

## *Developmental Gains for a Child With Dyslexia and Allergies*

*Beata Oginska-Dutkiewicz, MA, and Teresa-Ewa Busz, MA, MNRI® Core Specialists and Instructors, Zielona Gora, Poland*



**S**ummary: The authors of this article share their experience, clinical observations, and remarks about the case study of a boy with severe dyslexia and allergies. They describe the significant impact of allergies on the functioning of the central nervous system and positive changes in his health and neuro-sensory-motor development as a participant of the MNRI® therapeutic programs from the age of 6.

Szymon is the son of author and MNRI® Core Specialist, Beata Ogińska-Dutkiewicz.

### *Problems of Allergy*

Szymon was born on March 3, 2000 via C-section. He weighed 4kg (8.8 lb). Szymon received 10 points on the APGAR scale which was supposed to indicate that he is in a good condition and health. For the first 24 hours he was separated from me due to my recovery after epidural anesthesia. We stayed in the hospital for 8 days, the standard recovery time after a C-section. Szymon was doing well, with a good Sucking Reflex and was able to sleep easily.

After returning home, my son developed intestinal difficulties. I only breast fed him but he exhibited a negative reaction to my milk. This was a big surprise. This started the battle of figuring out what I should eat and what I should avoid eating to avoid triggering his sensitivity. Carefully following my doctor's orders, I followed a progressively more restricted diet, but this still didn't have a significant impact on my child's health. For many months he had great digestive difficulties – diarrhea and long and painful bouts of colic. He slept very little for a newborn and was restless. He developed a rash on his entire body causing severe itching, unease, hyper vigilance, and exhaustion. Disoriented, confused, and worried, we traveled from one specialist to another trying to find answers to help our son. Frequently doctors would give contradictory treatment plans for Szymon's symptoms. At last at the age of 8 months, Szymon was diagnosed with atopic dermatitis (eczema), food and airborne allergies.

Atopic dermatitis is a hypersensitivity of the body mast cells that are found in the skin, mucous membranes of the nose, throat, ear, larynx, lungs and intestines. Mast cells are best known for their role in allergy and releasing histamines. However, they also play an important protective role in wound healing and defense against pathogens. Szymon's immunoglobulin E (IgE) blood test results showed strong allergies. Other tests were also positive showing reactions to various foods, pollen, and fungus.

We went through countless visits with allergy specialists. Medications recommended by one doctor where



Beata Oginska-Dutkiewicz Teresa Ewa Busz

questioned by the next. This chaos of information seemed to have no end.

Szymon had a list of restricted food and other items that he was not even allowed to touch: wheat products, fruits, flowers, leaves, and basically anything that is connected to nature. All the restrictions and ongoing challenges made us all feel exhausted and hopeless.

Over the period of two years our house became almost empty. We got rid of all the plants, window covers, couches, and anything that could collect dust. The washing of floors, dusting of furniture, scrubbing bathrooms (sources of dangerous fungus and mold) became my daily routine. After 2 years, Szymon's allergist recommended he stop all contact with my sister, Szymon's aunt, who has a cat and a dog at home. That was more than I could bear and pushed me to start my search for alternative solutions to help my son.

We started homeopathy. After few big rashes we noticed positive changes in the appearance of the skin. There was no more itching and old sores caused by scratching began to heal. My son felt better and was also calmer. Unfortunately, soon after that, Szymon started developing problems with his breathing. He came down with bronchitis and multiple bouts of pneumonia. He was eventually diagnosed with asthma. Inhalers and steroid medications stopped ongoing inflammation and prevented future asthma attacks.

For 6 years Szymon was on a special diet. NO gluten, no milk or dairy, no eggs, seafood, nuts, citrus. Food allergies would be activated immediately after his contact with the allergen. He would have difficulty swallowing, would start choking, produced excessive amounts of saliva, and suffered from abdominal pain. Even today Szymon's diet is very limited and the introduction of any new product is always undertaken with great caution.

As an MNRI® Core Specialist I was aware and noticed that besides poor immune system and severe allergies, Szymon's motor development has also been impacted. His attention span was short, his emotions and mood were unstable, he had fears and phobias. In terms of motor function, Szymon presented with poor static and dynamic balance, non-uniform muscle tone, and unwillingness to perform any fine motor skills including writing, drawing, etc.

After studying and researching huge amounts of material, I realized that everything that he had gone through (struggles and challenges with his health, medications used to control his allergies) were aggravated by the constant fear and stress of his parents who tried to keep him safe. All of those components impacted his development and especially the development of his brain. The brain isn't an isolated organ. All physical experiences of the body will impact the brain and central nervous system.

Dr. Danuta Mylek, specializing in allergies, author of the book *The Allergy* (2001) wrote, "The brain doesn't sneeze, or itch, or cough. But it does manifest symptoms typical to this organ: behavioral changes, difficulties with attention and concentration, poor memory, difficulties with sleep or nervous ticks."

From beginning, in trying to protect Szymon and following doctors' recommendations, I was teaching him how to be very careful and how to avoid the risks of potential allergens. In doing that, I limited his natural curiosity and desire to explore and discover. That, of course, had an impact not only on his motor development but also his emotional development. Szymon started to be uneasy and fearful of unexpected allergic reactions of his body.

Children and parents coming to my office are usually searching for answers. They want to find the reasons for their children's difficulties with concentration, attention, memory, elevated anxiousness, uncertainty, poor psychomotor endurance or delayed motor and psycho-emotional development. Based on the 'parent interview' we gather, the data indicates that 70% of children presenting with the above symptoms have some kind of allergies and 80% of these children had complications during delivery.

I am convinced that allergies, as chronic disease, have a very strong impact on a child's psycho-motor development. I witnessed that with my own son and continue seeing it with the children I work with.

### ***Impact of MNRI® on Treatment of Allergies and Strengthening of Immune System Function***

Our clinical observations have been validated by scientific experiments conducted in Russia. Based on the results of the research, MNRI® has been shown to have a significant positive impact on hormonal regulation and the immune system of patients (children and adults) treated for recurring pulmonary infections. Chronic inflammatory reactions of the pulmonary system are closely correlated with poor regulation and activity of the immune system.

It has been demonstrated that using MNRI® allows for positive changes in functioning of the immune system. It allows for normalization of levels of T lymphocytes (CD3, CD4, CD8) and the NK natural killer cells as well

as metabolic functions of leukocytes, and levels of regulatory and anti-inflammatory cytokines.

A statistically valid increase was observed in the level of cells of various antigens and NK natural killer cells CD16. The above cells are key actors in the innate immune system and are known to have significant biological function in control against cancer cells, viruses and parasites. (Masgutova, Akhmatova, Kisielewski 2008).

Besides the immuno-regulatory impact, MNRI® also increases the level of cortisol to within physiological norms. Scientific studies show that MNRI® can affect the level of the Adrenocorticotrophic hormone (ACTH) of the pituitary gland, and through that, regulation of the production of IL-1. (Masgutova, Akhmatova, Kisielewski 2008).

### *Dyslexia*

During the early school years my son appeared to have a predisposition for dyslexia. Several authors studying this subject claim that dyslexia is a symptom presented by children with a normal intellectual development but having difficulty with processing of information. Frequently accompanied by difficulties with: perception, planning, memory, speed of information analysis, differentiation and decoding of time-space orientation, sensory and cognitive modeling.

Dyslexia and the accompany symptoms impact the following abilities: writing, reading, counting as well as motor coordination (fine and gross motor control), programming, and control (Dubrovina 1991; Gross, 1987; Bogdanowicz, 2004)

Possible causes leading to dyslexia are related to dysfunctions in integration of cognitive and motor functions, neuropsychological deficits in visual, auditory and motor functions of language as well as memory (visual, auditory, and motor), atypical lateralization of higher cognitive functions, poor awareness of body and space orientation, or poor orientation in static motor control.

The etiology of dyslexia has multiple levels. There are elements of genetics, anatomical dysfunction, and neurophysiological dysfunction of the central nervous system during pregnancy and delivery, delayed neurodevelopment, environmental factors, family structure and function, not to mention a lack of proper early diagnosis and intervention (Bogdanowicz, 2004; Goldberg, 2009)

### *Szymon's Diagnosis from the Psychological and Educational Center*

Based on the diagnosis provided by the Psychological and Educational Center, Szymon presented with perceptive-motor deficits, and dysfunctional cognitive processing (poor visual, auditory and kinesthetic-motor processing), diagnosed as severe developmental dyslexia.

Szymon's diagnosis was done relatively early, his physical development as a baby was within normal limits. He started to meet all milestones on time including sitting up, crawling, and walking at 12 months. Only at the age of 3 did I notice small tremors of the hand whenever Szymon tried to do something more precise or complex that required fine motor control. Building a tower of blocks would be a very difficult task. Szymon couldn't assess distance, level of strength, or pressure to use. His body was expending a great deal of energy into ineffective movements. Negative experiences led to avoidance of fine motor functions like playing with puzzles, drawing, playing with clay, or playdough. Even as he tried to draw, Szymon was only able to do it for a short time and would usually draw chaotic lines using non-uniform levels of strength and with poor precision. His first attempts at writing during preschool revealed Szymon's grapho-motor problems.

Szymon liked to move, he liked running, climbing, and playing on the playground. As a young boy he liked to place his body with the head positioned upside down.

When falling asleep he would lie with his legs curled under his belly (TLR position) or on his back with an extended neck and open mouth. His speech started developing at the normal time, but when it came time to start using longer sentences, Szymon was slow to find the right words. Many children and adults didn't have enough patience to wait for him to finish his sentences. Szymon's stuttering became worse while his resistance to speaking altogether increased. Up until the age of 10, Szymon wasn't able to pronounce the rolling "r" sound.

### *Therapy*

After noticing more negative symptoms with Szymon's development I continued searching for ways to help him. I started taking classes, workshops, and became a Sensory Integration Therapist, a Special Education teacher, and a Brain Gym® specialist.

In 2005, I participated in the Dynamic and Postural Reflex Integration class where I met Dr. Svetlana Mas-

gutova. From that day on I continued my studies with her to become a Core Specialist in MNRI®.

At the age of 6, Szymon had an MNRI® Assessment performed by Dr Masgutova that confirmed his diagnosis of sensory and sensory motor integration dysfunctions. Szymon most certainly needed help to improve the functioning of his nervous system. Szymon's life was filled with constant challenges: the situation of his delivery (being born via C-section), genetic predispositions, side effects of long term allergies and medications used to control it, as well as a diagnosis of severe dyslexia and other learning disabilities.

His early school years were difficult. He exhibited difficulties with writing, reading, and ability to focus his attention. His nervous system was prone to quick overload. Emotionally, Szymon also had a difficult time. He would hold on to stressful responses for a long time after the fact. After receiving a poor mark, his feelings of upset and failure would persist.

With all of these challenges, Szymon didn't like school. He was stressed, fearful, uncertain, and would withdraw easily. The diagnosis of perceptive-motor delays, dysfunctional cognitive processing and severe developmental dyslexia made it very difficult for him to learn and effectively participate in school activities. The recommendations we received from the Psychological and Educational Center was for Szymon to read and write more in order to practice. Such advice sounded to me like a cruel joke!

Instead of following the advice that didn't make any sense to me I started using Brain Gym® exercises, art therapy, and from 2006 on, MNRI® to facilitate the development of my son's nervous system.

MNRI® reflex integration diagnosis demonstrated clearly the areas of need within Szymon's sensory motor processing. We started working with the reflex integration program looking for improvements in motor development, cognition and perception. To our surprise, MNRI® positively impacted many other areas of Szymon's development.

In working with Dr. Masgutova, it took us time to understand fully the meaning of such statements as, "there needs to be a strong focus of working with body stress/protective responses; working with Spinal Perez will help with his allergies" or "we need to pay attention to the development of muscle bulk, bones, and joints – we need to work with structure using the neurostructural integration protocol"; "stimulation of skin receptors and proprioception is also very important." Deeper understanding of all these statements, their scientific and neuro-physiological meaning and the power of the method came to us step by step.

With deep faith and respect for Dr. Masgutova's knowledge and experience, we continued to use MNRI® with Szymon. We could see changes even at times when life wouldn't allow us to follow the recommended intensity and frequency. The journey brought challenges and successes. Still, with all of these ups and downs, Szymon continued to make progress. Using MNRI® we were impacting not only motor development but also the physiology of Szymon's whole body. His immune system got much stronger. At the age of 9 after pulmonary function tests at the Center of Pulmonary Diseases in Karpacz (metacholine challenge test, spirometry test) *Szymon's asthma diagnosis was overturned!* Other positive changes manifested themselves in weight gain and finally the growth of muscle bulk. For years prior to starting the MNRI® program, Szymon looked very skinny, had poor strength and underdeveloped musculature.

Another big achievement came at the age of 10. After participating in the MNRI® Family Conference where Szymon received 6 hours of therapy daily, for 10 consecutive days, he started pronouncing rolling "r"! As we know altering the pronunciation of this specific consonant at the age of 10 is very difficult to achieve. This new ability immediately translated to emotional wellbeing and increased his self-confidence. The clarity of his pronunciation also improved significantly and there was a decrease in stuttering. All those changes positively impacted Szymon's willingness to speak/converse and dramatically improved his confidence in communication.

At present Szymon participates in school theatre performances, which he loves. He can speak clearly, projecting his voice loud and clear. His speech is fluent and pronunciation flawless.

Currently we are working on 'school stress' which still has a negative impact on Szymon's development. The other priority is strengthening his pulmonary system. Based on researched conducted by Dr. Masgutova we



Szymon at age 10 on balance board.

## REFLEXES

know that children with dyslexia have significant challenges with developing and using higher executive functions of the brain. The harmony of psychomotor development is also more challenging for them.

Nonintegrated, not matured dynamic and postural reflex patterns will not support the development of higher levels and functions of the brain. They will not be able to optimally support development of auditory or visual perception. Additionally non-integrated reflexes disorganize the neurophysiological processes of activation and inhibition, thus negatively impacting self-regulation mechanisms and proper functioning of the whole brain. As a result they will impact behavior, motor and cognitive development as well as emotional regulation.

A reflex is a natural, genetically coded developmental program realized by the brain-body system from the moment of conception. It is a genetically given response for a specific stimulus. The basic function of a reflex is as a protection and survival response of the body. As the body matures, reflexes provide a basis for further development. Receiving sensory and proprioceptive stimuli through afferent pathways, the central nervous system and its network process the information and sends it out through efferent pathways back to muscles and organs/glands to organize and perform a particular motor response. (Masgutova, Akhmatova 2004, 2007). Each reflex pattern has specific time of development and maturation. If for whatever reason it does not go through that process it will not be able to properly support development of higher functions and skills.

Dr. Masgutova performed Assessments of dynamic and postural reflex patterns within a group of 580 children aged 6-19 with a diagnosis of developmental dyslexia. The results of the Assessments demonstrated that the level of reflex pattern integration has significant and in direct correlation with the children's abilities to process and decode information that serve as the basis for the processes of learning and memory function.

Table 1 presents the degree to which various nonintegrated reflex patterns appear in a sample of 580 children with dyslexia (age 6-19 performed between 1989-2002).

Data presented in Table 1 demonstrates the results showing that children with dyslexia often do not possess matured and integrated reflex patterns, especially ones related to development of auditory-visual functions and fine motor control.

- ATNR Asymmetrical Tonic Neck Reflex was not integrated in 83.3% of assessed children. This reflex is responsible for experiencing and developing one's own proprioceptive system, structural coordination of the body and auditory reflexes: mono and binaural hearing, language development, auditory processing, auditory memory, space orientation.

Table 1. below presents the degree to which various nonintegrated reflex patterns appear in a sample of 580 children with dyslexia (age 6-19 performed between 1989-2002).

	<b>Table 1. Reflexes</b>	<b>% of children w/ dyslexia w/o integrated reflex</b>	<b>Reflex Patter</b>	<b>Number of children</b>
1	ASYMETRICAL TONIC NECK REFLEX	83.3%	ATNR	483
2	BAUER CRAWLING	73.0%	BAUER CRAWLING	423
3	ROBINSON HAND GRASP	71.4 %	ROBINSON HAND GRASP	414
4	MORO EMBRACE	71.4%	MORO	414
5	LEG CROSS FLEXION EXTENSION	71.6%	LCF	412
6	SYMMETRICAL TONIC NECK REFLEX	70.1%	STNR	409
7	TRUNK EXTENSION	61.8 %	TRUNK EXT.	389
8	HANDS SUPPORTING	64.3%	HANDS SUPPORTING	373
9	BONDING	64.1%	BONDING	372
10	PAVLOV ORIENTATION	63.8%	PAVLOV	370
11	BABKIN PALMOMENTAL	56.9%	BABKIN	339
12	SPINAL GALANT	52.8%	GALANT	320
13	FLYING AND LANDING	52.2%	FLYING and LANDING	301
14	SPINAL PEREZ	44.8%	Perez	260
15	HANDS PULLING	43.1%	HANDS PULLING	250
16	BABINSKI	41.6%	BABINSKI	241
17	LANDAU	40.0%	LANDAU	232
18	THOMAS AUTOMATIC GAIT	35.7%	AUTOMATIC GAIT	207
19	TONIC LABYRINTHINE REFLEX	67.2%	TLR	121

- Bauer Crawling was not integrated in 73% of assessed children. Reflex responsible for development of: gross motor control and activity of the whole body, reciprocal/cross lateral movements, head righting, binocular vision, binaural hearing.

- Robinson Hands Grasp was not integrated in 71.4%, Babkin Palmomental in 41.6%, Hands Pulling 43.1% of assessed children. These reflexes are responsible for development of manual skills like writing, drawing, eye coordination, speech production. Additionally, phases of sequential fingers opening and closing underpin differentiation, calculations, and other math skills.

- TLR Tonic Labyrinthine Reflex was not integrated in 67.24% of assessed children. This reflex is responsible for postural control, protective mechanisms of freezing and fight or flight, selective

visual-kinesthetic perception and information processing.

- STNR Symmetrical Tonic Neck Reflex was not integrated in 70.1%, Trunk Extension in 61.8% of assessed children. Both reflexes are responsible for head and trunk position, binocular vision, binaural hearing, horizontal and vertical eye tracking, convergence and divergence, vestibulo-ocular and ocular-kinetic reflexes. They also participate in development of visual skills, including comparison, visual analysis, visual prioritization, reading, and writing.

- Spinal Galant was not integrated in 52.8% of assessed children. This reflex is responsible for postural control of the spine, motor coordination, reciprocal-lateral coordination of posture and movement, development of attention, consciousness, fast brain waves activation serving to stimulate awareness, alertness, ability to notice and memorize.

- Spinal Perez was not integrated in 44.8% of assessed children. This reflex is responsible for development of spinal postural control, and detoxification of the brain through activation of peripheral nervous system.

Each column in the graph at right corresponds to the rows of Table 1 presented above.

Szymon's assessment results were representative of the data of the group of children with dyslexia.

Our therapeutic work with Szymon included several programs:

- Dynamic and Postural Reflex integration
- Neurostructural integration
- Archetypes
- Facial and Auditory Reflex integration
- Tactile integration

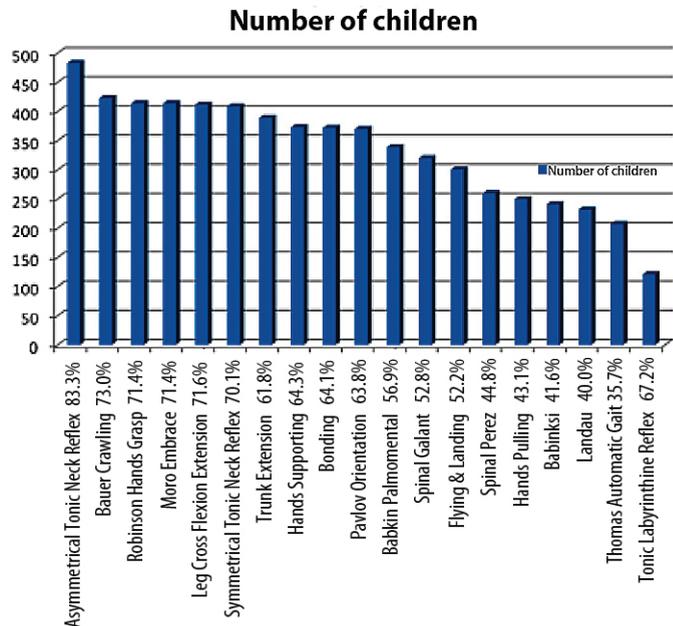
All programs facilitate and support each other and allow for a holistic approach to treating the entire musculo-skeletal structure of the body, proprioceptive and tactile systems, motor coordination and, above all, organizing the nervous system.

Neuroplasticity of the human nervous system and sensory integration allowed for positive changes in the functioning of Szymon's brain. The genetically coded resources embodied by motor reflex patterns that are naturally available to us can be recognized by the brain and allow for proper foundations for further development to be created.

Month after month Szymon's body was changing. Among these changes were improvements in his level of motivation and his ability to concentrate and learn. After each diagnostic round by Dr. Masgutova (February 2006, March 2011, and April 2012), ongoing positive changes in the level of development and maturation of reflex patterns was noted. As a mother and MNRI® Core Specialist, the correlation between the level of integration of reflex patterns and Szymon's development and maturation was unquestionable and served to motivate our continuing work.

The tables and charts (on the next page) present the results of three consecutive Assessments of reflex patterns integration level performed in February 2006, March 2011, and April 2012. Analysis of the results of the Assessments demonstrates that development and maturation of the reflex patterns improved from being functional at a very low level (results from 12-13.75) of development of basic reflex patterns to the next level, functional but at a low level (14-15.75). Mathematically these results are significant as analyzed with the statistical model developed by Prof. A. Krefftt.

An important factor having significant impact on the quality and speed of development and maturation



## REFLEXES

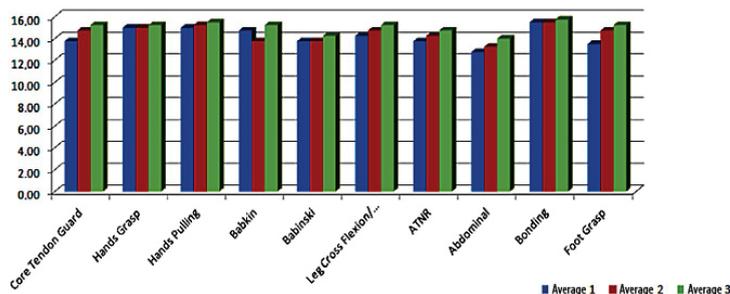
of Szymon's reflex patterns was his very fast growth. Over the period of 3 years Szymon's body structure and mass had changed dramatically. He grew from 138 cm (4' 6.3") and 34 kg (75 lbs.) in 2010, to 164 cm (5' 4.5") and 48 kg (105 lbs.) in 2012. Such fast growth of a young man in such a short time had a strong negative impact on his coordination, proprioception, musculo-skeletal system. Our therapeutic approach was to support his development and body structure with all MNRI® tools. At the present time in December of 2013, Szymon is 173 cm (5' 8") tall and it seems that his body will continue to grow.

During such intense structural changes and ongoing growth, we will have many more therapeutic and developmental challenges to overcome.

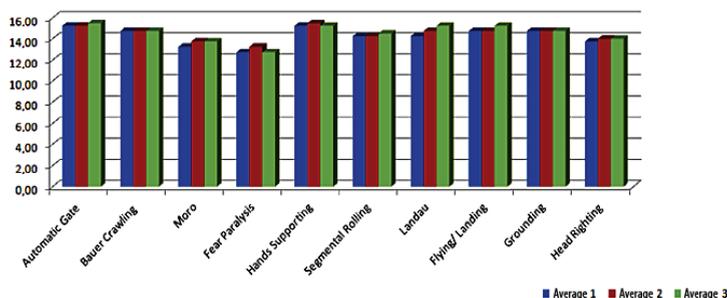
We have a deep trust in the approach that we started a few years ago and will continue working with MNRI® to support Szymon's further development and maturation.

At the present time Szymon is in middle school, he knows how to read and write (abilities that at the beginning of his educational journey were questioned). His writing is clear but his graphomotor skills are below his age level. He still has problems with spelling and his reading, although relatively slow, continues to improve. When reading 'in his head' he can do it much faster. His attention span has grown to about 1-1½ hours – a very important achievement is his progress in self-regulation in stressful situations. Szymon is more resilient in the face of stress, but when it does happen he will ask for MNRI® sessions.

Szymon Durtkiewicz		Left-Right (Lateral-Median/Sagittal) MCS									
Reflex pattern		1	2	3	4	5	6	7	8	9	10
		Core Tendon Guard	Hands Grasp	Hands Pulling	Babkin	Babinski	Leg Cross Flexion/Extension	ATNR	Abdominal	Bonding	Foot Grasp
Date:	//2006	Average 1	13.75	15.00	15.00	14.75	13.75	14.25	13.75	12.75	13.50
	//2011	Average 2	14.75	15.00	15.25	13.75	13.75	14.75	14.25	13.25	14.75
	//2012	Average 3	15.25	15.25	15.50	15.25	14.25	15.25	14.75	14.00	15.25



Szymon Durtkiewicz		Up-Down (Superior-Inferior/Horizontal) MCS									
Reflex pattern		1	2	3	4	5	6	7	8	9	10
		Automatic Gate	Bauer Crawling	Moro	Fear Paralysis	Hands Supporting	Segmental Rolling	Landau	Flying/Landing	Grounding	Head Righting
Date:	//2006	Average 1	15.25	14.75	13.25	12.75	15.25	14.25	14.25	14.75	13.75
	//2011	Average 2	15.25	14.75	13.75	13.25	15.50	14.25	14.75	14.75	14.00
	//2012	Average 3	15.50	14.75	13.75	12.75	15.25	14.50	15.25	15.25	14.00



Szymon today at the age of 13 years.

Szymon has great communication with his peers, he is very understanding, empathic, and easily forgives. As a sensitive, cheerful, and optimistic young man, also accepting of others and their differences. His personality is very likable and he has many friends who love and respect him for his qualities. Szymon continues to participate in school theater and enjoys acting. He also loves soccer.

In November of 2013 Szymon again visited the Psychological and Educational Center and was reassessed. Results demonstrated very positive changes in many tests. Szymon reached the norm in reading comprehension and showed significant improvement in: fine motor control, visual and spatial orientation and analysis, audio-visual skills, and visual-motor skills (visual-motor coordination, visual memory).

I am very happy and proud of my beloved son! I trust that he will become a wonderful, curious, and responsible adult.

I would like to thank Dr. Svetlana Masgutova for her teaching and years of support. I also send my thanks to all my colleagues from Poland who continue to support our therapeutic work with Szymon and my international colleagues in the USA, Canada, Belgium, Estonia, and Sweden for ongoing sharing of information, kindness, and friendship. To all of you, I send my warmest regards.

### References

- Bogdanowicz, M. (2004). *Dyslexia risk: Problems and diagnosis*. ('Ryzyko dysleksji. Problem i diagnozowanie'), Wydawnictwo. Gdańsk, PL.
- Dubrovina, I. V. (1991). *School psychology service: theoretical and practical aspects*. (Russ.). Moscow, Russia: Scientific Research Institute of General & Educational Psychology.
- Goldberg, E. (2009). *The new executive brain: Frontal lobes in a complex world*. New York: NY, USA: Oxford University Press.
- Gross, D. R. (1987). *Psychology: The science of mind and behavior*. London, UK: Hodder and Stoughton.
- Kreffft, A. (2007). *Diagnosis of functions of invisible phenomena* (Statistical Mathematical Analysis). Oficyna Wydawnicza Politechniki Wrocławskiej. Wrocław, Poland.
- Masgutova, S. K., Akhmatova, N. K. (2004, 2007). *Integration of dynamic and postural reflexes into the whole body movement system*. Scientific edition: Prof. N. Akhmatova. (Pl.). Warsaw, Poland: MINK.
- Masgutova, S. K., Akhmatova, N. K. (2004). *Children with challenges – Movement development and reflexes integration*. (Pl.). Warsaw, Poland: ISMI.
- Masgutova, S. K., Akhmatova, N. K., Kiselevsky, M. V. (2008). Clinic-immunological assessment of effect of the therapy program of neuro-sensory-motor integration of reflex patterns at chronic inflammatory diseases of respiratory system. *Russian Immunology Journal*. 2(11), #4. (Russ.). p. 454–463.
- Masgutova, S. K., Kowal, J., Mazur, G., Masgutov, D. P. (2005). *NeuroKinesiology Tactile Therapy™* by Dr. S. Masgutova, Scientific Edition: Dr. A. Regner, J. Szymczak. (Pl.). Warsaw, Poland.
- Masgutova, S. K., Regner, A. (2007). *Language Development Using Senso-Motor Integration Approach*. Scientific edition: Prof. T. Galkowski, Dr. B. Dolyk. MISM, Continulo. (Pl.), Warsaw, Poland: MINK. p. 196.
- Masgutova, S. K., Sadowska, L. (2005, 2006). The use of Edu-K for children with learning difficulties: early developmental dynamic. In materials of Polish National Conference: *New Methods of Movement Development and Learning Facilitation: Children with Learning Difficulties, Hyperactivity and Autism*. Scientific edition: Dr. S. Masgutova, Dr. Anna Regner, Prof. M.D. E. Ronin-Walknowska. Maternity Department, Pomorska Medical Academy in Szczecin MINK, (Pl.). Warsaw – Szczecin, Poland. p. 164-176.
- Merzenich, M. (2013). *Soft-wired: How the new science of brain plasticity can change your life*. San-Francisco, CA, USA: Parnassus Publishing.
- Pavlov, I. P. (1960). *Conditioned reflexes: An investigation of the physiological activity of the cerebral cortex*. (Anrep G.V., D. Sc. Trans., 1960). New York, NY, USA: Dover Publications.
- Piaget, J. (1976). *The grasp of consciousness: Action and concept in the young child*. Cambridge, MA, USA: Harvard.
- Sechenov, I. M. (1961). *Reflexes of the brain*. (Russ.). Moscow, Russia. p. 28-54.
- Venger, L. A. (1988). The origin and development of cognitive abilities in preschool children. *International Journal of Behavioral Development*, 11(2). (Russ.). Moscow, Russia. p. 147 – 153.
- Vygotsky, L. S. (1986). *The child psychology: The problems of child development*. In 6 Books. Book – 4. (Russ.). Moscow, Russian: Pedagogika.



*Szymon, our dear son, you grow showing how beautiful development can be and how it is possible to move into different conditions! Congratulations to you! – Your mother, your friends, MNRI® Specialists, and Dr. Masgutova, with love and respect.*