

## DASHA, AUTISM SPECTRUM DISORDER



Date: December 17, 2014

Provider: Victoria Efimova, Speech and Language Pathologist

Clinic: Logopronoz, St. Petersburg, Russia

Client: Dasha A., Female, 5 years old

Clinical Diagnosis: Autism Spectrum Disorder

### BACKGROUND

Dasha came to our center from another city the second time. She had a complete medical examination by her neurologist and got the result after a functional diagnostics: EEG, auditory brainstem response (ABR), ultrasonography, tympanometry, otoacoustic emission (OAE).

The following were revealed after the functional diagnostics:

- peripheral hearing - normal;
- cervical vertebrae instability, disturbance of venous blood outflow ( this may be the consequence of birth trauma);
- speed reduction of a sound signal processing at the brainstem level;
- reduction of brain's ability in respond to new information (P-300);
- hypofunction of the cerebellum.

### Speech therapist's first consultation

Dasha looks more associative than six months ago, but the problems with communication and behavior still remain. She has self-service skills, shows self-dependence (e.g. toilet, feeding and dressing).

She attends a regular kindergarten and nursery design studio. She has recently started paying attention to other children (e.g. running after them). Eye-to-eye contact is unstable. She doesn't always respond to requests of adults. Her concentration is scattered. She often intently looks at the details of other people's clothes. At home she finds herself web-pages on the Internet, where there are images of clothes and intently looks at them. She is very cautious in terms of physical activity, prefers to sit or lie. She often looks like a tired child. There are some difficulties with balance. Her vestibular system is hyposensitive. However, Dasha is very interested in the equipment for rock-climbing in our center. She rarely smiles. It is difficult to estimate the degree of her speech understanding. She doesn't use speech as a communication tool, but can sing a whole song on her own initiative. She doesn't like to try new things. There is an echolalia, delayed echolalia.

### Undesirable behaviors

Sometimes she demonstrates autoaggressive behaviors. She hits herself on her face. During the art therapy sessions she tries to eat the glue and Playdough. At home she tries to eat soap. However, her mother mentioned that it had happened less often recently. She has an obsessive motion - to touch the nose. There

is selectivity in foods, she prefers to eat only pasta and some kinds of yogurts.

## **Comments**

During the previous course we noticed that Dasha's speech and communicative activities increased more strongly at the time of music lessons. We recommended to include inTime™ method of rhythm-based music listening therapy training from Advanced Brain Technologies in her treatment.

Her mother said that they had tried to do listening training using the TOMATIS® method, but Dasha had agreed to listen to only once, and then they were unable to persuade her to continue.

## **PROTOCOL**

inTime Protocol A, Advanced Schedule within an individualized program of lessons in an intensive treatment course which lasted 16 days. Each day Dasha attended 4 lessons of 40 minutes each, breaks between them were 10 minutes.

One whole lesson per day was special (for inTime training). In this lesson two modules were listened to, rhythmic exercises (body percussion) and exercises with the drum and other musical instruments were done. At the beginning of each following lesson one module was listened to and then, after 2 minutes break, other kinds of activities took place.

After sixteen days, 80 modules were listened to for a total of 12 hours of listening.

## **Therapeutic Goals**

To improve communication skills and more coordination.

## **Equipment**

WAVES™ multi-sensory audio system with bone conduction and iPod

## **Daily Listening Journal- Reported By Provider**

### **Day 1**

Music therapy, sensory integration, massage, lesson with a speech therapist

Significant moments- Dasha quietly allowed to put her headphones on. While listening she sat down at the synthesizer and was soundlessly "playing" with the pianist. After 2 minutes of listening she swung back and forth on the swing and sang, sometimes clicked rhythmically. There were unsuccessful attempts to work with the body percussion. Dasha didn't understand what were wanted from her. An improvisation with the inTime drum, small drums and bells was bright and dynamic. The next module (after 30 minutes) Dasha found less interesting: in 2 minutes she took off her headphones. Music was turned on through the audio system. Dasha swung on the swing and improvised vocally, the teacher followed Dasha playing short melodies in different octaves on the synthesizer. At the beginning of the following three lessons Dasha quietly listened to modules through headphones with Waves. Sometimes she clapped her hand, laughed or sang.

### **Day 2**

Massage, music therapy, speech therapist, art therapy

Significant moments- She listened to modules lying on the mats or quietly sitting on a chair, sometimes swung lying on the big round swing. She sang during all lessons. Before her art therapy lesson Dasha rhythmically pressed on the Playdough while listening to the module. During art therapy lesson she agreed to sculpt a tower in Playdough in turn with the teacher. Dasha calmly reacted when large pieces of Playdough

ran out and agreed to sculpt further using small ones (some time ago such a situation could be the cause for a hysterics). After listening to the module masseur added rhythmic movements in massage (the tempo and the rhythm of the module) in preparation for body percussion.

### **Day 3**

Massage, music therapy, speech therapist, sensory integration

Significant moments- She listened and swung on the swing. All the time she sang in "her own language". Dasha looked a little bit anxious, repeatedly tried to take off the headphones. In the next lessons it became clear that, perhaps, Dasha was looking for the most comfortable position for bone conduction sensor on her head. When the headphones were shifted a little closer to her forehead, Dasha did not try to take them off. After the music had finished, Dasha swung and sang 2 more minutes. Then improvisation took place. Dasha sang, the teacher played the drums, Dasha played the drums and teacher played the piano, joining to the 8th album (module 1) of inTime. Thus, some time they "traveled" in the music fret of inTime, and Dasha sang the whole time without losing the fret. At some moment she stood up, came to the piano and took a few notes. After this she was able to continue the music, moving and playing "on yourself." This lesson embodied all kinds of activities of inTime, including body percussion.

### **Day 4**

Massage, music therapy, speech therapist, sensory integration

Significant moments- During listening to one of the modules, Dasha suddenly started singing a Russian folk song "Vanya, Vanya - simplicity, bought a horse without a tail." During listening, she was lying on mats or spinning on the swing. Several times she collected puzzles on the floor.

### **Day 5**

Massage, music therapy, speech therapist, art therapy

Significant moments- During listening she rhythmically sang the syllables "ba-be-le" and composed a mosaic. Body percussion was performed passively. Dasha allowed to slap her knees. During the massage after listening to the module Dasha taught masseur to pronounce sounds: A, O, I. She started using the delayed echolalia in accordance with a context of the situation. She enjoyed playing with sand and rhythmically sang.

### **Day 6**

Massage, music therapy, speech therapist, sensory integration

Significant moments - She listened to, sitting in the swing. During two minutes she was singing and swaying. She almost didn't play drums, preferred to play sonorous instruments: bells, triangle. Body percussion was in the form of massage: pats and pressures. Dasha allowed the teacher to do it in a rhythm of the music. Then they sang and Dasha swung to the music from the 8th album.

### **Day 7**

Massage, music therapy, speech therapist, art therapy

Significant moments- She listened mostly sitting in a chair, lying or swinging. She constantly continued to sing and rhythmically click during all lessons. At the lessons with a speech therapist she called familiar pictures. Mother said that Dasha had refused to eat yogurts that had been favorite ones before. She started eating candies and cookies.

### **Day 8**

Massage, music therapy, speech therapist, sensory integration

Significant moments- She listened to the modules sitting in the children's swivel chair or in the swing or lying on the mats. She sang at all lessons. In the middle of the day during listening to a module Dasha was aggressive, but then calmed down. During another listening session of a module at one of the lessons, she came up with a game with an adult: she was giving toys to an adult one by one and was saying "thank you" very clearly when an adult was taking toys.

### **Day 9**

Massage, music therapy, speech therapist, art therapy

Significant moments- The main part took place on the swing as usual. Dasha didn't want to play drums, but she stomped and marched in the rhythm. Then the teacher made pats and pressures on Dasha's knees to the music rhythm. She vocally improvised to the 8th album – the teacher accompanied her on the piano. Sometimes Dasha came up and played some sound. On the offer of the speech therapist "Let's play" she could clearly reply "Thank you, I will not."

### **Day 10**

Massage, music therapy, speech therapist, sensory integration

Significant moments- In the morning Dasha came to the center and said on her own initiative: "I've come to do lessons." She listened to music mostly sitting in the swing, with obvious pleasure. Body percussion was in the form of massage and also was accepted with pleasure. During the improvisation on drums and singing she obviously kept rhythm of the module.

### **Day 11**

Massage, music therapy, speech therapist, art therapy

Significant moments- In the middle of the day during the listening to music Dasha was aggressive, but then she calmed down. She was invited to go on the ippotrainer. It was the first time when body percussion became active! Sitting in the ippotrainer Dasha repeated the rhythmic claps: hips, chest, shoulders.

### **Day 12**

Massage, music therapy, speech therapist, sensory integration

Significant moments- Dasha felt good, listened with pleasure, repeated movements of the body percussion. She returned to the exercises with the drums. At one of the lessons the speech therapist asked Dasha not to touch her nose. Dasha looked at her eyes and said: "Come out." All therapists were pleased, because it was spontaneous speech.

### **Day 13**

Massage, music therapy, speech therapist, sensory integration

Significant moments- At one of the lessons Dasha was listening to a module silently sitting in a chair, but suddenly she began to hit herself on head. We managed to distract her with playing puzzles. More spontaneous speech has appeared in the lessons with the speech therapist. Dasha started to do an exercise that she refused to do earlier.

### **Day 14**

Massage, music therapy, speech therapist, art therapy

Significant moments- She listened with pleasure, and sang. A body percussion session was well done. At the lesson with a speech therapist she learned to come up with two-word phrases for pictograms. She made a choice of pictograms by herself and said: - A dog goes, a boy lies, etc.

### **Day 15**

Massage, music therapy, speech therapist, sensory integration

Significant moments- During listening to and 2 minutes after Dasha clicked in the rhythm of the music, sang her "skets" - all of it was very rhythmical. Body percussion: she repeated the rhythm after the teacher: the shoulders and chest. Dasha liked the exercise with vibration: to sing and pat herself on the chest. At some moment, body percussion turned into auto-aggression, Dasha started hitting herself. Teacher turned on album 8, module 3 module, and Dasha stopped. At the lesson with the speech therapist Dasha came up with phrases for pictograms. She called words on the pictures, shared words into syllables.

### **Day 16**

Massage, music therapy, speech therapist, sensory integration

Significant moments- At the second lesson Dasha refused headphones, she listened to music through the audio system. She swung on the swing, sang, got obvious pleasure. The improvisation on drums passed brightly. She repeated claps and exercises with vibration after therapist. She stomped in the rhythm. She listened to the module 1 also through the system. Dasha sang, played the piano.

## **CONCLUSION**

In the questionnaire on the results of the training Dasha's mother noted that improvements occurred in the following areas: speech recognition, self-speech, communication with adults, and interest in cognitive activities. Her mother said that Dasha's speech activity has increased significantly with more active phrases. At home during the inTime training no negative developments in behavior were observed.

Results of the functional diagnostics using the auditory brainstem response (ABR) following inTime training showed marked improvement in P300 latency indicating improvements in cognitive function, attention, and activation of cerebellum functioning which are consistent with the clinical findings.