 2012-2013.

“I had a discussion with his mother before the boy came to school. She told me about his difficulties. The next days, he sat down in his desk next to his mother. He completed mathematics and Albanian language books and activity books. He worked on modeled notebooks, always influenced by his mother. Then he began recognizing letters, writing in block letters, handwriting, and dictate short words with letters he had learnt. In mathematics he learnt to recognize and write numbers, and how to solve simple exercises. His working time was limited. After about four months change was surprising. He could recognize and write capital and lowercase letters, he could name pictures, he could write dictated sentences, he could do language activities. He was fast in learning mathematical concepts and he was able to work independently. Working time was becoming longer, but there was still a problem” – says his first grade teacher for the academic year 2013-2014.

## 8. Compared Analysis of Both Cases

From the comparative analysis of children with Autism Spectrum Disorders was noticed that the girl reacted positively to the ABA therapy by displaying cognitive, social and emotional skills improvement, but improvements were not manifested outside therapy setting because of deteriorating emotional state, sleeping disorders and malnutrition affected disorders deterioration, by not allowing demonstration of skills earned before.

While referring to the boy, psycho-pedagogical treatment and neuro biochemical intervention were followed by softening of disorders and improvement of cognitive, social and emotional skills. He was able then to attend educational setting also with the help of his family.

## 9. Results

Two children have been under study, one boy and one girl. Evaluating data based on the diagnosis of Autism Spectrum Disorders were analyzed for the research.

According to the analysis there was found evidence of disorders of various parameters, as: high evidence of heavy metals, imbalance of vitamins, minerals, genetic mutation, damaged microflour of guts and stomach, sleeping disorders, malnutrition, stereotype deterioration, inability to attend school environment.

The boy had received a multidisciplinary treatment: individual psycho-pedagogical treatment, swimming, dietary treatment, neuro biochemical intervention, listening to music, attending classrooms with normal children. Multidisciplinary treatment led the way to improvement of the level of comprehension displayed at school during

performing educational tasks and during learning concepts for letters and numbers. He improved cooperation with his family members and in doing his homework. Improvement of comprehension made him more independent in completing several tasks: spatial orientation, intentional reaction according to the situation, quicker answers and more correct in social relations.

Changes are clear in several indicators, but it is difficult to determine change level.

There are clear: comprehension improvement, following and implementing several commands, sleep stabilization, self-service improvement, emotional condition stabilization, better cooperation with family members, better adaption when changing the environment, lower hyperactivity, better organization of intentional activity, and reduction of stereotypes.

Recovery of healthy physical appearance, a smooth and clear face and a very good physical development.

## 10. Conclusion

The multidisciplinary treatment was performed through the combination of several interventions including the dietary, neurobiochemical and the individual psycho pedagogical treatment, swimming, treatment through music and involvement in classrooms with typical children. Dietary treatment was followed by hyperactivity reduction, emotional improvement and sleeping stability. Neurobiochemical intervention was stated by the biochemical tests accompanied by improvement of the level of comprehension, cooperation and socialisation. Swimming influenced improvement of motor skills, hyperactivity reduction and stereotype reduction. Musical treatment, including listening to preferred music and partial piano practicing was followed by increase in attention duration and stereotype reduction. Individual psychopedagogical treatment supported language and mathematical concept assimilation. Attending educational environment with improvements in socialization and assimilating language and mathematical knowledge as much as their peers, through writing, was the product of multidisciplinary treatment in this case. At the end of the research it was found that: multidisciplinary treatment of children with Autism Spectrum Disorders was accompanied by cognitive, social and emotional skills improvement. It has to be highlighted that the proper way of treatment is an individualized treatment based upon several pedagogical evaluations and biochemical tests.

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